

The City College

Undergraduate Bulletin

2009-2011

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Policies on Non-Discrimination and Sexual Harassment

The City College prohibits discrimination on the basis of age, gender, sexual orientation, transgender, disability, genetic predisposition or carrier status, alienage or citizenship, religion, race, color, nationality or ethnic origin, or veteran, military or marital status in its student admissions, employment, access to programs, and administration of educational policies. Questions, concerns, or complaints based on any of the above may be directed to the Office of Affirmative Action, Wille Administration Building, Room 200 (212-650-7331). In addition, the specific form of gender discrimination, "sexual harassment," is prohibited by the policies of the Board of Trustees of The City University of New York. Student complaints alleging sexual harassment should be directed to the Sexual Harassment Awareness and Intake Coordinator (see Appendix B, and the Sexual Harassment brochure for the name of the current Coordinator and a list of Committee members who may be contacted). Brochures are available in the Affirmative Action Office, the Office of Human Resources, the Office of the Vice President for Student Affairs and at the NAC Information Desk.

Important Notice of Possible Changes

The City University of New York reserves the right, because of changing conditions, to make modifications of any nature in the academic programs and requirements of the University and its constituent colleges without advance notice. Tuition and fees set forth in this publication (or website) are similarly subject to change by the Board of Trustees of The City University of New York. The University regrets any inconvenience this may cause.

A Message from the President

Welcome to The City College of New York! You are about to embark on a great adventure – and the people and ideas that you meet along the way will help you prepare for the future that you choose.

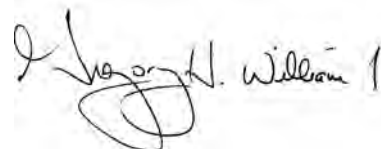
At the heart of your journey is the excellent education you will receive here at City College. At CCNY you will be taught by intensely committed faculty, whose internationally recognized achievements in fields as diverse as molecular biology, film and video production, creative writing, computer “morphing” and psychology, to name just a few, will be part of your classes. You may find yourself working alongside world-renowned scholars in search of a cure for cancer, or building a clean water system for a village in Honduras, or submitting a plan for the revitalization of downtown. Whatever you choose to study, you will be studying with the best.

Use this Bulletin to begin to familiarize yourself with our undergraduate majors and areas of specialization. Each one will prepare you to become a leader in an increasingly complex and global world, whether you are thinking about going on to graduate school or moving directly into the workforce. Perhaps you have already chosen a career and know exactly what you want to study. Or perhaps you want to explore as many different academic options as you can. CCNY’s rich curriculum offers you the depth and breadth to find your own path.

Of course, college equals more than classes, and life at City is as varied and exciting as our student body. And now you can live right here on campus! Bring your talents and energy to your undergraduate student government, to our varsity and intramural sports programs – or to the 90-odd student clubs. Whatever your passion, City probably has a club to match it; if we don’t, you can always start one.

I look forward to welcoming you personally to The City College.

Sincerely,

A handwritten signature in black ink that reads "Gregory H. Williams". The signature is written in a cursive style with a large, stylized initial "G".

Gregory Williams
President

Directory

The City College/CUNY
 160 Convent Avenue (at 138th Street)
 New York, N.Y. 10031
 Telephone: (212) 650-7000
www.ccnyc.cuny.edu

School and Division Offices

| | | |
|--|-------------|--------------|
| Architecture (Spitzer School of) | AR 122 | 212-650-7118 |
| Biomedical Education (Sophie Davis School of) | HR 107 | 212-650-5275 |
| Education (School of) | NA 3/203 | 212-650-7262 |
| Engineering (Grove School of) | | |
| Undergraduate | ST 209 | 212-650-8020 |
| Graduate | ST 152 | 212-650-8030 |
| Liberal Arts and Science (College of) | | |
| Humanities and the Arts (Division of) | NA 5/225 | 212-650-8166 |
| Interdisciplinary Studies @ CWE (Division of) | 25 Broadway | 212-925-6625 |
| Science (Division of) | MR 1320 | 212-650-6850 |
| Social Science (Division of) | NA 6/141 | 212-650-5861 |

Other Important Numbers

| | | |
|---------------------------------------|-----------------|--------------|
| Academic Standards | NA 5/216 | 212-650-8113 |
| Admissions | A 101 | 212-650-6977 |
| Bookstore | NA 1/103 | 212-650-7109 |
| Bursar | A 103 | 212-650-7218 |
| Career Center | NA 1/116 | 212-650-5327 |
| Student Disability Services | NA 1/218 | 212-650-5913 |
| Financial Aid | A 104 | 212-650-5819 |
| Student Life & Leadership Development | NA 1/210 | 212-650-5002 |
| Honors Center | NA 4/150 | 212-650-6917 |
| Information Center | NA Lobby | 212-650-5338 |
| Intercollegiate Athletics | MR 20 | 212-650-8228 |
| International Student Services | NA 1/107 | 212-650-8106 |
| Intramural Recreation | MR 27 | 212-650-7556 |
| Library (Main) | NA Second Floor | 212-650-7271 |
| Architecture Library | AR 101 | 212-650-8768 |
| Music Library | SH 160 | 212-650-7174 |
| Science/Engineering Library | MR 29A | 212-650-8246 |
| Lost and Found | NA 4/201 | 212-650-6911 |
| Ombudsperson (student) | NA 1/104 | 212-650-8179 |
| Registrar | A 102 | 212-650-7850 |
| Security | NA 4/201 | 212-650-6911 |
| Student Affairs | A 204 | 212-650-5426 |
| Student Services | WG 107 | 212-650-5370 |
| Student Government | | |
| Undergraduate | NA 1/111 | 212-650-8175 |
| Graduate | NA 1/113 | 212-650-5319 |
| Wellness and Counseling Center | MR 15 | 212-650-8222 |

Academic Programs and Area Specializations

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The College of Liberal Arts and Science

The College of Liberal Arts and Science

GENERAL STATEMENT

The aims of the College of Liberal Arts and Sciences (CLAS) are several: firstly, to develop students as broadly cultivated and intelligent citizens of the world in which they live; secondly, to impart to students a critical cast of mind that is agile in its reception of new ideas, and accustomed to the mastery of new skills; thirdly, to educate students so that each may be able to perform some particular function in the community in a worthy and ethical manner. In attaining these goals, students fulfill requirements in a broad range of categories, such as art, literature, foreign language, social science, mathematics and natural science.

ACADEMIC STANDARDS

The attainment of high academic standards at The City College entails more than the maintenance of the minimal 2.0 G.P.A. Diligent attendance of classes, on-time arrival for each scheduled session, careful preparation for class and timely completion of coursework are also significant factors in ensuring academic success.

UNDERGRADUATE MAJORS AND DEGREES OFFERED

The College of Liberal Arts and Science offers courses of study leading to the degrees of Bachelor of Arts, Bachelor of Science, and Bachelor of Fine Arts. In addition, some departments offer combined B.A./M.A. programs (see individual department listings for further information). Through its constituent divisions:

- Humanities and the Arts
- Interdisciplinary Studies at the Center for Worker Education

- Science
- Social Science

the College of Liberal Arts and Sciences offers undergraduate degrees in over thirty-five fields. Advisors are available in the office of each divisional Dean to assist students in choosing a major and planning an appropriate academic program.

DEGREE REQUIREMENTS

To be awarded a degree by the College of Liberal Arts and Sciences, all students must:

1. Complete a minimum of 120 credits. These credits are composed of core/general education requirements, major requirements and free electives.
2. Maintain a minimum "C" or better average (i.e., a G.P.A. of at least 2.0) for all coursework taken at The City College.
3. Satisfy a residency requirement by completing at least 60% of their major at City College.
4. Students must complete either a total of 84 credits or the final 32 credits at City College.
5. Pass all required College and CUNY proficiency exams.
6. Clear their account of any fees and fines due.

TRANSFER STUDENTS

All valid liberal arts credits from other institutions are transferable and will be credited towards the College of Liberal Arts and Science degree. All transfer students are responsible for insuring that they do not repeat prior coursework. Repeated coursework is not applicable towards the City College degree.

All transfer students must meet with the designated advisor to discuss the appropriate sequence of courses necessary for their degree.

THE OFFICE OF ACADEMIC STANDARDS

The Office of Academic Standards (OAS) convenes and coordinates the activities of the CLAS Committee on Course and Standing. The committee acts on all matters relating to academic standards such as reinstatement appeals for students who have been dismissed for failure to maintain a minimum 2.0 G.P.A., requests for core/general education substitutions, and appeals by students who seek to withdraw from courses after the institutional deadline has expired. The committee consists of eleven faculty members elected by the Faculty Council. All student appeals must be submitted in writing with appropriate supporting documents. Faculty who are in agreement with a student appeal may submit letters of support, and advisors may assist the student in preparing the appeal. Neither students nor faculty appear in person before the committee; all appeals are presented to the committee by the Director of Academic Standards, who serves as the non-voting Chair. The Director/Chair may act on the committee's behalf or advise appropriate action. The Chair also communicates the outcome of the appeal to the concerned student and faculty in writing.

The Director of Academic Standards also serves as the college-wide Academic Integrity Official and is responsible for investigating issues of suspected academic dishonesty.

Department of Anthropology

(DIVISION OF SOCIAL SCIENCE)

Professor Arthur K. Spears, Chair • Department Office: NA 7/112 • Tel: 212-650-7350

GENERAL INFORMATION

The City College offers the following undergraduate degree in Anthropology:

B.A.

PROGRAMS AND OBJECTIVES

Anthropology, the study of humankind, seeks to produce useful generalizations about people and their behavior and to arrive at the fullest possible understanding of human diversity.

Anthropologists test hypotheses largely through fieldwork. The program at City College is designed to offer students background in the four fields of the discipline:

- **Archaeology**
- **Sociocultural Anthropology**
- **Anthropological Linguistics**
- **Biological Anthropology**

SECONDARY SCHOOL TEACHING

An approved program of courses provides training in both subject matter and teaching methods that prepares the student for New York State certification. Graduates will be eligible to teach in NYS schools. For more information, please consult the Department of Education section of this Bulletin.

REQUIREMENTS FOR MAJORS

Students majoring in Anthropology must complete the following:

Required Courses

| | |
|---|---|
| Anthropology: | |
| 20000: Archaeology | 3 |
| 20100: Cross-Cultural Perspectives | 3 |
| 20200: Languages and Dialects in Cross-Cultural Perspective | 3 |
| 20300: Human Origins | 3 |

One 30000-level course 3

Elective Courses

Additional credits 15

Total Credits 30

As many as 6 of the 15 elective credits may be related courses outside the Department of Anthropology, e.g. courses in Asian Studies, Biology, Black Studies, History or Sociology. These courses must be chosen in consultation with a departmental advisor.

Advanced students with good grade point averages may enroll in graduate courses on the recommendation of a faculty member and the Dean of the Division of Social Science.

ADDITIONAL REQUIREMENTS

In addition to major requirements, all Anthropology majors must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) *or* Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)
2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

REQUIREMENTS FOR MINORS

Fifteen (15) credits of anthropology courses, not including Anth 10100.

It is recommended that the minor include at least one course from each of the four subfields of anthropology.

After the student has completed the minor requirements and

1. had her/his anthropology advisor sign off on them, doing this at least by the beginning of the semester before graduating, the student should
2. notify the Registrar's Office in writing that she/he wants to have the Anthropology Minor noted on her/his transcript.
3. The notification letter must be accompanied by a letter from his/her anthropology advisor stating that the requirements have been fulfilled.

ADVISEMENT

General Advisors

Students seeking information on Anthropology courses or the major should contact the Anthropology Department Office, NA 7/112, where they will be directed to a faculty member in the appropriate subfield of Anthropology.

Honors Advisor

Professor Arthur Spears

FACILITIES AND ACTIVITIES

The Anthropology Society

The Anthropology Society is an ongoing student organization that sponsors programs of anthropological interest.

AWARDS

The Ward Medal

The College gives the Ward Medal annually to the graduating senior demonstrating the greatest proficiency in the field of Anthropology.

COURSE DESCRIPTIONS

The general prerequisite for elective courses is either Anthropology 10100 or sophomore standing, or permission of the instructor. Other prerequisites may be listed under certain courses.

CORE COURSES

10100: General Anthropology

Humankind from its prehistoric beginnings in Africa and its evolution to the present; human nature; cultural bias and fallacies of cultural and racial superiority; society, social groups (ethnic, racial, class, etc.) and social stratification; cultural change and diffusion; the cultural vs. the individual and biological; the interaction among biology, environment, and culture; conflict, culture change, and "modernization"; and ritual, symbol, beliefs, values, customs and language. 3 hr./wk.; 3 cr.

10101: General Anthropology—Honors

Humankind from its prehistoric beginnings in Africa and its evolution to the present; human nature; cultural bias and fallacies of cultural and racial superiority; society, social groups (ethnic, racial, class, etc.) and social stratification; cultural change and diffusion; the cultural vs. the individual and biological; the interaction among biology, environment, and culture; conflict, culture change and "modernization"; and ritual, symbol, beliefs, values, customs, and language. 3 hr./wk.; 3 cr.

INTRODUCTORY COURSES

13300-13600: Tutorials in Anthropological Research Laboratory
See "Anthropological Research Laboratory" at the end of the Anthropology course listings.

20000: Archaeology

The basic aims and methods of archaeological field work and interpretation, with emphasis on the interrelationship of archaeology to general anthropology. Strategies involving the reconstruction of culture, history, past life ways, and processual and post-processual studies will be reviewed against a background survey of world prehistory. 3 hr./wk.; 3 cr.

20100: Cross-Cultural Perspectives

Human universals and differences in family life, economics, politics and religion in societies around the world. Insights about American life and about how the world's peoples are interdependent. Emphasis on major controversies and issues about gender relations, economic development, inequality, violence and aggression, religion, healing and cultural identity. (W) 3 hr./wk.; 3 cr.

20200: Languages and Dialects in Cross-Cultural Perspective

A survey of the nature, structure, and social use of languages and dialects. Topics included are sound, word, and sentence structure; multilingualism; speech events and genres; language and education; language and thought, child language acquisition; creole languages; and varieties of Spanish and African-American English. 3 hr./wk.; 3 cr.

20300: Human Origins

An introduction to human diversity, the relationship of humans to other animals, the fossil record, non-human behavior, genetics and forencics. 3 hr./wk.; 3 cr.

21002: Writing for the Social Sciences

To develop the skills necessary for writing in the social sciences through the methods and techniques used in Anthropology. The focus of the course is on ethnography (a primarily descriptive account of a single cultural scene). Students will explore the steps used to create an ethnography, including reviewing previous research, formulating hypotheses based on this review, gathering data through fieldwork, and writing a research paper on the results. Prereq.: Eng 11000. 3 hr./wk.; 3 cr.

ADVANCED COURSES

Archaeology

20500: Historical Archaeology

Archaeological investigations of the modern period. Topics covered include the archaeological method, European colonialism, gender class and ethnicity, the African, Irish, and other diasporas in the Americas. (W) 3 hr./wk.; 3 cr.

20501: Historical Archaeology Field School

Basic field experience in the creation of a research design, the excavation of selected sites, the recovery and classifying of artifacts, and laboratory analysis. Excavations will be conducted in the New York metropolitan area on local historic sites. (W) 6 hr./wk., lab. and excavation; 5 cr.

21500: The Origins of the State

The background and development of urban society in the Old World from the Neolithic

period. Life in the early cities of Africa, Asia and the Mediterranean, as revealed by archaeological data. The nature of and reasons for similarities and differences. (W) 3 hr./wk., 3 cr.

Sociocultural Anthropology

22500: Class, Ethnicity and Gender

Interrelationship of social organization with economical, political, and religious structures in selected societies chosen to represent various levels of integration in different parts of the world. Modern issues facing increasingly heterogeneous urban societies. (W) 3 hr./wk.; 3 cr.

22600: Culture, Personality, and Behavior

Anthropological approaches to the study of the interaction between cultural and psychological phenomena in different societies and ethnic groups. Topics include child rearing patterns; perception and logic; socialization patterns and the learning process; formal education and its interface with cultural concepts of class, status, knowledge, and power; maintenance and change of cultural and ethnic identity; adult personality and national character; trance and possession states; mental illness. (W) 3 hr./wk.; 3 cr.

22800: Anthropology of Urban Areas

Anthropological perspectives on the understanding of the urban experience. Urbanization and urbanism from an international perspective. The forces that shape people's lives in the metropolis. Topics will include the role of ethnicity, race, class, poverty and culture in urban life. Emphasis on urban institutions, ethnicity, race and class in New York City. (W) 3 hr./wk.; 3 cr.

22900: Cultural Change and Modernization

The impact of Western colonial systems on the politics and cultures of the Third World. The growth of new nations and national institutions in Africa, Asia and Latin America. (W) 3 hr./wk.; 3 cr.

23100: Anthropology of Law

The comparison of legal institutions and practices and of cultural concepts of danger and crime, conformity and conflict, and dispute management and settlement in non-Western societies and in the urban United States. Topics include law and social change; ordeals and verbal dueling; the relationship of marginal groups and individuals; American family law; and American Indian law. (W) 3 hr./wk.; 3 cr.

23200: Witchcraft, Magic and Religion

The relationship between social behavior and ideas about supernatural forces. Topics include the origin and role of religion in society; comparison of types of

supernatural beings, powers, and religious practitioners; the practice of witchcraft and magic in different societies and ethnic groups; the interpretation of ritual symbols and mythology. (W) 3 hr./wk.; 3 cr.

23600: Sex, Marriage, and Family in Cross-Cultural Perspective

Courting, mating and sexual patterns, psychocultural dynamics of marriage forms, rituals and mores, parenting patterns, and the impact of separation and divorce cross-culturally. (W) 3 hr./wk.; 3 cr.

24000-24700: Special Area Studies

A group of courses devoted to the study of the cultures and societies of major world areas. Economic patterns, social structures, political organization and religious life. Relation of traditional cultures to contemporary politics. (W)

24000: Peoples of Africa

Traditional and modern African cultures viewed on their own terms; African roots of all humanity; the nature of pre-colonial societies; legacy of slavery and colonialism. Special topics include apartheid, African arts and music, African descendants in the Americas, alternate healing systems, and communal religion and trance. (W) 3 hr./wk.; 3 cr.

24200: Peoples of the Caribbean

This course examines the cultural formation of the Caribbean and the diversity of contemporary Caribbean societies. Both the colonial and post-colonial experience of the Afro-Caribbean and the Hispanic Caribbean will be explored. Among the topics to be discussed will be family, religion, rural and urban life, race, color and class, and international migration. (W) 3 hr./wk.; 3 cr.

24300: Peoples of Latin America

Review of the pre-conquest civilizations of Middle and South America provides a historical basis for considering contemporary cultures and societies of the western hemisphere south of the U.S. border. Varieties of adaptation in horticultural villages of the Amazon, peasant cultivators of highland Andes and Mexico, and urban dwellers will be compared using recent ethnographies. Migration of Hispanics from Latin America to the U.S. will be addressed. (W) 3 hr./wk.; 3 cr.

24600: Peoples of the Middle East

3 hr./wk.; 3 cr.

24800: Field Work Methods in Cultural Anthropology

Firsthand experience with cultural diversity in New York City, with emphasis on direct observation in various neighborhoods and institutional settings. Problems of gathering and analyzing qualitative and

quantitative data, framing research questions, and the ethics of research in culturally unfamiliar settings. (W) 3 hr./wk.; 3 cr.

24900: Visual Anthropology

Selected world cultures and societies as viewed through the camera lens. Comparisons are drawn between visual and printed records, different styles of filmmaking, and changing cultural patterns. The evolution of anthropology as a discipline. Selected film topics include patterns of work, ritual, the construction of gender roles, and child socialization. (W) 3 hr./wk.; 3 cr.

25400: American Cultural Patterns

Anthropological perspectives on contemporary United States culture: ethnic and class variations; effect of mass communication on cultural expression; impact of business and commercial enterprise on the development of culture. Critiques of American culture from national and foreign sources. (W) 3 hr./wk.; 3 cr.

25500: Anthropology of Health and Healing

The cultural and ecological aspects of human disease, the evolution of humanity and its ills, and the study of healing on a cross-cultural basis. (W) 3 hr./wk.; 3 cr.

25600: Women in Cross-Cultural Perspective

Comparative study of women's social roles around the world and through history. The sexual division of labor and evolution of humanity. Family forms and sex roles in hunting-gathering and horticultural society. The forms and origins of patriarchy. Women and family in Third World and industrial nations today. Prereq.: Anth 10100, Women's Studies 10000, sophomore standing, or instructor's permission. 3 hr./wk.; 3 cr.

27200: Television & Film: Anthropological Perspectives on the Mass Media

How television and film reflect the socio-cultural environment in which they are produced. The emphasis is on the analysis of signs (language, nonverbal communication, and symbolism) in order to understand the ideological context of these media. (W) 3 hr./wk.; 3 cr.

32100: Health Issues and Alternatives

A comparative and holistic study of concepts and practices of wellness and healing in various cultures. The course examines the origins, philosophies and applications of diverse cultures' healing systems to the prevention and treatment of selected disease conditions. The class will also explore the many alternative modalities now available in this area. 3 hr./wk.; 3 cr.

32200: Immigrant and Refugee Movements and Cultures

This course covers the main issues, causes and effects of mass population movements. It is a comparative study of selected recent and current immigrant and refugee groups, their origins, cultures and current socioeconomic situations. It covers their strengths, challenges and contributions to their new societies. The realities of particular class, ethnic, gender, generation and political groups will be analyzed. Refugee and immigrant groups within communities of North America and other areas will be studied. 3 hr./wk.; 3 cr.

32300: Islamic Cultures and Issues

An introduction to basic beliefs, the socio-historical backgrounds of Islamic peoples, current geo-cultural spread, practices/acts of worship, and values and morals. The course examines Islam comparatively: traditional festivals and observances, family and community life, as well as customs and relationships with other communities. Also covered are Islamic contributions, issues, migrations and organizations, and frequent media stereotyping and misrepresentations. 3 hr./wk.; 3 cr.

32400: Violation of Human Rights

A review of the development of human rights accords and legislation, followed by an examination of international institutions overseeing and enforcing human rights standards. Special attention will be given to media and institutional responses to human rights issues, such as those tied to international, regional, and class injustices, with an emphasis on situations involving women and social minorities/oppressed groups. 3 hr./wk.; 3 cr.

33000: Contemporary Culture Theory

The theories underlying the analysis of archaeological and cultural data and differing explanations for cultural regularities: evolutionary, ecological, symbolic, Marxist, structuralist, political, and ethical issues and anthropological theory. Prereq.: Anth. 20100 and two additional elective courses in Anthropology or instructor's permission. (W) 3 hr./wk.; 3 cr.

33100: History of Anthropological Theory

History of the field of Anthropology. Nineteenth century evolutionary theories, and early 20th century historical particularism and structural functionalism. The personality and culture school. Colonialism and politics of anthropological theory. Prereq.: 20100 and at least two electives in Anthropology, or instructor's permission. (W) 3 hr./wk.; 3 cr.

35000: Race and Racism

An examination of the idea of race from biological, sociocultural, and historical

standpoints, particularly as it arose in support of the development of western European colonialism and imperialism. Also investigated will be the role of race/racism via-a-vis socioeconomic inequality, gender, class, ethnicity, and sexuality. (W) 3 hr./wk.; 3 cr.

Anthropological Linguistics

26500: Language and Society

Various regional and social class dialects are considered along with bilingualism and contact languages such as Haitian French Creole. Focuses on how behavior is affected by value judgments about dialect differences and how language is used to operate in different social contexts, including the classroom, workplace, neighborhood, and in multicultural situations generally. (W) 3 hr./wk.; 3 cr.

27300: Black English: Structure and Use

The grammatical structure of Black American English and how it is used in Black culture and the educational system. (W) 3 hr./wk.; 3 cr.

27500: Creole Sociolinguistics

The origin, history, and grammar of Haitian (French Creole) and related languages such as St. Lucian, Jamaican (Patois), and Guyanese. Topics include the use of Creole in education, Creole orthography, and the relationship of Creole languages to their European language lexifiers. (W) 3 hr./wk., plus conf.; 3 cr.

Biological Anthropology

28500: Human Heredity, Race and Intelligence

Environmental, cultural, and genetic interaction in human diversity and evolution. Topics: detecting inherited traits by pedigree, twins, population, chromosome and genetic code methods. Race, intelligence, sex roles, retardation, schizophrenia. Importance of culture and genetics in inherited diseases (sickle-cell trait, lactase deficiency), aggression and war. (W) 3 hr./wk.; 3 cr.

29000: Dynamics of Human Ecology

Interactions of environmental, cultural, and biological factors in human adaptation. Topics: proxemics, privacy; personal space, territory, crowding, population problems; kinesics (gestures); pollution, food, energy crises, aggression and war causes. (W) 3 hr./wk.; 3 cr.

29500: Bio-Cultural Anthropology

Environmental, social, nutritional, and political factors in human biological and cultural diversity. Topic areas: nature vs. nurture in sociobiology controversy; deprivation and poverty; stress; sex roles,

mental illness, victims and victimization. (W) 3 hr./wk.; 3 cr.

Independent Study and Selected Topics

13300-13600: Anthropological Research Laboratory

The Anthropological Research Laboratory offers students an opportunity to do independent research in any of the four fields of anthropology or in applied anthropology, and to have individual advisement in the collection, analysis, and summarizing of data. A project is chosen in cooperation with a faculty member with whom the student meets in one hour conferences each week. In addition the student is expected to devote three hours a week for each credit taken, to be spent in reading and/or data collection, analysis, and writing a report. One or 2 credits of ARL can be taken in conjunction with an Anthropology course in which a student is enrolled, enabling the student to do extra work on a project or term paper connected with that course. Coreq: any other Anthropology or related course. For detailed information contact the Department of Anthropology (NA 7/108). 1-3 cr. with a maximum of 6 cr. allowed for the series

Note: No more than six credits in any one department and no more than nine credits total will be permitted in the following courses: Anthropology 13300-13600, Asian Studies 20402, Black Studies 20000-20400, Psychology 23300-23600, Sociology 23300-23600, Urban Legal Studies 22000.

30100-30400: Honors I-IV

Approval of Dean and department Honors Supervisor required. Apply in NA 4/144 no later than December 10 in the Fall term or May 1 in the Spring term. Variable cr., usually 3 cr./sem.

31000: Independent Study

An opportunity for an individual or small group to develop a research project or explore some topic in depth through directed readings with a faculty member chosen by the student(s). Research project: a problem will be developed (over several semesters, if necessary) leading to the completion of a research paper based on either library or field data. Tutorial: content of readings will be determined by all the participants, and weekly sessions will provide tutorial style discussion. Students are required to make arrangements for each course well in advance of the registration period. Prereq.: junior or senior standing and permission of instructor. 2-3 cr. each course with a maximum of 6 cr. Credits to be determined before registration by the instructor with the approval of the Department Chair.

31100-32000: Selected Topics

Departmental and interdepartmental cooperative courses of advanced study in selected subjects. Prereq.: junior or senior standing, and permission of the department. Hrs. and cr. flexible but usually 3 hr./wk.; 3 cr.

FACULTY

Carol Laderman, Professor

B.A., Hunter College, M.A.; M.Phil., Columbia Univ., Ph.D.

Asha M. Samad-Matias, Lecturer

B.A., Hunter College, M.A.; M.A., New York Univ.

Diane Sank, Professor

B.S., Long Island Univ.; M.S., Univ. of Illinois; Ph.D., Columbia Univ.

Arthur K. Spears, Professor and Chair

B.A., Univ. of Kansas; M.A., Johns Hopkins (International Relations); M.A., Northwestern Univ. (Linguistics); Ph.D., Univ. of California (San Diego)

Diana Wall, Professor

B.A., The City College; M.A., New York Univ., Ph.D.

PROFESSOR EMERITUS

Fremont Besmer

June Nash

Department of Art

(DIVISION OF HUMANITIES AND THE ARTS)

Professor Annette Weintraub, Chair • Department Office: Compton-Goethals 109 • Tel: 212-650-7420

GENERAL INFORMATION

The City College offers the following undergraduate degrees in Art:

B.A.

B.F.A. in Electronic Design & Multimedia

PROGRAMS AND OBJECTIVES

Study in New York City offers an unparalleled opportunity to absorb not only the range and excitement of the current art scene, but also the riches of the past, through cultural resources of exceptional quality. The programs of the Art Department provide both the general student and the pre-professional with a solid foundation in studio art and art history, as well as advanced work in several specialized fields. Formal course work is reinforced with visits to museums, galleries, and artists' studios; guest lectures and critiques; and exhibitions in the Art Department Gallery.

B.A. PROGRAM CONCENTRATIONS

Studio Art

For studio art students, general instruction in the theory and practice of the visual arts is provided along with training that may include concentration in one or more of the following areas: drawing and painting, electronic design and multimedia, printmaking, photography, sculpture or ceramic design. This concentration is both broad and focused, allowing students to build their skills in one or more areas after receiving foundation training in design. Studio art students also take art history courses.

Art History

Art history students take introductory survey courses that are multicultural in focus. Advanced courses provide a grounding in historical and current Western and non-Western visual culture traditions. Special topic courses are often linked to current museum exhibitions and professional internships are open to qualified students. This concentration prepares students for career paths in museums and galleries, art publishing, auction houses, art appraisal, teaching art history, archaeology, and other art related fields. Art history students also take studio art courses.

Teaching Art K-12

The concentration designed for students specialized in teaching Art K-12 has three components: general instruction in the theory and practice of visual arts; introductory survey courses in Art History that are multicultural in focus; education courses which focus on the nature of learning and methods of teaching. The concentration prepares students to pursue careers as art educators, artists in residence and teaching artists in schools, museums, cultural centers and independent organizations that serve students of all ages. Students are required to take the LAST, ATS-W and CST exams, attend required seminars and be fingerprinted. The concentration enables students to qualify for "Initial" Certification from the New York State Department of Education.

B.F.A. IN ELECTRONIC DESIGN & MULTIMEDIA

All majors in the B.F.A. in Electronic Design & Multimedia must maintain an overall GPA of 2.5 in the major to remain in the major.

The B.F.A. in Electronic Design & Multimedia is a professional program in design for print and interactive media which integrates a variety of digital media into all stages of design and production.

It emphasizes a foundation in the principles of basic design as the prerequisite to intensive studio practice in design and imaging for a variety of visual communications media. The program builds skills in typography, design and imaging and visual problem-solving completely integrated into digital technology. Using the industry standards in hardware and software, students gain practice in both concept and production. Students are encouraged to gain practical experience through internships and freelance projects. CCNY students have entree to the resources of New York City's vast publishing and multimedia industries through industry partnerships.

Prerequisites for Admission

Students seeking admission must present a portfolio for review by the EDM admissions committee. The portfolio should demonstrate aptitude; finished, professional work is not a criterion. The committee is looking for raw ability, talent and motivation. Students lacking a portfolio may enter the College in the B.A. program, and may apply to the B.F.A. after completing level 10000 and 20000 courses in the major. Transfer students in art must apply before completing 72 credits.

Transfer students in other majors are also subject to the 72 credit rule, but will be evaluated during the portfolio review. These students will submit a portfolio of work from those classes and be evaluated by the program's instructors. A GPA of 2.5 will be required for all students accepted into the B.F.A. in Electronic Design & Multimedia.

B.F.A. Program Requirements

The B.F.A. Program in Electronic Design and Multimedia requires a total of 75 credits in the major, plus the College Core for the B.F.A. of 30 credits, with 15 additional credits in Liberal Arts electives making up the total of 120 credits toward the degree. Students must also fulfill the College language requirement. This may raise the total credits needed for completion above 120.

Graduation Requirements

B.F.A. students are required to take Senior Thesis and complete a one-semester creative project under faculty supervision. Thesis students mount an exhibition of their projects and each student prepares a book that includes their Thesis and also documents the process of their project in print and digital media. A copy of the book is retained by the Department and kept on file with the EDM Program. Additionally, students may be required to complete an internship in an area related to their major concentration.

REQUIREMENTS FOR MAJORS

Courses required for all majors (nine credits)

| | |
|---|---|
| 10000: Introduction to the Visual Arts of the World (3 credit core) | |
| 10100: 2-Dimensional Design | 3 |
| 21000: Writing about Art or equivalent (3 credit core) | |
| One course from the following 2-Dimensional Group: | 3 |
| 10200: Introduction to Drawing | |
| 10300: Introduction to Printmaking | |
| 10400: Introduction to Photography | |
| 10410: Photography and Visual Perception | |
| 10500: Introduction to Painting | |

| | |
|---|---|
| One course from the following 3-Dimensional Group | 3 |
| 10600: Introduction to Sculpture | |
| 10700: Introduction to Ceramic Design | |
| 10800: Introduction to Wood Design | |
| 10900: 3-Dimensional Design | |

B.A. Concentration Requirements

| | |
|--|----|
| Studio Art Concentration | |
| Four courses in Art History at the 20000 level or above, selected from at least three of the six subject groups, in consultation with program advisor. | 12 |
| Studio Electives | 21 |
| Total credits | 42 |

Art History Concentration

| | |
|--|----|
| Art History electives including at least one from four of the six groups | 24 |
| Studio Electives | 6 |
| 21090: Research Methods | 3 |
| Total Credits | 42 |

B.A. Teaching Art K-12 Concentration

Major requirements are listed below. For a description of education courses see the Department of Secondary Education section of this Bulletin. Required art courses (42 cr.) fulfill the NY State Subject Matter Specialization requirement.

| | |
|--|----|
| Studio Art: | |
| Any five additional Studio Art courses, at least one of which must be 20000-level, and one must be 30000-level | 15 |

Art History:

| | |
|--|---|
| Choose two Art History courses from the following subject groups, at least one of which must be non-Western (Group IV or V): | 6 |
| I. Ancient Art | |
| II. European, Medieval, Renaissance, Baroque Art | |
| III. Modern and Contemporary Art | |
| IV. Art of Africa and the Americas | |
| V. Art of Asia | |
| VI. Trans-historical | |

| | |
|--|----|
| Education Courses: | |
| 15500: Art in Elementary Education | 3 |
| 25500: Art in Secondary Education | 3 |
| 21062: History of Art I: Ancient through Medieval | 3 |
| 21064: History of Art II: Renaissance through Modern | 3 |
| Total Credits | 42 |

B.F.A. in Electronic Design and Multimedia

| | |
|---|----|
| Studio Art: | |
| 29500: Typography I | 3 |
| 29510: Graphic Design Concepts | 3 |
| 29520: Illustration | 3 |
| 29526: 2-D Imaging and Illustration | 3 |
| 39510: Electronic Design I | 3 |
| 39512: Print Production | 3 |
| 39540: Design for the World Wide Web I | 3 |
| 39550: Multimedia Design I | 3 |
| 39560: Digital Video | 3 |
| 39590: Seminar in Critical Issues in Design, Technology and New Media | 3 |
| 49590: Electronic Design Portfolio | 3 |
| 49598: Senior Thesis | 6 |
| One of the following two: | 3 |
| 21067: History of Design (3 cr.) | |
| 21068: History of Graphic Design (3 cr.) | |
| Any five EDM electives at the 20000 level or above | 15 |
| Any three Art History courses at the 2000 level or above from at least three of the six distinct art history groups | 9 |
| Total B.F.A. Credits | 75 |

HONORS AND RESEARCH

Qualified students may be approved for honors work in studio projects (Art 31591-31593) or art historical research (Art 31094-31096).

ADDITIONAL REQUIREMENTS

All Art majors in the B.A. program and the B.F.A. program must maintain an overall GPA of 2.5.

In addition to major requirements, all Art majors must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) or Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)
2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

MINOR IN ART

The minor in art consists of six courses (18 credits). Art minors will have a broad and flexible choice of courses to fulfill their minor requirements. Students will choose the courses to fulfill their minor requirements in consultation with Art Department faculty advisors.

Studio Art Option:

| | |
|---|----|
| Art 10100: 2-Dimensional Design | 3 |
| Four Studio Art electives at the 20000 level or above | 12 |
| One Art History elective at the 20000 level or above | 3 |

Art History Option:

| | |
|--|----|
| Art 10100: 2-Dimensional Design | 3 |
| Four Art History electives at the 20000 level or above | 12 |
| One Studio Art History at the 20000 level or above | 3 |

ADVISEMENT

Students intending to major in Art should confer with any full-time member of the faculty, who will help them plan an option in elective work.

Art Education

Professor James, 212-650-7433

Art History

Professor Indych-López, 212-650-5163
 Professor Aitken-Zaidi, 212-650-7413
 Professor Kjaer, 212-650-7429
 Professor Handy, 212-650-7431
 Professor Senie, 212-650-7430

Ceramic Design

Professor Netzer, 212-650-7435

Electronic Design and Multimedia

Professor Albee, 212-650-7411
 Professor Ham, 212-650-7402
 Professor Han, 212-650-7090
 Professor Moderegger, 212-650-7406
 Professor Saltz, 212-650-7408
 Professor Weintraub, 212-650-7410

Painting and Drawing

Professor Fuentes, 212-650-7414
 Professor Thayer, 212-650-7420

Photography

Professor Albee, 212-650-7411

Professor Beckwith, 212-650-5647

Professor Fisher, 212-650-5646

Printmaking

Professor Foster, 212-650-7425

Sculpture

Professor Chase, 212-650-7432

FACILITIES

Art Gallery

The Art Department's gallery space displays work of undergraduates, graduate students and professional artists, and specially curated exhibitions. Approximately 2000 sq. ft. in size, the gallery accommodates two- and three-dimensional art.

Ceramic Design

The facilities include a large open work area with 18 pottery wheels and a slab roller, extruder, and a kiln room with three electric kilns. There is a plaster studio where students learn mold-making. Various clay bodies are used for utilitarian, sculptural and architectural ceramics, with equal emphasis on clay's multicultural traditions, e.g., Egyptian paste, majolica.

Electronic Design and Multimedia

The electronic design studio incorporates two general purpose computer labs, two specialized digital media labs, a Digital Output Center and a design studio classroom, facilitating interaction between traditional and digital design production. The computer labs include: a multi-purpose lab for design, publishing and illustration; a multimedia lab for animation, interactive multimedia and web design; and two specialized labs focusing on digital video, 3-Dimensional animation and digital media integration. The electronic design studio is equipped with industry-standard computers configured for design and multimedia and running current graphics and multimedia software. With an open studio policy for currently enrolled students, the lab is available over 60 hrs./wk. under the supervision of the lab manager, faculty and lab assistants. This facility mirrors the real-world graphics environments found in industry in

order to better prepare students for positions in the field.

Painting and Drawing

The painting and drawing rooms are equipped with architectural-quality drafting tables and large easels. A studio area is set aside for work in encaustic and water-based media, and for the study of painting methods, materials and techniques. Each studio has wall space for critiques and large-scale projects. Model platforms, mat cutters, props and tools for the construction of painting supports are available. The Slide Library maintains a collection of slides of student work for reference.

Photography

The facility houses a large, group black/white darkroom, a color darkroom and processing lab, private darkrooms, a studio, a process camera room, and a mounting/finishing area. Equipment includes Beseler and Omega enlargers, a Colenta processor and a NuArc process camera. Digital scanning via an Imacon scanner and large-format flatbed scanner is also supported. The David and Lenore Levy Collection of Contemporary Photography is available for student and faculty use.

Printmaking

The studio is equipped for the teaching of intaglio, lithography, relief processes including woodcut and linocut, collagraph, carborundum aquatint, water-based silk-screen, photo-printmaking in etching, silkscreen and lithography, and combinations of all the print media. There are three etching, one relief and two lithography presses, a 62" x 62" NuArc plate maker with a deep well blanket, plate cutter, large hot plate, aquatint box, large aluminum bed for lithographic plates, lithographic stones in a full range of sizes, queen size drying rack, numerous rollers of various durometers and dimensions, hydrobooth and hydroblaster for silk screen and a large copy camera to facilitate the production of oversized images. The integration of equipment for digital and photographic processes with conventional printmaking equipment allows for the full range of printmaking experiences.

Sculpture

The sculpture studio facility is amply equipped for the creation of traditional and non-traditional three-dimensional art. It accommodates various techniques including wood assemblage, construction, woodcarving, plaster, clay, and stone carving. There is a small efficient area for metal fabrication with metal working tools including mig welders and plasma cutters. The studio also houses a basic wood design shop with a table saw, jointer, surfacing tools, hand tools, and several band saws.

Visual Resources Library

Consisting of over 120,000 digital images and slides of works from prehistoric times to the present, the collection includes painting, sculpture and architecture of the Americas, Africa, Asia, and Europe, as well as ceramics, ivories, metalwork, manuscripts, printmaking, photography, textiles, interior design and comparative materials. The library also provides access to 500,000 art images through its subscription to ARTstor.

DEPARTMENT ACTIVITIES

Art Department

The Department sponsors exhibitions, guest lectures and appearances by visiting artists throughout the academic year. Student exhibitions are organized each year in the Art Gallery.

Student Art Societies

Student organizations include art history, electronic design and multimedia and photography. These groups are open to all students and generally promote and stimulate various forms of art at the College.

AWARDS AND SCHOLARSHIPS

The Art Department grants the following annual awards, including:

The Albert P. D'Andrea Award

For excellence in art and scholarship.

The George William Eggers Art Alumni Achievement Award

For excellence in a specific field of art.

The Holly T. Popper Art Scholarship

For an outstanding graduating female City College art major to study in an M.F.A. program in the Art Department.

The James R. Steers Prize

For general excellence in art.

The Therese McCabe Ralston Connor Awards

For art majors with promise of outstanding achievement.

Seymour Peck Scholarships and Creative Awards in the Arts

To outstanding undergraduate and graduate majors in the arts.

The Joe Harris Scholarship

An annual award of excellence for one or two students of color who are pursuing studies in photography.

COURSE DESCRIPTIONS

STUDIO ART

Art 21000 (or equivalent) is a pre- or co-requisite for all 20000-level studio courses.

Students are required to furnish their own supplies and materials for all studio courses. Many studio courses also charge a lab fee to cover the cost of additional materials. Please check the schedule of classes before registering.

Introductory Courses

10000: Introduction to the Visual Arts of the World

Concepts underlying content, formal structure and historical development of the visual arts; art as a global phenomenon from prehistory to the present; relationship of art to the natural world, the built environment, political and other human institutions, and the realm of spirituality. 3 hr./wk.; 3 cr.

10100: 2-Dimensional Design

Introduction to the principles of two-dimensional concepts to explore visual vocabulary in design. Particular emphasis is made on representational and abstract aspects of composition to describe shape, structure, and space. Other design issues focus on the application of pictorial elements through pattern, texture, rhythm, balance, gravity, line, and the illusion of three-dimensional effects on two-dimensional surfaces. Color principles, the interaction of color, color phenomena, and the function of color in design are closely examined. 3 hr./wk.; 3 cr.

10900: 3-Dimensional Design

An introductory course that involves process and problems of creating three-dimensional forms. Concentration on concepts of spatial organization. Particular emphasis on the exploration of various materials, fabrication methods, and techniques using a variety of tools and light machinery. Focus on the formation and analysis of ideas for their interpretation as three-dimensional constructions. 3 hr./wk.; 3 cr.

21000: Writing About Art

Practice in the styles and forms of expository writing required in the arts. Readings that acquaint students with standards of good writing about the arts. Prereq.: English 11000 and Art 10000 or equivalent. 3 hr./wk.; 3 cr.

Drawing

10200: Introduction to Drawing

Drawing emphasizing fundamentals of visual perception, representation, abstraction, and pictorial organization. Introduction to the practice and articulation of elements of drawing involving composition, armature, structure, form, volume, line, texture, value, and space. Observation and specific problems stress experimentation with a variety of drawing materials including dry and aqueous media. Various papers and drawing surfaces are also examined during the course. 3 hr./wk.; 3 cr.

22000: Intermediate Drawing

Continuation of introductory drawing through exploration of various dry and aqueous media in black and white. Emphasis on formal concerns, drawing devices, process and expressive drawing to develop a personal visual language. Prereq.: Art 10200. 3 hr./wk.; 3 cr.

32000: Figure Drawing

Drawing from the live model as a means to understand line, shape, form, proportion and foreshortening in the figure. Emphasis on principles of anatomy to examine bone structure and muscles. Drawing the figure includes both short poses to investigate gesture and the dynamics of the pose, and long poses with focus on creating a finished drawing by incorporating light, space and compositional devices. Experimentation with various dry and wet drawing techniques. Prereq.: Art 10200. This course may be taken as many as 4 times for credit. 3 hr./wk.; 3 cr.

Printmaking

10300: Introduction to Woodcut

This course will explore the fundamentals of woodblock printing. Projects presented in class will introduce students to a wide range of woodblock printing techniques: chiaroscuro, reduction printing, and multi-color printing. Woodblock printing will

be discussed in relation to the history of printmaking and its relevance in contemporary art making practices. Students will examine the interrelated nature of form, process, expression, and meaning. Prereq: Art 10100 or 10200. 3 hr./wk.; 3 cr.

10310: Introduction to Etching/Bookbinding

This course will explore fundamental etching techniques such as hard ground, aquatint and spit bite. Projects presented in class will introduce students to a wide range of mark marking and imagery. Combining different techniques will be emphasized. Some prints will be formatted for traditional and non-traditional books. Bookbinding will be introduced and various techniques will be demonstrated. Prereq: Art 10100 or 10200. 3 hr./wk.; 3 cr.

10320: Introduction to Lithography

This course will explore the fundamentals of stone and photographic lithography. Projects presented in class will introduce students to a wide range of lithographic techniques: images hand-drawn directly on the stone, multi-color printing, transferred images and printing from computer-generated outputs. Prereq: Art 10200. 3 hr./wk.; 3 cr.

23000: Projects in Printmaking

Advanced work in various printmaking processes, methods and techniques. The use of photo, digital, and hand-derived imagery to produce work in photo-silkscreen, photo-lithography and photo-etching, as well as intaglio, lithography, relief printing, collagraph, silkscreen and monotype printing. Specific course content will vary semester by semester and be announced beforehand. Prereq.: Art 10300, 10400 or permission of the instructor. This course may be taken as many as four times for credit. 3 hr./wk.; 3 cr.

Photography

Digital photography courses are listed under Electronic Design and Multimedia

10400: Introduction to Photography

Principles and fundamentals of photography as an art form. 3 hr./wk.; 3 cr.

10410: Photography and Visual Perception

In this introductory course, students use their digital cameras and the college's lab in a hybrid, hands-on approach to creating work that expresses a personal photographic vocabulary. Students will gain an understanding of the medium by looking analytically at photographs, through critiques, workshops, demonstrations, and in readings and class discussions. 3 hr./wk.; 3 cr.

24000: Photography II

Emphasis on the craft of photography. Problems leading to the mastery of technical skills regarding camera usage, exposure, film processing, printing and finishing. Prereq.: Art 10400. 3 hr./wk.; 3 cr.

24010: Color Photography

Practical experience in basic techniques as well as exploration of creative directions in the field of color photography. Prereq.: Art 10400. 3 hr./wk.; 3 cr.

24020: Photojournalism

The making of still photographs for use in visual communications media. The function, scope and influence of photojournalism in contemporary society. Prereq.: Art 10400. 3 hr./wk.; 3 cr.

24030: Documentary Photography

Visual recording, by means of still photographs, of people and the products of their society. Prereq.: Art 10400. 3 hr./wk.; 3 cr.

24050: Genres in Photography

A generic approach providing practical experience with specific content in photography: portraiture, still life, reportage, landscape and nature. Relationship of design, technique, and content. Prereq.: Art 10400. 3 hr./wk.; 3 cr.

34000: Photo Portfolio and Projects

Advanced and individualized projects in any area of photography. Portfolio development for students specializing in photography. Group and individual critiques and reviews as well as readings and discussions to develop and hone one's artistic vision, and to promote passionate and sustained involvement in photography as a communication medium of personal, social and cultural significance. Prereq.: Art 24000, 24010. This course may be taken as many as 4 times for credit. 3 hr./wk.; 3 cr.

34040: Alternative Processes in Photography

Introduction to unconventional photographic processes. Exploration of historic and new methods and materials that allow extension of photographic imagery beyond the standard black and white silverprint. Experimentation with hand-made emulsions and papers, incorporation of photographic imagery into new and varied contexts such as drawings, paintings and books. Prereq.: Art 24000, 24010 or permission of the instructor. 3 hr./wk.; 3 cr.

34060: Studio Photography and Lighting

Emphasis on developing a studio sensibility. Exploration of various lighting systems such as tungsten and quartz, studio and portable flash, natural light, and mixed sources. We will address the artistic and technical problems associated with

portraiture, still life, and product photography. Use of hand-held meters, flash meters, lighting accessories, filters, and an introduction to the view camera. Prereq.: Art 24000, 24010 and permission of the instructor. 3 hr./wk.; 3 cr.

34070: Large Format Photography

An introduction to the large format view camera as used in fine art and commercial photography. A studio course covering fundamental camera movements, perspective controls and optics selection, applied lighting set-ups, metering and exposure calculation procedures, and specialized film processing and printing skills. Students will get hands-on experience with the 4x5 inch camera, while fostering a studio sensibility through the development of skills and techniques unique to large format photography. The course will introduce students to another way of seeing by exploring the special properties inherent in large format, while working in a professional, studio environment. Prereq.: Art 24000. 3 hr./wk.; 3 cr.

Painting

10500: Introduction to Painting

The medium of oil painting as related to visual perception and composition. Exploration of traditional and non-traditional approaches to painting. Emphasis on materials, color mixing, and technical implications in the process of painting. Prereq.: Art 10200. 3 hr./wk.; 3 cr.

25000: Projects in Painting

Exploration of problems in painting in representational and nonrepresentational approaches. Emphasis on painting from direct observation, personal concepts and solutions to assigned projects. The course focuses on formal concerns including color mixing, value, color interaction, composition and problems of pictorial space. Studies and medium size paintings will investigate the overlapping relationships of painting and drawing. Experimentation with materials, techniques and various alternatives in the handling of paint. Prereq.: Art 10500. This course may be taken up to 4 times for credit. 3 hr./wk.; 3 cr.

35000: Watercolor

Continued experience with aqueous media, both transparent and opaque, including applications to other areas of artistic expression. Prereq.: Art 10100. 3 hr./wk.; 3 cr.

Sculpture

10600: Introduction to Sculpture

The problems of sculpture as related to visual perception and composition. 3 hr./wk.; 3 cr.

10800: Introduction to Wood Design

Introduction to woodworking. Basic construction techniques and the proper use of hand and power tools. 3 hr./wk.; 3 cr.

26000: Projects in Sculpture

The principles of visual communication and expression in sculpture. The sculptural idea will be taken through the necessary paces from doodle to final presentation. The course aims to provide an environment that encourages students to explore these ideas through research, process and materials. The students will be exposed to historical and contemporary precedence in art making and are taught to think independently to gain an understanding of a wide range of sculptural concerns. The course will revolve around traditional and contemporary methods of fabrication such as welding, carving, and construction as well as the use of alternative materials such as concrete, polystyrene, etc. Prereq.: Art 10600. This course may be taken as many as 4 times for credit. 3 hr./wk.; 3 cr.

28000: Projects in Wood Design

Continuation of Introduction to Wood Design. Emphasis on development and construction of more sophisticated designs. Advanced woodworking techniques. Prereq.: Art 10800. This course may be taken as many as 4 times for credit. 3 hr./wk.; 3 cr.

Ceramic Design**10700: Introduction to Ceramic Design**

Principles of ceramics as an art form, introducing handbuilding methods such as slab, coil, and pinching to create ceramic forms. 3 hr./wk.; 3 cr.

10710: Architectural Ceramics

Architectural ceramics is the use of clay to make structural and decorative elements for the built environment. This course is an introduction to basic skills and techniques of ceramics—pinchpot, coil, and slab as taught through the prism of architectural tiles and decorative units. There are field and museum trips to see firsthand the rich multicultural history of ceramic tile and ornament. Provides students with hands-on experience making single and multiple forms. Learn how to make and use plaster press molds, plaster slipcasting molds, and the extruder. Form making, kiln firing and glazing are covered in this alternate way of exploring the special plastic properties of clay. 3 hr./wk.; 3 cr.

27000: Projects in Ceramic Design

A course that introduces throwing on the potter's wheel, glazing and kiln firing. Slide presentations, films, demonstrations and critiques, with emphasis on individual projects and the development of a personal approach to clay. Students are expected

to participate in kiln loading and firing of their work. Prereq.: Art 10700. This course may be taken as many as 4 times for credit. 3 hr./wk.; 3 cr.

37000: Clay and Glazes

The study of the raw materials used in the ceramic process to formulate clay bodies and glazes. A lecture and laboratory course which will give students the basic knowledge necessary to mix their own glazes and clay bodies. Prereq.: Art 27000. 3 hr./wk.; 3 cr.

Electronic Design and Multimedia**29500: Typography I**

Type as abstract structure and its relation to problems of graphic communication. Application of typographic design in the creation of posters, brochures, magazine and book design, print ads and packaging. Prereq.: Art 10100. 3 hr./wk.; 3 cr.

29510: Graphic Design Concepts

Exploring the relationship of image and type in graphic design, with emphasis on developing conceptual and visualization skills. Design and imaging using traditional tools and technology in projects ranging from the development of graphic icons to the design of promotional materials. Prereq.: Art 10100. 3 hr./wk.; 3 cr.

29520: Illustration

Aspects of contemporary illustration in various media. Projects in editorial (book, magazine), advertising (product, technical), and promotional (poster) illustration. Pre- or coreq.: Art 10100 or Art 12100. 3 hr./wk.; 3 cr.

29526: 2-D Imaging and Illustration

Electronic illustration and image processing with an overview of approaches from painting to montage. Exploring imaging techniques through the use of masks, channels, filters and special effects. Issues of color management, color correction, resolution, and printing. Prereq.: Art 10100 and 29520. 3 hr./wk.; 3 cr.

29530: Digital Photography I

Introduction to digital photographic practices. Technical concerns and aesthetic issues of digital image capture and digital photo manipulation and output/display. Exploration of contemporary digital photography and student concept development through the digital photographic process. Prereq.: Art 10400 or permission of the instructor. 3 hr./wk.; 3 cr.

39500: Typography II

A continuation of Typography I. This course will focus more closely on the expert usage of type in all forms of graphic design. Students will learn to create powerful graphic statements using the diverse properties of typographic expression.

Emphasis on communication systems, cohesive identity packages, logo development and publication design with orderly, logical and aesthetically appropriate typographic usage. Various projects will explore enhancing comprehension through intelligent use of typographic levels of emphasis. Prereq.: Art 29500. 3 hr./3 cr.

39510: Electronic Design I

Design for print media with special focus on page layout, integration of text and graphic illustration, and corporate identity systems. Use of the computer as a design and production tool, with an introduction to vector and raster-based software for design and illustration. Prereq.: Art 29500 and 29510. 3 hr./wk.; 3 cr.

39512: Print Production

Investigation of print production for graphic design, from concept to execution. Development of concepts from initial visualization to comprehensives to mechanicals for black and white and color printing. Exploration of systems for page layout (such as the grid system) and other approaches to the design of visual information. Overview of special techniques in printing including embossing, die-cuts and paper selection. Prereq.: Art 39510. 3 hr./wk.; 3 cr.

39530: Digital Photography II

This course builds on the concepts and skills learned in Art 29530. A further examination of conceptual and technical concerns surrounding digital photography. Prereq.: Art 29530. 3 hr./wk.; 3 cr.

39540: Design for the World Wide Web I

Interface design, information structuring and interactivity for the World Wide Web. Sites will be examined from the perspective of design, utility and interactivity. Development of HTML documents and images, design and prototype testing of a logical hierarchical information structure. Students will work individually and in teams, and develop an actual site. Prereq.: Art 29500 and 29526. 3 hr./wk.; 3 cr.

39542: Web Animation

This course explores tools and techniques for animation and the design of interactive experience for the Web. Exploration of traditional animation techniques (frame-by-frame animation and tweening) and the development of code-based animation and interactivity. Projects in visual communication for the Web incorporating text, audio, and moving images controlled via Actionscript. Prereq.: Art 39540. 3 hr./wk.; 3 cr.

39550: Multimedia Design I

Introduction to creative and production techniques of media integration and

multimedia. Topics include sprite and frame based animation, screen and interface design, and interactive system design. Special emphasis will be placed on working with sound, animation and video in both linear and non-linear formats. Basic elements of scripting and programming for developing interactive projects will also be covered. Prereq.: Art 29500 and 29526. 3 hr./wk.; 3 cr.

39560: Digital Video

This course provides an introduction to digital motion graphics and desktop video on the Macintosh. We will survey a variety of imaging techniques through the history of video as an art form, and learn how to apply these modes of visual thinking to our own projects. This course will provide practical experience in design and production of Quicktime-based digital video and motion graphics using a variety of software, especially Adobe After Effects. Prereq.: Art 29526 or 29530. 3 hr./wk.; 3 cr.

39570: 3-Dimensional Computer Imaging and Animation I: Foundation

This course provides students with a solid foundation in both the creative and technical aspects of 3-Dimensional image creation on the computer. Topics include 3-Dimensional modeling, animating, lighting, shading, texturing, camera composition and rendering techniques. Both still image and animation will be covered. In addition to discussing a range of 3-Dimensional software programs, this course will explore the role of 2-Dimensional drawing and painting programs in the creation of 3-Dimensional image environments. The role of 3-Dimensional imaging in film, design, multimedia art, and electronic gaming will also be discussed. Prereq.: Art 29526. 3 hr./wk.; 3 cr.

49510: Electronic Design II

Continuation of Electronic Design I. Investigation of contemporary design styles and exploration of issues in typography and information design through advanced projects in publication design and graphic illustration. Prereq.: Art 39510. 3 hr./wk.; 3 cr.

49518: Design & Publishing Projects

An advanced exploration of the creative and production process for print media, organized around a semester-long group collaboration. The chosen project, executed in consultation with a guest designer, will explore the intersection of original text and image. It will proceed from research through imaging and printing, and result in a single issue publication or other printed matter. Interdisciplinary collaborations will be encouraged. Prereq.: Art 49510 or permission of the instructor. 3 hr./wk.; 3 cr.

49540: Design for the World Wide Web II

This course provides students who already have a solid foundation in web design an opportunity to extend their web skills to include scripting and interactivity, audio, video and animation over the web and sophisticated data handling and processing. In addition, the course will look at other multimedia environments on the Internet, such as the Palace, video conferencing, and audio tools. Prereq.: Art 39540. 3 hr./wk.; 3 cr.

49550: Multimedia Design II

This course provides students who already have a solid foundation in multimedia design an opportunity to extend their skills in scripting and interactivity, controlling digital audio and video, and creating finished CD-ROMs. The course will focus on the development of a fully integrated and mastered CD-ROM of students' projects. Prereq.: Art 39550. 3 hr./wk.; 3 cr.

49558: Multimedia Projects

This course is an advanced exploration of the creation process for interactive multimedia, organized around a semester-long group collaboration. This chosen project, produced in collaboration with a guest artist/designer, will explore the intersections of sound, image, animation, and interactivity. The project will proceed from research through design and production, up to integration, programming, and distribution of a CD-ROM, web site, or other multimedia form. Interdisciplinary collaborations will be encouraged. Prereq.: Art 39550. 3 hr./wk.; 3 cr.

49570: 3-Dimensional Computer Imaging and Animation II: Animation and Visual Effects

This advanced course builds upon the skills learned in 3-Dimensional Computer Imaging and Animation I. The class will focus on animation techniques and applying visual effects to scenes using dynamics. Topics include traditional and procedural animation, creating visual effects using particle systems and emitters, creating dynamic environments using physics-based properties, camera rigging and advanced rendering techniques. Importing and exporting relevant file formats will also be explored. Prereq.: Art 39570. 3 hr./wk.; 3 cr.

49590: Electronic Design Portfolio

Advanced projects and portfolio evaluation for students planning a career in graphic design or illustration. Exploration of graphic presentation techniques to create highly finished comps; introduction to the business of graphic design, career resources and business practices. Portfolio preparation for the student's area

of specialization; practical experience in making portfolio presentations; creation of self-promotion materials. Prereq.: Three 30000-level and two 40000-level EDM courses. 3 hr./wk.; 3 cr.

49598: Senior Thesis

Advanced design seminar in which students develop a sustained individual project in a major area of concentration (print, Internet, multimedia). This semester-long project is designed to encourage extended development and the synthesis of communication skills and related design disciplines. Additionally, collateral promotion and presentation materials will be created to support the project. The final requirement for graduation, the thesis project will be presented in an exhibition and in oral presentation to faculty and invited critics. Prereq.: completion of all major requirements for the BFA. 6 hr./wk.; 6 cr.

Advanced Courses in Studio Art (permission of the instructor only)

31501-31510: Selected Topics in Studio Art

Advanced study in selected subjects outside of the regular curriculum. Course announcements will be made in the preceding semester. 3 hr./wk.; 3 cr.

32098-39598: Internships and Fieldwork

Credit is available to advanced students for internships and fieldwork in cooperation with commercial and industrial firms, museums and galleries, and governmental agencies. Students can register for specialized internships based on the area of study. Permission of instructor and chair required. 3 cr. each. No more than 6 credits accepted.

32099-39599: Independent Study in Studio Art

Independent study in art under staff guidance. Three previous courses (or equivalent) in area of study chosen and permission of instructor and Chair required for admission. 3 cr. each. No more than 9 cr. accepted.

31591-31593: Honors I-III in Studio Art

Critical Issues in Studio Art

21510: Art and Protest

This course offers the opportunity to reflect upon the relationship between art and activism by applying, in students' own creative work, critical tools and methods generated by contemporary theory and social history. While art is often perceived as unrelated to and independent of politics and social history, this course will examine how these underlying contexts affect

aesthetics. Many artists have resisted traditional and conventional approaches to art in order to inform us of the existence of other perspectives, histories and voices. Through creative projects and the exposure to other artists' works, readings and films, this course will explore the realities within which images are made. Some of many questions for contemplation and discussion include: What is taste and how is it acquired? Who is responsible for the writing of our history? What is the relationship between money and art history? To what extent do artists simply parrot traditional values in their work? What outlets are available for activist artists? Have alternative aesthetics and radical activities challenged the writing of mainstream representation? How can artists define a political/activist position, and what responsibility do they bear in making images? Prereq.: Art 10000, 21000, and at least two studio art courses. 3 hr./wk.; 3 cr.

39590: Critical Issues in Design, Technology and New Media

Seminar exploring the visual language of image and typography and its function in mass communications; the syntax of video, audio and interactive works; and the aesthetic and social challenges raised in design for print, time-based media and telecommunications. The seminar will provide students with a thorough grounding in technology-related issues through selected readings and discussion. Prereq.: Art 21067 or 21068 or related 20000-level Art History course. 3 hr./wk.; 3 cr.

TEACHING ART K-12

10155: Art in Elementary Education

Drawing, painting and design with materials basic to the art experiences of children. 3 hr./wk.; 3 cr.

20155: Art in Secondary Education

Experience in drawing, painting, design and crafts related to art in the junior and senior high schools; projects suitable for classroom use related to curriculum needs. Prereq.: Art 10155. 3 hr./wk.; 3 cr.

ART HISTORY

Elective Courses

Art 10000 is a prerequisite and Art 21000 (or equivalent) is a pre- or corequisite to all elective art history courses.

Group I: Ancient Art

21012: Egyptian Art and Architecture

Painting, sculpture, architecture and decorative arts of Egypt from predynastic times through the Ptolemaic period. (W) 3 hr./wk.; 3 cr.

21014: Greek and Roman Art

Art of the Classical civilizations: Greece from the Geometric period through the Hellenistic era; the Etruscan contribution: Rome from the Republican period through late Imperial times. (W) 3 hr./wk.; 3 cr.

Group II: European Medieval, Renaissance, and Baroque Art

21022: Romanesque and Gothic Art

Art of the later Middle Ages: architecture, sculpture, manuscripts, stained glass; emphasis on French cathedrals, regional schools in emerging national states, and Byzantine influence on the West. (W) 3 hr./wk.; 3 cr.

21024: Italian Renaissance Art and Architecture

An overview of the painting, sculpture, and architecture created in Italy during the fourteenth, fifteenth, and sixteenth centuries. Discussion will focus on the needs and ambitions of private, civic, and ecclesiastical patrons as well as the creative responses of individual artists from Giotto to Michelangelo. (W) 3 hr./wk.; 3 cr.

21025: Northern Renaissance Art

An overview of painting, sculpture, and printmaking created in Northern Europe during the fourteenth, fifteenth, and sixteenth centuries. Trace the development of naturalism and humanism in France, Germany, and the Netherlands as well as the dialogue between Northern Europe and Italy during the Renaissance. Discussion will explore the needs and ambitions of private, civic, and ecclesiastical patrons as well as the creative responses of individual artists from Van Eyck to Bruegel. (W) 3 hr./wk.; 3 cr.

21026: Baroque and Rococo Art in Europe

Seventeenth and eighteenth century art in Italy, France, Spain, and Holland. Artists include Bernini, Poussin, Caravaggio, Artemisia, Gentileschi, Velazquez, Rubens, Rembrandt and Vermeer. (W) 3 hr./wk.; 3 cr.

Group III: Modern and Contemporary Art

21030: Nineteenth Century Art in Europe

The art of western Europe, primarily France, including Romanticism, Realism, Impressionism and Post-Impressionism. (W) 3 hr./wk.; 3 cr.

21032: American Art 1776-1900

Art of the United States from colonial times to the late 19th century; consideration of European influences and regional contributions in the development

of American architecture, sculpture and painting. (W) 3 hr./wk.; 3 cr.

21036: Early Modern Art in Europe and the U.S.

The development of early modern art styles in France, Germany, Italy, Russia, and the U.S. including Fauvism, Cubism, Futurism, Constructivism, Expressionism, Dada and Surrealism. (W) 3 hr./wk.; 3 cr.

21038: Postwar Art in the U.S. and Europe

Art from 1945 through 1980 in the U.S. and Europe, including Abstract Expressionism, Pop art, Minimal art, Conceptual art, the development of earth-works and public art, feminist and other issue-based art. (W) 3 hr./wk.; 3 cr.

31030: Modern Art in Latin America

An overview of the various currents of modernism that developed in Latin America from 1900 to 1945. Emphasis will be placed on the artistic production of certain countries, such as Mexico, Brazil, Argentina, Cuba, and Uruguay. (W) 3 hr./wk.; 3 cr.

31032: Contemporary Art in Latin America

Artistic manifestations in post-World War II Latin America, including the work of diaspora artists and Latino/a artists in the United States. (W) 3 hr./wk.; 3 cr.

31034: History of Photography

The aesthetic, historical and technical development of still photography viewed as a major medium of artistic expression in the nineteenth and twentieth centuries. (W) 3 hr./wk.; 3 cr.

31038: Art Since 1980

This course explores art since 1980 both in a historical context and in terms of contemporary criticism. Frequent gallery visits and conversations with artists, curators, gallery assistants. (W) Prereq. Art 21038. 3 hr./wk.; 3 cr.

Group IV: Art of Africa and the Americas

21043: Ancient Art of Meso-America, the Andes, and the Caribbean

A survey of sculpture, architecture, the town plan, and crafts in select pre-European cultures of the Caribbean Basin, the Andes and Meso-America, including the Taino, the Inca, and the Aztec. (W) 3 hr./wk.; 3 cr.

21044: Art of Native North America

A survey of select artistic traditions of native North American Indian art including Aleut and Inuit. Emphasis on artistic context as a synthesis of regional and cultural-historical phenomena. (W) 3 hr./wk.; 3 cr.

21046: Art of West Africa: From the Bissagos to the Cameroon Grasslands

A survey of traditions that generate the interface of visual and performance arts, place and architecture among the Akan, Bamana, Bamilike, Baule, Dan, Dogon, Edo, Fon, Moshi, Senufo, Yoruba, and their neighbors. The archaeology of the valleys of the Niger is included. (W) 3 hr./wk.; 3 cr.

21047: Art of Central Africa: Central, East and Southern Africa from Gabon to Mozambique

Arts of chiefdoms and kingdoms of the equatorial forests and savannas from Equatorial Guinea to Mozambique. An interdisciplinary survey of traditions that generate the interface of visual and performance arts, place and architecture. Arts of the Chokwe, Fan, Konde, Kongo, Kuba, Kwele, Luba/Hemba, Nyamwezi, Mangbetu, Ndebele, Pende, Saremo, Songye, Tabwa, Zulu, and their neighbors. The archaeology of Zimbabwe and the East African coast. (W) 3 hr./wk.; 3 cr.

Group V: Art of Asia**21052: Islamic Art**

Architecture and decorative arts of the Islamic world, including Syria, Egypt, Persia, Turkey, Spain and northern India. (W) 3 hr./wk.; 3 cr.

21053: Art of India and Southeast Asia

Art of India, Southeast Asia and Indonesia, Buddhist, Jain and Hindu Art in India; Buddhist and Hindu art in Southeast Asia and Indonesia. (W) 3 hr./wk.; 3 cr.

21054: Art of China, Japan, and Korea

The art and architecture of China, Japan, and Korea from prehistoric times to the nineteenth century. (W) 3 hr./wk.; 3 cr.

Group VI: Trans-historical Studies**21062: History of Art I: Ancient through Medieval**

A chronological survey of world art and architecture from prehistoric times through the early Renaissance. Analysis of visual expression in terms of style and content in historical and cultural context. Prereq.: Eng 11000, Art 10000 and Art 21000. (W) 3 hr./wk.; 3 cr.

21064: History of Art II: Renaissance through Modern

A chronological survey of world art and architecture from the early Renaissance to the present. Analysis of visual expression in terms of style and content in historical and cultural context. Prereq.: Eng 11000 and Art 10000 and Art 21000. (W) 3 hr./wk.; 3 cr.

21066: Women in World Art

Survey of imagery of women in world art, including such topics as woman as object of veneration, mother, ruler, creator, worker, educator, patron, sexual object and victim. History of work by and status of women artists, including issues of biology, education, training, and social, economic and political pressures in a variety of times and cultures. (W) 3 hr./wk.; 3 cr.

21067: History of Design

Historical and cultural influences and technical developments in the design of objects for use. Required for the BFA in Electronic Design & Multimedia. (Choice of either History of Design or History of Graphic Design.) Prereq.: Art 10000 + 1/20000-level writing course. (W) 3 hr./wk.; 3 cr.

21068: History of Graphic Design

The study of graphic design as a tool for communicating, reinforcing and shaping socially constructed ideals by tracing the role of communication arts from pre-historic to contemporary postmodern aesthetics. Required for the BFA in Electronic Design & Multimedia. (Choice of either History of Design or History of Graphic Design.) Prereq.: Art 10000 + 1/20000-level writing course. (W) 3 hr./wk.; 3 cr.

21069: Art Criticism

A study of historical and contemporary theories and methodology. Critical analysis and evaluation of original works of art. Student reports, papers and discussion. (W) 3 hr./wk.; 3 cr.

21090: Research Methods in Art History

Techniques of art historical scholarship; use of bibliographical materials, iconographic and stylistic analyses; oral presentations; writing of a research paper. Required for all students concentrating in art history. (W) 3 hr./wk.; 3 cr.

Advanced Courses in Art History**31098: Internship in Art History**

Credit is available to art history students for internships and fieldwork in cooperation with commercial and industrial firms, museums, galleries, and governmental agencies.

31099: Independent Study in Art History

Individual research in selected problems under faculty guidance. Advance application and permission of instructor and Chair required for admission. 3 cr. May not be taken more than 3 times.

31011-31020: Selected Topics in Art History

Advanced study in selected subjects outside of the regular curriculum. Course

announcements will be made in the preceding semester.

31094-31096: Honors I-III in Art History

Approval of Dean and Department Honors Supervisor required. Apply in NA 5/225 no later than December 10 in the fall term or May 1 in the spring term. Usually 3 cr./sem.

FACULTY**Molly Aitken-Zaidi, Assistant Professor**

B.A., Harvard Univ.; M.A., Columbia Univ., M.Phil., Ph.D.

Becca Albee, Associate Professor

B.A., Evergreen State College; M.F.A., Univ. of North Carolina Chapel Hill

Patterson Beckwith, Lecturer

B.F.A., Cooper Union; M.F.A., Univ. of California (Los Angeles)

Colin Chase, Associate Professor

A.A.S., Fashion Institute of Technology; B.F.A., Cooper Union; M.F.A., Univ. of Michigan

Joel Wellington Fisher, Lecturer

B.A., Univ. of New Hampshire; M.F.A., Rhode Island School of Design

Megan Foster, Lecturer

B.F.A., Rhode Island School of Design; M.F.A., Columbia Univ.

Leopoldo Fuentes, Assistant Professor

B.F.A., California State Univ. (Los Angeles); M.F.A., Northwestern Univ.

Myrah Brown Green, Distinguished Lecturer

B.F.A., Pratt Inst.; Ph.D., The Union Institute and Univ.

Ethan Ham, Assistant Professor

B.A., Univ. of California; M.F.A., Portland State Univ.

Geoffrey Han, Assistant Professor

B.A., McGill Univ.; M.F.A., Yale Univ.

Ellen Handy, Associate Professor

B.A., Barnard College; Ph.D., Princeton Univ.

Anna Indyk-López, Associate Professor

B.A., New York Univ., M.A., Ph.D.

Catti James, Associate Professor

B.F.A., Boston Univ.; M.A. Columbia Univ.

Lise Kjaer, Lecturer

M.F.A., Academy of Fine Arts (Poland); Ph.D., CUNY

Hajoe Moderegger, Assistant Professor

M.F.A., Bauhaus-University Weimar (Germany)

Sylvia Netzer, Professor

B.A., The City College; M.F.A.,
Columbia Univ.

Ina Saltz, Associate Professor

B.F.A., The Cooper Union

Harriet F. Senie, Professor

B.A., Brandeis Univ.; M.A., Hunter
College; Ph.D., New York Univ.

Tom Thayer, Lecturer

B.F.A., Northern Illinois Univ., M.F.A.

**Annette Weintraub, Professor and
Chair**

B.F.A., Cooper Union; M.F.A., Univ. of
Pennsylvania

PROFESSORS EMERITI

Robert E. Borgatta

Sherman Drexler

Madeleine Gekiere

Michi Itami

Irving Kaufman

Jay Milder

Seong Moy

George Nelson Preston

Joan Webster Price

Annie Shaver-Crandell

William Spinka



Asian Studies Program

(DIVISION OF HUMANITIES AND THE ARTS)

Program Office: NA 5/218 • Tel: 212-650-6375

GENERAL INFORMATION

The City College offers the following undergraduate degree in Area Studies:

B.A.

PROGRAMS AND OBJECTIVES

The Program in Asian Studies offers an interdisciplinary concentration.

REQUIREMENTS FOR MAJORS

Students are required to take a total of 30 credits related Asian Studies. At least 24 credits must be above the 20000 level. Students who are proficient in Asian languages may use their language ability to fulfill requirements of up to six credits.

ADDITIONAL REQUIREMENTS

In addition to major requirements, all Area Studies majors must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) or Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)
2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

REQUIREMENTS FOR MINORS

Students are required to take a total of 15 credits of courses related to Asian subjects. Of those credits, at least 9 must be above the 20000 level. Students who are proficient in Asian languages may use their language ability to fulfill requirements of up to six credits.

ADVISEMENT

Advisors are available in the program office.

COURSE DESCRIPTIONS

Courses on Asian and Asian-American subjects offered at The City College are listed below and are accepted toward fulfilling the program's requirements. Students may also take courses offered at other CUNY campuses with permission of the program director. Courses taken abroad during an exchange program may also be accepted with permission.

INTRODUCTORY COURSES

10100: Asian Cultures and Peoples

The major factors that have shaped the Asian countries and peoples; geography, civilization, migration, and settlements of ethnic groups; philosophies, religions, historical events, leaders, and modern political and socioeconomic institutions. 3 hr./wk.; 3 cr.

10200: Asian Literature in English Translation

Selected masterpieces of Asian literature. Lectures and classroom discussions, supplemented with audiovisual aids. 3 hr./wk.; 3 cr.

20100: Asians in America

The processes of assimilation, adaption, competition, conflict and adjustment of Asian minorities in the United States

from the mid-19th century to the present. 3 hr./wk.; 3 cr.

20200: Contemporary Asia

The cultural tradition of Asia in general and of China and Japan in particular. The peoples and their psychological, educational, social, artistic, political and economic behavior. 3 hr./wk.; 3 cr.

ADVANCED ELECTIVE COURSES

20402-20404: Asian American Communities II: Practicum on Asian American Communities

Participation in community work. Students select a cooperating agency or organization and work in one of its programs. (W) 2-6 cr.

20500: Contemporary China

Historical events, political, cultural and socio-economic conditions, and foreign relations of the People's Republic of China since 1949. Analysis of the Cultural Revolution; economic growth of the People's Republic; relations with the U.S. and the former Soviet Union; Communist leadership to the present. (W) 3 hr./wk.; 3 cr.

20700: Asian Women

The position and role of Asian women in historical, political and psychological contexts. Traditional stereotypes; role in Asian history; Asian women in America; relationship to white and Third World women; alternatives to women's liberation. (W) 3 hr./wk.; 3 cr.

20800: Asians and American Law and Politics

A comparison of the legal and political background of the East and West. American law and politics as they affect the lives of Asian minorities. Sample cases, familiarization with various legal proceedings and governmental institutions. (W) 3 hr./wk.; 3 cr.

21400: Chinese Experience in America

The struggle for survival, acceptance, and full participation in American life from

Gold Rush days to the present. 3 hr./wk.; 3 cr.

30700: Asian American Communities I: Analysis of Asian American Communities

Empirical and theoretical analysis of community processes affecting Asian Americans, using New York's Asian communities (e.g., Chinatown) as models. Power structures, communications networks, role conflicts, and community change. (W) 3 hr./wk.; 3 cr.

33100: Chinese Literature from the Early Period to 1919 (in English)

Historical review of literary development from the ancient to the modern period. Selections of masterpieces in poetry, prose, drama and fiction, in original versions or English translation, for reading and discussion. Reading knowledge of Chinese not required. (W) 3 hr./wk.; 3 cr.

33200: Modern Chinese Literature (in English)

Leading authors and masterpieces since the May 4th Movement in 1919. Works from the Mainland, Taiwan, Hong Kong, Singapore and the West selected for reading and review. Reading knowledge of Chinese not required. (W) 3 hr./wk.; 3 cr.

INDEPENDENT STUDIES AND TOPICAL STUDIES COURSES

30100-30300: Honors I- III

Individual reading and research or individual field study project on a topic or area under the guidance of a faculty member to complete a thesis or report on a project at the end of the three-term sequence. Approval of Dean and program director required. Apply in NA 5/225 no later than December 10 in the Fall term or May 1 in the Spring term. Variable cr.

31001-31004: Independent Study

For students with special cultural, literary, or linguistic interests who wish to pursue independent study and research. For juniors and seniors only. Program approval required. (W) 1-4 cr.

31100-32000: Selected Topics in Asian Studies

Courses in the past three years have included:

China and the World (History)

Religious, Communal and Ethnic Conflicts in Modern India (History)

Images of Asian Women through Film and Literature (Asian Studies)

Chinese Family, Marriage and Kinship (Asian Studies)

Memory, Identity and Historical Images (Asian Studies)

Advanced Readings in Chinese Historical Writings (Asian Studies)

Vietnam and the Cold War (Political Science)

Asian Economic Development (Economics)

Asian Cities (History)

Asian-American Relations (History)

Student Movements, Education and Chinese Intellectuals (Asian Studies)

Science and Technology in Chinese History (History)

ASIAN LANGUAGES

Asian Languages are administered in the Department of Foreign Languages and Literatures. All Asian languages are offered at elementary and intermediate levels. No credit will be given for taking only the first part of any level of language courses.

Chinese

12100: Elementary Chinese (Mandarin) I

Modern vernacular Chinese based on the speech of Beijing. Essentials of sound patterns, grammar and vocabulary. Practice in speaking, reading and dictation. 4 hr./wk.; 3 cr.

12200: Elementary Chinese (Mandarin) II

Further practice in modern vernacular Chinese based on the speech of Beijing. Essentials of sound patterns, grammar and vocabulary. Practice in speaking, reading and dictation. Prereq.: Chinese 12100 or permission of the instructor. 4 hr./wk.; 3 cr.

22500: Intensive Intermediate Chinese

An intensive one-semester Chinese course at the intermediate level. This course will continue to develop communicative competence through the study of grammar and new vocabulary. Using communication oriented activities, this course will help students to be better able to speak naturally and spontaneously. Reading and writing will be stressed through regular assignments to be handed in for review. Additionally, content-appropriate cultural information will be presented to promote the students' understanding of the Chinese-speaking world. Prereq.: Chinese 12200 or placement exam. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

Hindi

12100: Elementary Hindi I

An intensive course in the spoken and written language. In addition to classroom hours, students will be expected to do some work in the language laboratory. 4 hr./wk.; 3 cr.

12200: Elementary Hindi II

Further practice in oral and written skills. In addition to classroom hours, students will be expected to do some work in the language laboratory. Prereq.: Hindi 12100 or permission of the instructor. 4 hr./wk.; 3 cr.

22500: Intensive Intermediate Hindi

An intensive one-semester Hindi course at the intermediate level. This course will review the grammar of the Hindi language, enhance vocabulary, increase fluency in reading and writing, and will include literary and cultural content. The four basic skills of listening, speaking, reading comprehension and writing will be further developed through class discussions, writing exercises and the use of multimedia and the Internet. Prereq.: Hindi 12100 and Hindi 12200 or placement exam. Recommended for the students who have completed two semesters of Elementary Hindi with a grade of A or B. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

Japanese

12100: Elementary Japanese I

An intensive course in the spoken and written language. In addition to classroom hours, students will be expected to do some work in the language laboratory. 4 hr./wk.; 3 cr.

12200: Elementary Japanese II

Further practice in oral and written skills. In addition to classroom hours, students will be expected to do some work in the language laboratory. Prereq.: Japanese 12100 or permission of the instructor. 4 hr./wk.; 3 cr.

22500: Intensive Intermediate Japanese

An intensive one-semester Japanese course at the intermediate level. This course will review the grammar of the Japanese language, enhance vocabulary, and will include literary and cultural readings. It will further develop listening, speaking, reading comprehension and writing skills through class discussions and the use of multimedia and the Internet. Prereq.: Japanese 12100 and 12200 or placement exam. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

COURSES FROM OTHER DEPARTMENTS

Students are encouraged to take appropriate courses in other departments with the permission of their advisors. Some courses that may be of interest are listed below.

Art 28500: Art of China, Japan, and Korea

English 38001: Oriental Literature I

English 38002: Oriental Literature II

Political Science 34100: Political Systems in Asia

Political Science 34200: International Relations in Asia

History 25100: Traditional Civilization of China

History 25300: Modern China

History 25400: Traditional Civilization of Japan

History 25500: Modern Japan

History 26300: Traditional Civilization of India

History 26400: History of Modern India

FACULTY

The faculty of the program includes those professors who teach the program's courses and those whose departmental courses may be credited to the major.

Department of Biology

(DIVISION OF SCIENCE)

Professor Christine Li, Chair • Department Office: MR 526 • Tel: 212-650-6800

GENERAL INFORMATION

The City College offers the following undergraduate degree in Biology:
B.S.

PROGRAMS AND OBJECTIVES

The Department of Biology offers courses in several areas, including Physiology, Neuroscience, Cell, Molecular, & Developmental Biology, and Ecology, Evolution, and Behavior.

The Biology core curriculum covers a broad range of topics from molecular biology to ecosystems. It emphasizes learning about the many principles of biology and the ability to use the scientific method to gain new understanding. Evolution is emphasized as an organizing theme throughout.

A wide range of elective courses allows the student to investigate a variety of biological processes and phenomena and to explore the relationships among organisms. Qualified advanced students are encouraged to take Independent Study or Honors (research) and may also take selected graduate courses.

The Department cooperates with the Program in Premedical Studies (PPS), a program of the Division of Science. PPS features a curriculum that integrates a variety of learning experiences specifically preparing participants to meet medical, dental, optometry, and veterinary school admission requirements as well as those for physician's assistant and physical therapy advanced degree programs. Students may major in Biology while participating in PPS.

RESEARCH OPPORTUNITIES

The Biology Department has an active undergraduate research program. Students who wish to do laboratory research may enroll for Independent Study (Bio 31000) or, if their Biology GPA is above 3.5, Honors (Bio 30100-30300). Up to 6 of the credits from these courses may be applied to the major's elective requirements. Students interested in research should consult with the Honors and Independent Study Committee. Financial support for research during the academic year and the summer is available through a variety of grant sponsored programs.

REQUIREMENTS FOR MAJORS

Math and Science Requirements

Chemistry:

| | |
|---|---|
| 10301-10401: General Chemistry and Laboratory | 8 |
| 26100: Organic Chemistry I | 3 |

Mathematics:

| | |
|--|---|
| 20500: Elements of Calculus I | 4 |
| 20900: Elements of Calculus and Statistics | 4 |

Physics:

| | |
|------------------------------|---|
| 20300-20400: General Physics | 8 |
|------------------------------|---|

Total Math and Science Credits 27

Biology Requirements*

Required Courses (Core Curriculum)

Biology:

| | |
|---|----------------|
| 10100: Biological Foundations I** | 4 |
| 10200: Biological Foundations II** | 4 |
| 20600: Introduction to Genetics | 4 [#] |
| At least 2 out of the following 3 primary electives | 8 |
| 20700: Organismic Biology (4 cr.) | |
| 22900: Cell and Molecular Biology (4 cr.) | |
| 22800: Ecology and Evolution (4 cr.) | |

Additional advanced electives *** 19[#]

Total Biology Credits

39

The Biology Department revised its core sequence in 2001. Students who started in the Biology core prior to 2001 should consult with the department for advice on course equivalencies.

***Students with an AP Biology score of 4 or 5 or who pass an exemption examination may waive these courses and receive 6 credits. Students transferring to City College with one year of College Biology with laboratory (grade C or better) will receive credit for Bio 10100 and 10200 if the course coverage is sufficiently similar. Students applying for transfer credit for Bio 10100 and 10200 should consult the syllabi for these courses to ensure comparability. An exemption exam is available.*

****Majors will not be permitted to register for Biology Core or elective courses unless the Biology course prerequisites have been passed with a grade of C or higher. Human Anatomy and Physiology courses taken at other colleges will not be credited toward the Biology major. Microbiology courses taken at other colleges must have their syllabi evaluated for credit.*

#For Fall 2009 only, Bio 20600 will be a three-credit course; students taking Bio 20600 as a 3 credit course must take 20 additional advanced elective credits.

Teaching Biology In Secondary Schools

Major requirements are listed below. Pedagogical requirements are listed in the Department of Secondary Education section of this Bulletin.

Required Courses:

| | |
|-----------------------------------|----|
| 22900: Cell and Molecular Biology | 4 |
| 22800: Ecology and Evolution | 4 |
| Advanced Bio electives | 24 |

Total Credits 32

Honors

To qualify for Honors it is necessary to complete nine hours of Honors credit, six of which may count towards the 19 credits of Biology electives. The

successful Honors candidate submits a thesis approved by his/her advisor and based upon the student's original research.

ADDITIONAL REQUIREMENTS

In addition to major requirements, all Biology majors must complete the following:

1. General Education Requirement including FIQWS, Calculus, Perspective and In-depth requirements (for students who entered after Fall 2008) or Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2008)
2. English 21003
3. Foreign Language Requirement
4. CPE Examination
5. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

MINOR IN BIOLOGY

Required Courses:

| | |
|----------------------------------|----------------|
| 10100: Biological Foundations I | 4 |
| 10200: Biological Foundations II | 4 |
| 20600: Introduction to Genetics | 4 [#] |

One of the following three:

| | |
|-----------------------------------|----|
| 20700: Organismic Biology | |
| 22800: Ecology and Evolution | |
| 22900: Cell and Molecular Biology | |
| Total credits | 16 |

#Only students taking Bio 20600 in Fall 2009 may complete only 15 Biology credits for the minor.

ADVISEMENT

The Department provides advice and information on career opportunities, programs and opportunities for financial support. Prospective biology majors should email the Head Undergraduate Advisor, who will sign the Majors form. All Biology majors will be assigned a faculty advisor. Students needing advice on planning

elective programs should consult with their faculty advisor. Non-majors seeking advice on individual courses should consult with the Head Undergraduate Advisor.

To declare a major in Biology Head Undergraduate Advisor (including Transfer Students)

Professor Jay Edelman
MR 734
Email: jedelman@sci.ccny.cuny.edu

Premedical/Predental Students

Ms. Belinda Smith
MR 529; 212-650-7845

ePermits

Professor Jane Gallagher
MR 818; 212-650-8507
Email: janegall@sci.ccny.cuny.edu

Honors and Independent Research Advisor

Professor Robert Anderson
MR 817; 212-650-8504
Email: anderson@sci.ccny.cuny.edu

TUTORING

Special tutoring services are available to those students needing help in Biology. Students seeking to avail themselves of such services are directed to the office of the Program in Premedical Studies, MR 529, or the CCAPP program.

FACILITIES

Resource Center

The Resource Center of the Department of Biology (MR 502) maintains a wide variety of reference materials for student use in conjunction with many of the undergraduate courses. Instructors will inform students as to the availability of materials available for their course. The facility is open Monday through Friday (hours are posted outside MR 502).

Imaging Complex

The Imaging Complex houses a transmission electron microscope, a scanning electron microscope, a confocal microscope, a digital darkroom, and complete support facilities for tissue preparation. In addition to its use in several courses, the facility supports

faculty and student research in many aspects of cellular biology.

DEPARTMENTAL ACTIVITIES

The Caduceus Society

The Caduceus Society, a student-run organization, provides programs for those interested in the biological and biomedical sciences.

AWARDS

The following awards are made annually to deserving students on the basis of merit and superior scholarship in biology:

The Edmund Baermann Scholarship in Natural Sciences

To a sophomore or junior completing the Biology core. Selection is based on performance in the Biology core.

The Sharon D. Cosloy Scholarship

To a junior who demonstrates potential in research and who will pursue graduate work in the biomedical field.

The August Anthony Gavasci Award

To a student demonstrating promise in research in the fields of Microbiology or Molecular Biology.

The Professor Joseph Grossfield Memorial Scholarship

To a senior who excels in biology courses and in the humanities.

The Professor Paul L. Krupa Award for Excellence in Research

To the student completing Honors or Independent Studies who demonstrates the greatest proficiency in research.

The Professor Paul Margolin Scholarship

To a sophomore or junior who demonstrates creativity in research.

The Olivia McKenna Award

To a graduating senior demonstrating the greatest research proficiency in Neuroscience

The Sylvia F. Rubin/Martin Saks Award

To the student demonstrating the greatest proficiency in research in Environmental Science.

The Professor William Stratford Prize

To the student demonstrating the greatest proficiency in both course work in zoology and zoological research.

The Ward Medal

To the student with the best overall record in his/her Biology courses.

COURSE DESCRIPTIONS**COURSES FOR NON-MAJORS****10000: Biology: The Strategy of Life**

The basic properties of living systems with emphasis on human beings as functioning biological entities. 3 lect., 1 rec. hr./wk.; 3 cr.

32100: Physiological Processes

This course is designed to introduce fundamental concepts of physiology to biomedical engineering students. Areas covered include muscular function, cardiovascular system function, bioelectrical signals, capillary-level transport, organ-level exchange and immune system function. For Biomedical Engineering Students only. Prereq: Bio 10100 and Math 20103. 3 hr./wk.; 3 cr.

INTRODUCTORY COURSES**10100: Biological Foundations I***

Introduction to biology, emphasizing primarily the cell and molecular levels of organization. Topics include characteristics of life, cellular organization and diversity, chemistry of life, bioenergetics, reproduction and early development, and major living groups. The course features in-depth study of selected topics that are foundational for upper level study. Students develop critical thinking and technical skills that are essential for mastering the content areas and being successful in upper level courses. These include: vocabulary skills, critical thinking, collaborative learning, microscopy, collection and handling of scientific data, and elements of scientific investigation. Required for Biology majors. Pre- or coreq.: Math 19000, 19500, 20100, 20500. 3 lect., 3 lab. hr./wk.; 4 cr.

10200: Biological Foundations II*

Second semester of introductory biology, emphasizing organismic biology, evolution, and ecology. Topics include heredity, macro- and microevolution, structure and function of body systems, and ecology. The course features a survey of topics in lecture and in-depth study of selected topics in laboratories and workshops. Students develop critical thinking and technical skills that are essential for mastering

the content areas and being successful in further study. These include: vocabulary skills, problem solving, collaborative learning, computer skills, experimental design, collection and analysis of scientific data, and preparing scientific reports. Laboratories make use of the Biology Department Vivarium enabling students to study living organisms. Required for Biology majors. Prereq.: a grade of C or better in Bio 10100 or an equivalent course or permission of the instructor. 3 lect., 3 lab hr./wk.; 4 cr.

20600: Introduction to Genetics**

A thorough introduction to the principles of genetics. Using a combined cell biological and Mendelian approach, the course covers DNA organization, chromosome structure, genes and alleles, and transmission of genetic information in normal and genetically compromised organisms. Required for Biology majors. Prereq.: Bio 10100 and 10200 or equivalent. 3 lect., 1 rec. hr./wk.; 4 cr.

20700: Organismic Biology

Emphasizes the physiological adjustments organisms make to specific challenges in their environments. Bioenergetics, osmoregulation and transport are the areas of focus. Laboratories are investigational and intended to develop skills in experimental design, the use of technology in acquiring data, data analysis and presentation, and in scientific writing. The development of problem solving and thinking and analysis in biology is emphasized in all aspects of the course. Prereq.: Bio 10100 and 10200 or equivalent; pre- or coreq.: Chem 10301, Eng 21003, and Math 19500. (W) 2 lect., 4 lab. hr./wk.; 4 cr.

22800: Ecology and Evolution

Introduction to the basic principles of ecology and evolutionary biology emphasizing quantitative approaches and hypothesis testing. Computer literacy is attained using spreadsheets and the Internet. Prereq. or coreq.: Bio 20600 and Math 20900. (W) 2 lect., 4 lab. hr./wk.; 4 cr.

22900: Cell and Molecular Biology*

Fundamental concepts at the cellular and molecular level of living organisms, including structure, metabolism, genetic continuity, and response mechanisms. Prereq.: Bio 10200, Pre- or coreq.: Chem 26100; Bio 20600. 3 lect., 3 lab. hr./wk.; 4 cr.

**For Fall 2009 only, the laboratory components for Bio 10100, 10200, and 22900 will be 4 hours and the lecture component will be 2 hours.*

***For Fall 2009 only, Bio 20600 will be 3 credits.*

ADVANCED ELECTIVES**31100-32000: Selected Topics in Biology**

Discussions, student seminars, literature survey, experimental study focusing attention on specific areas in biology. Course topics will be selected by instructor and announced early in the preceding semester. Prerequisites to be determined by instructor. Hrs. and cr. (to a maximum of 4 cr.) to be determined by instructor.

33000: Survey of the Vertebrates

Survey of the major features of the vertebrates, including brief modern classification of the major groups and summary review of their morphological features, evolutionary history, distribution, ecology, and social behavior. Specific additional characteristics such as mimicry, ectothermy-endothermy, cannibalism, migration, predation, defense and use of venom will be discussed. Special attention is given to conservation, destruction of the environment and human impact on vertebrate life. Prereq.: Bio 10200. 3 hr./wk.; 3 cr.

34000: Biology of Invertebrates

The structure and function of various invertebrates selected to illustrate morphological, physiological and ecological adaptations. Prereq.: Bio 10200. 2 lect., 4 lab. hr./wk.; 4 cr.

34500: Botany

Survey of the structure, physiology, diversity and ecology of photosynthetic plants and fungi. (W) Prereq.: Bio 10200 and Chem 10310. 2 lect., 4 lab. hr./wk.; 4 cr.

34900: Field Botany

Identification and ecological relationships of local plants. Prereq.: Bio 10200 and 34500. 2 lect., and at least 4 hr. of field-work/wk.; 4 cr.

35000: Microbiology

Characteristics and systematics of prokaryotes and unicellular eukaryotes. Nutrition growth, physiological ecology, and comparative metabolism of bacteria. Methods used to study microbes. Introduction to viruses, microbial genetics, and mechanisms of microbial pathogenesis. Applied microbiology, microbial ecology, and microbes in symbioses. Prereq.: Bio 22900. (W) 2 lect., 4 lab. hr./wk.; 4 cr.

35500: Introduction to Analysis of Scientific Literature Using CREATE

This course has two goals: teach students to read primary literature (journal articles) and humanize science/scientists. We use a newly devised method, C.R.E.A.T.E. (Consider, Read, Elucidate the hypotheses, Analyze the data, and Think of the next Experiment) and supporting materials to give students tools needed for reading

and analysis of complex material, interpretation of tables, graphs, charts, etc. and critical analysis of data. Students are challenged to devise their own follow-up experiments for each paper read. Because we read papers in series, and communicate directly with some of the authors, students also get a "behind the scenes" view of how projects evolve in labs and about the people behind the published papers. If you take this course, you can expect to significantly improve your scientific reading/analysis skills, and get a more realistic perspective on "how science is done." Prereq.: Bio 20600 or 22900. 4 hr./wk.; 4 cr.

36400: Introduction to Neurobiology

Introduction to the physiology and organization of the nervous system. Topics include essentials of cellular and molecular neurobiology, electrophysiology, synaptic transmission, sensory and motor systems, development, neural basis of learning, memory, and cognition. Prereq.: Bio 20700 or 22900. 3 lect. hr./wk.; 3 cr.

37500: Developmental Biology

An in-depth analysis of the cellular and molecular mechanisms regulating development of animals and plants. Topics include: the production and storage of genetic information; sperm egg interactions; nuclear and cytoplasmic determinants; morphogenetic movements, inductive interactions and the development of primary organ rudiments; organogenesis; growth, differentiation and morphogenesis, mechanisms of aging, cancer, the immune system and regeneration; development of birth abnormalities; role of experimentation in the analysis of major developmental mechanisms in animals. (W) Prereq.: Bio 22900. 3 lect. hr./wk.; 3 cr.

37900: Developmental Neurobiology

The cellular/molecular basis of neuronal development. Lecture/discussion format with primary literature (journal articles) used as the text for the course. Prereq.: Bio 20700; pre- or coreq.: Bio 22900 and 37500. (W) 3 lect. hr./wk.; 3 cr.

38000: Eukaryotic Genetics

Classical, molecular, and population genetics of humans and model eukaryotic organisms (corn, yeast, fruit flies, etc.). Includes experimental and analytical techniques; human genetic disorders; forensic and diagnostic applications. Recommended for all life science students, especially those with career goals in the health and/or legal professions. (W) Prereq.: Bio 22900 and 22800. 2 lect., 4 lab. hr./wk.; 4 cr.

40000: Physiology and Functional Anatomy I

The integrated functioning of the musculo-skeletal and nervous systems is considered. Emphasis is placed on in-depth problem

solving, experimentation, interpretation of data and clinical case studies. This course is appropriate for students considering health related careers or advanced study in biomedical science. Not open to students who have taken Bio 33200. (W) Prereq.: Bio 20700 or Bio 10900 or equivalent. 2 lect., 4 lab. hr./wk.; 4 cr.

40100: Physiology and Functional Anatomy II

This is in-depth exploration of the integrated functioning of the cardiovascular, renal and pulmonary systems. Emphasis is primarily on human dynamic, non-pathological responses to a range of conditions including exercise and extreme environments. Structural and physiological aspects are covered. Clinical case studies highlight the interdependence of the systems. This course is appropriate for students considering health-related careers or advanced study in biomedical science. Not open to students who have taken Bio 33300. (W) Prereq.: Bio 20700 or Bio 10800 or equivalent, Bio 40000 or 332 or permission of instructor. 2 lect., 4 lab.hr. /wk.; 4 cr.

40200: Physiology and Functional Anatomy III

Physiological processes of energy acquisition and expenditure, including nutrition, digestion, and reproduction. Specific topics include endocrine regulation of food intake and reproduction, exercise physiology and limits to metabolic output, and temporal variation in physiological capabilities. (W) Prereq.: Bio 20700 or Bio 10900. 2 lect., 4 lab. hr./wk.; 4 cr.

40500: Development and Evolution

Principles of development as they relate to evolutionary changes in morphology of organisms. Discussion and analysis of classic papers in the literature. Prereq.: Bio 22800 or equivalent. 3 lect., hr./wk.; 3 cr.

41000: Cell Development and Cellular Senescence

Current topics related to the molecular biology of cell development including cell death or apoptosis and cellular aging. A series of lectures which cover pertinent topics, such as oxidative stress, genetic and stochastic factors in aging. Students are required to present orally two primary journal articles and to write a final paper in which a review of the current literature and provision of experimental designs are required to answer a chosen question. Prereq.: Bio 22900. (W) 3 hr./wk.; 3 cr.

42000: Virology

Introductory survey of diverse genera of animal viruses and bacteriophages and methods used in the classification, detection, and quantification of viruses. The course emphasizes an understanding of the mechanisms of DNA/RNA replication,

expression and macromolecular assembly into functional, infectious units (virions) in different viruses. Selected examples are presented in detail, including oncogenic RNA/DNA viruses and HIV/AIDS. Prereq.: Bio 22900 and Bio 35000, or permission of instructor. 4 lect. hr./wk.; 4 cr.

42500: Cancer Biology

Introduction to the fundamental principles of the cellular and molecular biology underlying cancer. Lectures will include principles of cell division and growth, and role of growth factors, oncogenes, tumor suppressor genes, and angiogenesis on the development of cancer. Discussions will include cancer epidemiology, health disparities, cancer prevention, and cancer treatment. Prereq: Bio 22900. 3 lect. hr./wk.; 3 cr.

43000: Genetics of Prokaryotes

The lectures will cover basic microbial genetics, including the biology of bacteria and their phages, structure and function of nucleic acids, gene transmission in microbial systems and the mechanisms of genetic recombination, transposition, and gene regulation. The laboratory experiments will teach mastery in techniques of mutagenesis, selection and screening, gene mapping, and use of transposons in the construction of genetically useful strains. Prereq.: Bio 22900 and Bio 35000, or permission of the instructor. (W) 3 lect., 2 lab. hr./wk.; 4 cr.

45300: Conservation Biology

Principles of conservation biology, including habitat fragmentation, exploitation of natural resources, species extinction and the consequences of inbreeding in small populations. Prereq.: Bio 22800 or equivalent. (W) 3 hr./wk.; 3 cr.

45400: Sensory Perception

Different types of sensory systems with their functional modalities will be presented. The biological bases for how these functions are generated and modified will then be described. As vision is the principal means of perception, we will focus in this course most on visual processing. Scientific data will be integrated into the lectures, such that students develop critical skills in analyzing data and proposing hypotheses. Prereq.: Bio 36400. 2 lect. hr./wk.; 3 cr.

45500: Advanced Ecology

Introduction to the analytical techniques necessary to quantify modern ecological theory. Emphasis on application of mathematical tools and computers to models of population growth, interspecific interactions and ecosystem function. Prereq.: Bio 22800 and Math 20900. 3 hr./wk.; 3 cr.

45900: Biological Oceanography

A survey course in biological oceanography that includes discussion of the physical and chemical properties of the ocean, processes controlling primary and secondary production, biodiversity, and special environments such as polar ecosystems and upwelling systems. Lecture only. Prereq.: Chem 10401, Bio 22800 or permission of the instructor. (W) 3 hr./wk.; 3 cr.

46000: Animal Behavior

The biological bases of behavior, with emphasis on such topics as the development, evolution, genetics and ecology of behavior; sensory physiology; social behavior and communication. Prereq.: Bio 10200. (W) 3 hr./wk.; 3 cr.

46100: Laboratory in Animal Behavior

Experiments and observations to demonstrate various types of behavior and behavioral capacities at different phyletic levels. Introduction to techniques of behavioral research through experiments and an individual research project. Coreq.: Bio 46000. (W) 3 lab. hr./wk.; 2 cr.

46400: Laboratory in Neurobiology

Laboratory course in which techniques used in cellular and systems neurobiology are taught in the context of solving biological problems. Techniques to be covered include basic histological, molecular biological, electrophysiological, and behavioral techniques used in modern neurobiology. Prereq.: Bio 36400. (W) 6 lab. hr./wk.; 3 cr.

46600: Plant Physiology

The growth, development, metabolism, nutrition and water relations of vascular plants and algae. Prereq.: Bio 22900. (W) 2 lect., 4 lab. hr./wk.; 4 cr.

46800: Comparative Animal Physiology

This course examines the physiological process involved on energy acquisition (e.g., nutrition, digestion) and expenditure (e.g., thermoregulation, locomotion) as well as water balance (e.g., osmotic stress, kidney function) in a wide variety of organisms inhabiting diverse environments. Laboratory exercises include problem solving recitations, experimentation and interpretation of data. Prereq.: Bio 10900 or 20700. (W) 2 lect., 4 lab. hr./wk.; 4 cr.

48300: Laboratory in Biotechnology

This course is designed to give students an introduction to modern molecular biological techniques in the context of solving biological questions. The techniques that will be taught include DNA isolation, restriction enzyme mapping, subcloning of DNA fragments into plasmids, polymerase chain reaction, protein purification, cell culture, and other techniques of gene

manipulation. Emphasis will be on application of recombinant DNA technology. Prereq.: Bio 22900 and permission of instructor. (W) 2 lect., 6 lab. hr./wk.; 5 cr.

48500: Evolution

Historical development and current understanding of the principles of evolution. Prereq.: Bio 22800. (W) 3 hr./wk.; 3 cr.

HONORS AND SPECIAL COURSES

The maximum for both Honors and Independent Studies is nine credits but only six may count toward the 39 required for the major.

30100-30300: Honors I-III

Honors work requires the approval of the Dean, of the Departmental Committee on Honors and Independent Studies and of the mentor. Application must be made in J1320 and also to the Departmental Committee. Entrance standards are Bio 10100, 10200, 20600, and at least two of 20700, 22800, or 22900 for Biology majors with an average of 3.5 in Biology and 3.0 or better overall. Only laboratory or field projects will be accepted for Honors. All students participating are expected to present the results of their work at the Honors and Independent Study symposium in the Spring. A written paper must accompany the presentation. Although mentors are responsible for giving grades, these grades will be reviewed by the Committee before a final grade is awarded. 3 cr./sem. for a total of 9 cr. which must be completed.

31000: Independent Study

Individual laboratory, field, or library investigation of a problem. Recommended background: Bio 10100, 10200, 20600, and at least two of 20700, 22800 or 22900, with a 3.0 average in Biology. Apply to the Committee on Honors and Independent Studies. Students may not register for Independent Study without written permission from the Committee every semester. Students must present a written proposal with well defined goals to the committee for approval. No more than three credits of library research may be taken. In order to receive credit, a written paper must be produced and presented to the Committee. Students who work with mentors outside the department must also have a co-sponsor inside the department. Although mentors are primarily responsible for giving grades, these grades will be reviewed by the Committee before a final grade is awarded. 1-3 cr./sem.

GRADUATE COURSES OPEN TO UNDERGRADUATES

Qualified undergraduate students may take selected graduate courses. Permission of the Instructor, and the Biology Department advisors or the Deputy Chair must be obtained before a student may register for these courses. The courses are described in the Graduate Bulletin of The City College.

FACULTY**Robert P. Anderson, Associate Professor**

B.A., Kansas State Univ.; Ph.D., Univ. of Kansas

Paola Bellosta, Associate Professor

B.A., Univ. of Milan, Ph.D.

Amy Berkov, Assistant Professor

BFA., Univ. Colorado; Ph.D., CUNY

Avrom Caplan, Professor

BSc., University of Sussex (U.K.);

Ph.D., Univ. of London (U.K.)

Ana Carnaval, Assistant Professor

B.S., Universidade Federal do Rio de Janeiro (Brazil), M.S.; Ph.D., Univ. of Chicago

Jay A. Edelman, Associate Professor

A.B., Univ. of California (Berkeley),

Ph.D. (Berkeley/San Francisco)

Jane C. Gallagher, Professor

B.S.-A.M., Stanford Univ.; Ph.D., Univ. of Rhode Island

Shubha Govind, Professor

B.S., M.S., Delhi Univ.; Ph.D., Univ.

Illinois (Urbana-Champaign)

Jerry Guayden, Professor

B.A., North Texas State, M.S.; Ph.D.,

Univ. of California (Berkeley)

Sally Hoskins, Professor

B.S., Univ. of Illinois; Ph.D., Univ. of

Chicago.

Karen Hubbard, Professor

B.A., Barat College; Ph.D., Illinois

Inst. Of Tech.

Anuradha Janakiraman, Assistant Professor

B.Sc., Presidency College; M.Sc. Univ.

of Calcutta; M.S. Kent State Univ.;

Ph.D. Univ.

of Illinois (Urbana-Champaign)

John J. Lee, Distinguished Professor

B.S., Queens College; M.A., Univ. of

Mass.; Ph.D., NYU

Daniel Lemons, Professor and Dean, Division of Science

B.A., Goshen College; M.S., Portland

State Univ.; Ph.D., Columbia Univ.

Medical School

Jonathan B. Levitt, Associate Professor

B.A., Univ. of Pennsylvania; M.A., New York Univ., Ph.D.

Christine Li, Professor and Chair

A.B., Columbia Univ., M.S.; Ph.D., Harvard Univ.

David Lohman, Assistant Professor

B.S., Bradley University; Ph.D., Harvard Univ.

Mark Pezzano, Associate Professor

B.S., William Paterson; Ph.D., CUNY

Robert Rockwell, Professor

B.S., Wright State, M.S.; Ph.D., Queen's Univ., Kingston (Canada)

Adrian Rodriguez-Contreras, Assistant Professor

B.Sc., Universidad Nacional Autonoma de Mexico; Ph.D., University of Cincinnati

Gillian M. Small, Professor and University Dean for Research, CUNY

B.Sc. Wolverhampton Univ. (U.K), Ph.D.

Ofer Tchernichovski, Associate Professor

B.Sc., Tel Aviv Univ.; DVM, The Hebrew Univ.; Ph.D., Tel Aviv Univ.

Tadmiri R. Venkatesh, Professor

B.S., Univ. of Mysore, India; M.S., Birla Institute of Technology and Science, India, Ph.D.

Joshua Wallman, Professor

A.B., Harvard Univ.; Ph.D., Tufts Univ.

PROFESSORS EMERITI

Donald Cooper

Lawrence J. Crockett

Robert P. Goode

Joseph Griswold

Kumar Krishna

Linda H. Mantel

Olivia Mckenna

James A. Organ

Robert A. Ortman

Joseph Osinchak

Gerald S. Posner

Janis A. Roze

Norman M. Saks

Robert J. Shields

Carol Simon

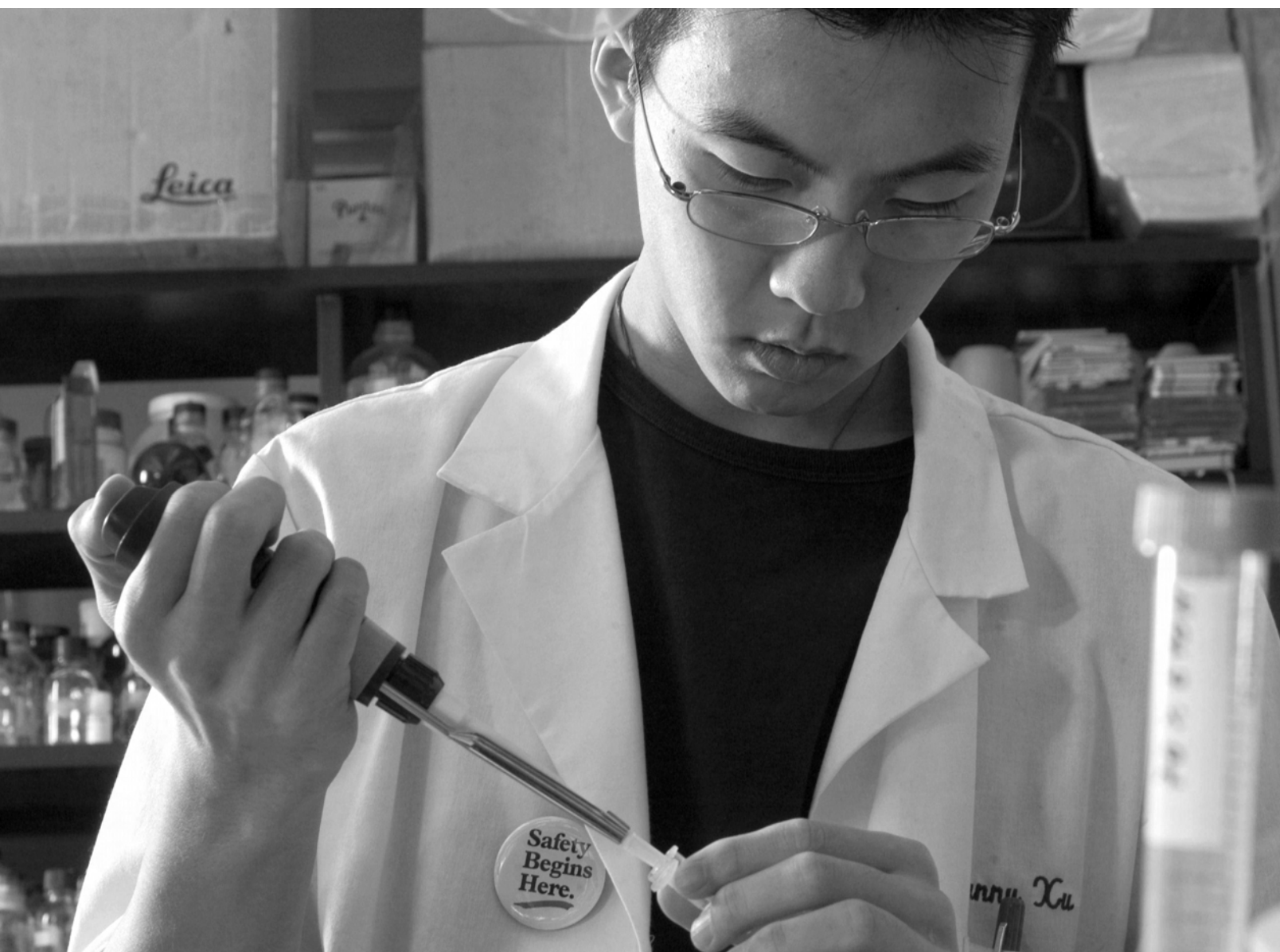
William N. Tavalga

John H. Tietjen

Aaron O. Wasserman

Stanley C. Wecker

Ralph C. Zuzulo



Black Studies Program

(DIVISION OF SOCIAL SCIENCE)

Professor Arthur Spears, Director • Program Office: NA 6/108 • Tel: 650-8117

GENERAL INFORMATION

The City College offers the following undergraduate degree in Area Studies:

B.A.

PROGRAMS AND OBJECTIVES

Black Studies is a body of knowledge reflecting global African peoples' participation in and contribution to the evolution, development and civilizations of mankind. It is a multidisciplinary program, encompassing a broad-based approach to the Africana experience within the context of human evolutionary development, history, race, ethnicity, and politico-economic interrelationships. The scholarship and teaching of Black Studies emanates from a set of distinct principles that are based on the interconnectedness of African and African Diaspora peoples' diverse experiences. Scholarship and teaching in Black Studies involves the interdisciplinary creation and dissemination of knowledge about peoples of African descent from a perspective that places Black people at the center of their own experiences. Fundamental to this venture is the intent not only to study the world but also to actively engage in transforming it. Black Studies interrogates the methods, paradigms and assumptions of the various disciplines in the humanities, social sciences, arts, and natural sciences not only as a corrective but also as an independent discipline that produces its own body of knowledge, methods and theories. This distinguishes Black Studies from an interest in black issues based on traditional disciplinary paradigms, which often marginalize, minimize or neglect black people and lack a component

of advocacy for social change. The program curriculum offers academic training in various interdisciplinary approaches, methods, interpretations, ethics, philosophies, and ideologies. Students are offered the opportunity to be placed in community-based organizations for at least one year.

The CCNY Black Studies program offers geopolitical, socioeconomic and cultural concentrations in Africa, the Caribbean and African-America.

STRUCTURE OF CURRICULUM

The courses of the Black Studies program are categorized under four subject matter areas and three geopolitical areas. Through guidance, students interested in identified subject matter areas will be able to develop an individual plan of study.

Subject Matter Areas

Black World Development
African American Socio-Economy
Latin American and Caribbean Socio-Economy
Special Topics and Independent Studies

Geopolitical Areas

African
African-American
Caribbean-Brazilian

REQUIREMENTS FOR MAJORS

Students must complete the following:

Required Courses

| | |
|--|---|
| 10100: African Heritage and the Afro-American Experience | 3 |
| 10200: African Heritage and the Caribbean-Brazilian Experience | 3 |

Elective Courses

| | |
|----------------------|-----------|
| Black Studies | 24 |
| Total Credits | 30 |

ADDITIONAL REQUIREMENTS

In addition to major requirements, all Black Studies majors must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) or Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)
2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

REQUIREMENTS FOR MINORS

Required Courses

| | |
|--|---|
| 10100: African Heritage and the Afro-American Experience | 3 |
| 10200: African Heritage and the Caribbean-Brazilian Experience | 3 |

Elective Courses

| | |
|-----------------------|-----------|
| Four approved courses | 12 |
| Total Credits | 18 |

PROGRAM ACTIVITIES

Program Activities include: Institute for Research on the African Diaspora in the Americas and the Caribbean,

AWARDS

Black Faculty and Staff Annual Scholarship Awards

Annual Convocation Awards for Outstanding Services
Wilfred Cartey Award for Africana Literary and Creative Excellence
Edward Scobie Award for Africana Social Science Research
Marshariki Chaney Award for Achievement and Community Service

ADVISEMENT

Professor Venus Green
 NA 4/120, 212-650-8656

COURSE DESCRIPTIONS

Introductory and Intermediate Courses

10100: African Heritage and the Afro-American Experience

Introduction to Black "roots" from ancient Africa to contemporary America as an orientation to the nature of Black Studies emphasizing its relationships to world history, Europe, Asia, the Americas, slavery, Reconstruction, colonization, racism, and their politico-economic and cultural impact upon African descendants worldwide. 3 hr./wk.; 3 cr.

10200: African Heritage and the Caribbean-Brazilian Experience

Analysis of historical conditions which shaped the lives of African peoples in the Caribbean and Brazil emphasizing cultural continuities, human organization and similarities in global Black experience among Africans on the continent and in the Western hemisphere, vis-a-vis European politico-economic control and cultural impact. 3 hr./wk.; 3 cr.

14900: Religion and Survival

An historical analysis of the role of religion and the church in sustaining the survival of Black people within white America. (W) 3 hr./wk.; 3 cr.

15500: Black Studies and Black Psychology

Derives its unique status from African philosophy which formulates the values, customs, attitudes, and behavior of Africans in Africa and the African diaspora. Examines, conceptualizes and interprets from an Afrocentric perspective, centered in the history and development of Africa. (W) 3 hr./wk.; 3 cr.

17100: Roots: Seminar on the Black World Experience

The study of a people involuntarily and forcibly transported from Africa to the

Americas. The organizing concepts include African world history, culture and religion, family and genealogy, capitalism and slavery, humanism and communalism, socialization and values, cosmology and philosophical thought. (W) 3 hr./wk.; 3 cr.

17600: The Black Revolution

A survey of the forces shaping the current unrest in the world-wide Black community. Movements that project the changed attitude toward being Black for Blacks and non-Blacks. Highlights both the positive and negative reactions resulting from the new self-pride on the part of Black people. (W) 3 hr./wk.; 3 cr.

20000-20400: Practicum

Field work experience in various areas of community service and pre-professional work. Hours arranged. One day per week in field and two hour seminar bimonthly. Students are limited to two courses. 3 cr. each

21000-21300: African World Area Studies

A semester or summer-long course designed to expose selected groups of students to major areas populated by persons of African descent through in-area observation, study, laboratory, and cooperative volunteer work experiences with students and other citizens of the area visited. (W) 3 hr./wk.; 3 cr.

21000: African Area Studies

21100: Afro-American Studies

21200: Caribbean Studies

21300: Brazilian and Afro-Latin American Area Studies

Black World Development

12300: African Politics

The emergence of the modern state structures from colonial Africa. A comparative analysis of colonialism, nationalism and political development of selected African countries. (W) 3 hr./wk.; 3 cr.

12400: National Building and Development in Africa

A survey of patterns of leadership, ideologies, and political organization in contemporary Africa. The "revolutionary" pattern will be contrasted to the "conservative" pattern in an effort to provide a contextual understanding of the relationship between political attitudes and social problems. (W) 3 hr./wk.; 3 cr.

12800: The United Nations and New Nation States

The major legal and constitutional problems in international organizations arising in the work of the United Nations with particular reference to decolonization,

apartheid, transfer of "appropriate" technology to the developing world, trusteeship questions, peacekeeping functions, human rights, and domestic jurisdiction. (W) 3 hr./wk.; 3 cr.

13500: Economic Development of the Black Community

The impact of technology and industrialization on the Black ghetto; the economics of transportation; perpetuation or disintegration of the ghetto; public welfare; municipal services; effects of migration, limited autonomy, and hostile external political and fiscal policies upon continuous underdevelopment. (W) 3 hr./wk.; 3 cr.

African-American Socio-Economy

13200: The Afro-American Child in His Urban Setting

The sociological, psychological and educational needs of Black children in New York City public and private schools. (Education majors must consult their advisor.) (W) 3 hr./wk.; 3 cr.

13400: The Harlem Community

The origins and ethnic development of the Harlem community; demographic trends, institutions, culture, resources, and the role of Harlem as a training ground for Black leadership. Field learning experiences include visits to historic sites and community landmarks. 3 hr./wk.; 3 cr.

14500: Capitalism and Colonialism in Contemporary America

White America is described as capitalist and colonialist. Efforts will be made to comprehend the relative importance of the two phenomena for strategies of liberation depending upon the understanding of who and what is the American and America. (W) 3 hr./wk.; 3 cr.

14700: The Civil Rights Movement

The struggle for civil rights related to differences in organizational structures, ideologies and tactics. An attempt is made to evaluate each organization in its situation and in contrast to its social environment. 3 hr./wk.; 3 cr.

15700: Racism and the American Legal System

Contemporary legal institutions, their intrinsic race and class biases, the peculiar development and entanglement of the institution of slavery and American jurisprudence, and the effect of the racist application of the American legal system on every facet of the Black experience. (W) 3 hr./wk.; 3 cr.

18900: Sociopolitical Impact of Race and Racism

The historical development and contemporary impact of the concepts of race and

racism, focusing upon the early attempts at human classification, notions of poly-genesis, the biological and social concepts of race, the origins of racism, slavery, sexism, institutional racism, and contemporary polarization. (W) 3 hr./wk.; 3 cr.

19000: Malcolm X: His Life, Leadership and Legacy

Charismatic, mesmerizing, energetic life. Rise from criminal to international fame. Leadership greatly influenced poor African-American masses, stunned Black conservatives and shocked white America. Black Muslims controversy vis-a-vis civil rights forced him to fight independently. Left legacy of beloved martyr slain in Black struggle. (W) 3 hr./wk.; 3 cr.

33000: Afro-American Heritage: 1619 to 1865

A survey of the sociocultural experiences of African peoples in the North American diaspora defining the historical, economic and political origins of the contemporary position of the Afro-American. 3 hr./wk.; 3 cr.

33100: Afro-American Heritage: 1865-Present

A survey of the Black experience in America, this course will focus upon the major issues, trends, personalities, and literature of the period, the contradictions of Emancipation, and will examine Reconstruction, migration, and exodus, Black Renaissance, the Civil Rights Movement, Black power and nationalism. 3 hr./wk.; 3 cr.

33300: The Black Woman

The various contemporary situations and problems peculiar to Afro-American women in the community and in American society. Entails a study of such institutions as marriage, family, childrearing practices, religion, politics and business. Attention also given to how she is projected in literature and theater. A comparative study of African and Caribbean women will be presented. 3 hr./wk.; 3 cr.

Latin American and Caribbean Socio-Economy

16100: Caribbean and Brazilian Heritage

A survey of economic and sociocultural factors. History of the Caribbean and Brazil, with special emphasis on the experience of African peoples dispersed in these areas, their role in the affairs of the Third World, varied colonial experiences, covering the pre-Columbian period through the present. 3 hr./wk.; 3 cr.

16300: Race and Politics in the Caribbean

The relationship between race and class; political power dependency in various Caribbean areas. The colonial and neocolonial experiences of key islands, and movements toward autonomy and independence. (W) 3 hr./wk.; 3 cr.

16600: Caribbean Immigration

An analysis of the economic and political factors leading to the 19th and 20th century population movements into, within, and from the Caribbean region, stressing migration to the United States, the Caribbean communities in New York, Panama, Central America, London, Paris, Montreal, New Haven, Caracas and Toronto. Immigration issues worldwide will be studied comparatively. 3 hr./wk.; 3 cr.

Special Topics and Independent Studies

30100-39400: Honors

Approval of the Program Director required. no Apply no later than December 10 in the Fall term and May 1 in the Spring term. Variable cr., but usually 4 cr./sem.

31000: Independent Reading in Black Studies

Approval of Program Director is mandatory. Program thoroughly planned and structured. The student will be required to produce evidence of the readings available and relevant to his/her interests. The readings must be compiled into a comprehensive report. Limited to upper-class students with adequate background in Black Studies. (W) 1-4 cr.

Courses in other Departments

In addition to the courses listed above, many courses from other divisions and departments of the College may be accepted towards the degree. Please consult the Program Director and Program Advisor each semester for a list of acceptable courses.

FACULTY

The faculty of the program includes those professors who teach the program's courses and those whose departmental courses may be credited to the major.

Department of Chemistry

(DIVISION OF SCIENCE)

Professor Simon Simms, Chair • Department Office: MR 1024 • Tel: 212-650-8402

GENERAL INFORMATION

The City College offers the following undergraduate degree in Chemistry:

B.S.

PROGRAMS AND OBJECTIVES

The Chemistry Department, established in 1849, offers instruction and research training in the following areas:

Analytical Chemistry

Biochemistry

Environmental Chemistry

Inorganic Chemistry

Organic Chemistry

Physical Chemistry

The B.S. program is available for students planning to go into advanced study, government service, the health professions, and secondary school education. There are a number of pathways by which students may specialize in chemistry. The Standard Chemistry curriculum is the program of choice for those who have not yet decided upon their specific career goals and who wish to maximize their opportunities. The Biochemistry Concentration is more specialized and is often chosen by premedical students and students interested in doing life science research. The Environmental Concentration is for students wishing to pursue an industrial or graduate career in the environmental sciences. Students taking this concentration are trained to identify the effects of chemical species on the environment, to trace the sources, reactions and fates of such species and to devise chemical methods for treating environmental problems and bringing them under control. The Secondary Education Concentration is for students who plan

to become secondary school teachers upon graduation. Each of the pathways is flexible and detailed curricula may be obtained by phoning or visiting the Department Office.

There is no "premed major" as such at City College. Premedical students major in biochemistry, biology, chemistry or some other discipline while completing the requirements for admission into medical school. The Department cooperates closely with the Program in Premedical Studies (PPS), a program of the Division of Science. This program features a curriculum which integrates a variety of learning experiences specifically preparing participants to meet the requirements of medical, dental and veterinary schools, and also the requirements for admission into physician's assistant and physical therapy advanced degree programs.

Research and Honors

The Chemistry Department maintains an active undergraduate research program. Students may receive up to 9 credits for their research work by enrolling in Honors (Chem 30100-30400) or Independent Study (Chem 31001-31004) with permission of the Undergraduate Research Supervisor. Financial support for research may be available for some students through a variety of grant-sponsored programs.

REQUIREMENTS FOR MAJORS

Non-Chemistry Core Requirements

Bio 10100: Foundations of Biology I 4

One of the following two: 4

EAS 16000: Earth Systems Science (4 cr.)

Bio 10200: Foundations of Biology II (4 cr.)

Mathematics:

20100: Calculus I 3

20200: Calculus II 3

20300: Calculus III 4

Physics:

20700: General Physics I 4

20800: General Physics II 4

General Education Requirements 35

In addition, all Chemistry majors must complete "Basic Courses for Chemistry Majors" and either the "Standard Chemistry Concentration" or one of the alternative concentrations. Students may also elect to satisfy the American Chemical Society Certification requirements.

Total Credits for Core Courses 51

Basic Courses for Chemistry Majors

Required Courses

10301: General Chemistry I 4

10401: General Chemistry II 4

24300: Quantitative Analysis 4

26100: Organic Chemistry I 3

26300: Organic Chemistry II 3

27200: Organic Chemistry Laboratory I 3

33000: Physical Chemistry I 3

Total Credits for Basic Courses 24

Standard Chemistry Concentration

Required Courses

42500: Inorganic Chemistry 3

33100: Physical Chemistry Laboratory I 2

33200: Physical Chemistry II 3

37400: Organic Chemistry Laboratory II 3

43400: Physical Chemistry and Chemical Instrumentation Laboratory II 3

45902: Biochemistry I 3

Total Credits for Standard Chemistry Concentration 17

Biochemistry Concentration**Required Courses****Chemistry:**

| | |
|---|---|
| 33500: Physical Biochemistry (Spring semester only) | 5 |
| 37400: Organic Chemistry Laboratory II | 3 |
| 45902: Biochemistry I | 3 |
| 45904: Biochemistry Laboratory | 2 |
| 48005: Biochemistry II (Spring semester only) | 3 |

Biology:

| | |
|---|-----|
| 10200: Foundations of Biology II | 4 |
| One of the following two: | 3-4 |
| 20600: Introduction to Genetics (3 cr.) | |
| 22900: Cell and Molecular Biology (4 cr.) | |

Total Credits for Biochemistry Concentration 23-24

Environmental Concentration**Required Courses**

| | |
|---|-----|
| Chem 33100: Physical Chemistry Laboratory I | 2 |
| Chem 33200: Physical Chemistry II | 3 |
| Chem 40600: Fundamentals of Environmental Chemistry | 3 |
| Chem 40700: Environmental Organic Chemistry | 3 |
| Chem 42500: Inorganic Chemistry | 3 |
| Chem 43400: Physical Chemistry and Chemical Instrumentation Laboratory II | 3 |
| Chem 45902: Biochemistry I | 3 |
| A minimum of 6 credits from the following science courses: | 6-8 |
| EAS 21700: ESS: Physical and Chemical Principles (4 cr.) | |
| EAS 31300: Environmental Geochemistry (3 cr.) | |
| EAS 47200: Environmental Project (4 cr.) | |
| BIO 22800: Ecology and Evolution (4 cr.) | |
| Two of the following courses: | 5-8 |
| BIO 35000: Microbiology (4 cr.) | |
| BIO 45900: Biological Oceanography (3 cr.) | |
| Chem 40601: Environmental Chemistry Laboratory (2 cr.) | |
| CE H7700: Biological Systems in Environmental Engineering (3 cr.) | |
| EAS 33000: Graphic Information Systems (3 cr.) | |
| EAS 34500: Hydrology (3 cr.) | |
| EAS 42600: Environmental Remote Sensing (3 cr.) | |
| EAS 43900: Mineral/Energy Resources (4 cr.) | |

Elective Courses

A minimum of 6 credits from Chemistry Advanced Courses 6-8

Total Credits for Environmental Concentration 40-48

Secondary Education Concentration

Major requirements are listed below. Pedagogical requirements are listed in the Department of Education section in this Bulletin.

Required Courses

| | |
|--|---|
| 33100: Physical Chemistry Laboratory I | 2 |
| 33200: Physical Chemistry II | 3 |
| 43400: Physical Chemistry and Chemical Instrumentation Laboratory II | 3 |

Total Credits for Secondary Ed. Option 8

ADDITIONAL REQUIREMENTS

All Chemistry majors must maintain a C average in Chemistry courses. No courses beyond General Chemistry may be taken unless a C is obtained in all prerequisite courses (or permission is received from the Chair).

In addition to major requirements, all Chemistry majors must complete the following:

1. General Education Requirement including FIQWS, Calculus, Perspective and In-depth requirements (for students who entered after Fall 2008) or Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2008)
2. English 21003
3. Foreign Language Requirement
4. CPE Examination
5. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

For American Chemical Society Certification

Students wishing to receive American Chemical Society Certification must complete the requirements for their

chosen option and the following courses.

Standard Chemistry Concentration

Three graduate level courses chosen in consultation with the advisor (may include up to six credits of Honors Research/Independent Study or three credits of Honors Research/Independent Study and three credits of Environmental Chemistry): 8-11

Biochemistry Concentration

42500: Inorganic Chemistry 3
Two graduate level courses chosen in consultation with the advisor (may include up to six credits of Honors Research/Independent Study or three credits of Honors Research/Independent Study and three credits of Environmental Chemistry): 5-10

Secondary Education Concentration

42500: Inorganic Chemistry 3
37400: Organic Chemistry Laboratory II 3
45902: Biochemistry I 3

PREMEDICAL OR PREDENTAL STUDENTS

Pre-medical or pre-dental students who are not chemistry or biochemistry majors are required to take the following:

Required Courses

| | |
|---|-----|
| 10301: General Chemistry I | 4 |
| 10401: General Chemistry II | 4 |
| 26100: Organic Chemistry I | 3 |
| 26300: Organic Chemistry II | 3 |
| One of the following: | 2-3 |
| 26200: Organic Chemistry Laboratory I (2 cr.) | |
| 27200: Organic Chemistry Laboratory I (3 cr.) | |

Elective Courses

If additional chemistry electives are desired, the following courses are recommended:

| | |
|--|---|
| 24300: Quantitative Analysis | 4 |
| 33000: Physical Chemistry I | 3 |
| 33500: Physical Biochemistry | 5 |
| 37400: Organic Chemistry Laboratory II | 3 |
| 45902: Biochemistry I | 3 |
| 45904: Biochemistry Laboratory | 2 |
| 48005: Biochemistry II | 3 |

STUDENTS PLANNING GRADUATE WORK

For students planning graduate work in chemistry, the following additional courses are recommended:

Mathematics:

39100: Methods of Differential Equations 3

39200: Linear Algebra and Vector Analysis 3

Experience in statistics and computer science.

Reading proficiency in at least one language with a significant scientific literature.

ADVISEMENT

All students, including premedical and predoctoral students, planning to concentrate in chemistry should consult a Concentration Advisor.

Chemistry

Professor V. Balogh-Nair
MR 1215; 212-650-8340

Biochemistry

Professor Michael Green
MR 1133; 212-650-6034

Undergraduate Research Supervisor

Professor S. Simms
MR 1024; 212-650-8402

Exemption Examinations

Professor S. Simms
MR 1024; 212-650-8402

UNDERGRADUATE RESEARCH PROGRAMS

Minority Access and Research Careers (MARC) Research Initiative for Scientific Enhancement (RISE)
Professor M. Steinberg
MR 629; 212-650-8560

Center for Analysis of Structures and Interfaces (CASI)
Professor D. Akins
MR 1120; 212-650-6953

Pathways Bioinformatics and Biomolecular Center
Professor D. Gosser
MR 1102; 212-650-8870

CUNY Institute for Macromolecular Assemblies
Professor R. Stark
MR 1208

TUTORING

Extensive tutoring services are available for general chemistry students in the Chemistry Learning Center (MR 1029) during most of each school day. Additional tutoring is offered through CCAPP and several undergraduate research programs.

SEMINARS

The Chemistry Department sponsors weekly seminars on topics of current interest. Advance notice of these seminars will be posted near Room 1024, and all interested students are invited to attend.

AWARDS, PRIZES AND SCHOLARSHIPS

Each year the Department presents a number of awards and prizes to its outstanding students.

Baskerville Award

J. Birnbaum Scholarship Award

Frank and Rose Brescia Award

Ernest Borek Scholarship

Freshman Handbook Award

Benjamin Harrow Memorial Award

Robert and Frances Hochman Scholarship

Arthur G. Levy Prize

Seymour Mann Scholarship

Marks Neidle Memorial Prize

Max Pavay Scholarship

Samuel and Louis Rover Award in

Biochemistry

Ward Medal in Chemistry

COURSE DESCRIPTIONS

Students may register for Chemistry 10301 if eligible for Calculus on the basis of mathematics placement test scores or completion of Math 19500. All others are required to take Chemistry 10100 (Introduction to Chemistry) prior to 10301.

INTRODUCTORY COURSES

10000: Chemistry and Society

The fundamental principles of chemistry and their application to social issues. (Open to Science majors only with permission of instructor). 3 hr./wk.; 3 cr.

10100: Introduction to Chemistry

(For students with limited background in mathematics or the physical sciences.) Problem-solving in chemistry: introduction

to chemical and physical concepts. Coreq.: Math 19000. 3 hr./wk.; 1 cr.

CORE COURSES

10301: General Chemistry I

This is the first semester of a two-semester general chemistry course-sequence. An in-depth introduction to the fundamental laws and techniques of chemistry for majors in science and engineering. Topics include: measurement; stoichiometry; the gaseous state; thermochemistry; atomic structure and chemical bonding; redox reactions; solids, liquids and intermolecular forces. Prereq.: Math 19500., 3 lect., 2 lab, 2 workshop hr./wk.; 4 cr.

10401: General Chemistry II

This is the second semester of a two-semester general chemistry course-sequence. An in-depth introduction to the fundamental laws and techniques of chemistry for majors in science and engineering. Topics include: chemical kinetics; chemical equilibrium; acids and bases; free energy, entropy and the second law of thermodynamics; electrochemistry; advanced bonding concepts; metals and coordination chemistry; and nuclear chemistry. Prereq.: Chem 10301. 3 lect., 3 lab., 1 workshop hr./wk.; 4 cr.

ADVANCED COURSES

21000: Applied Chemistry for Biomedical Engineers

Introduces students to organic chemistry and biochemistry principles relevant to the study of the human body. Topics covered include: hydrocarbons; functional groups; and structure and function of biomolecules (lipids, carbohydrates, proteins, and nucleic acids), along with their interactions; and introduction to molecular genetics. Prereq.: Chem 10401 (min. C grade). 3 hr./wk.; 3 cr.

24300: Quantitative Analysis

Volumetric, spectrophotometric and electrochrometric analyses. Prereq.: Chem 10401. (W) 3 lect., 4 lab. hr./wk.; 4 cr.

26100: Organic Chemistry I

An introduction to the chemistry of carbon compounds, current interpretation of the reactions and properties of these compounds. Prereq.: Chem 10401. 3 lect., 1 rec. hr./wk.; 3 cr.

26200: Organic Chemistry Laboratory I

(For non-Chemistry majors) Exercises involving the preparation and purification of carbon compounds. Prereq.: Chem 10401 and Chem 26100; coreq.: Chem 26300. 4 hr./wk.; 2 cr.

26300: Organic Chemistry II

A continuation of Chem 26100. Prereq.: Chem 26100. 3 lect., 1 rec. hr./wk.; 3 cr.

27200: Organic Chemistry Laboratory I

(For Chemistry majors) Exercises stressing the techniques involved in the preparation, isolation, purification, and analysis of carbon compounds. Prereq.: Chem 10401 and Chem 26100; coreq.: Chem 26300. 6 hr./wk.; 3 cr.

33000: Physical Chemistry I

Ideal and real gases, kinetic molecular theory, thermodynamics and phase equilibria, solutions. Prereq.: Chem 10401, Math 20300, and Physics 20700; coreq.: Physics 20800 (recommended as a prereq.). Students who feel that they would benefit from workshops should also take Chem 33001. 3 hr./wk.; 3 cr.

33001: Physical Chemistry I Workshop

(Optional workshop). Coreq.: Chem 33000. 2 hr./wk.; 0 cr.

33100: Physical Chemistry Laboratory I

Vapor pressures; phase diagram; combustion calorimetry; gas viscosities; electrochemical determination of thermodynamic quantities and other experiments based on topics covered in Chem 33000. Prereq.: Chem 24300; pre-or coreq: Chem 33000. (W) Spring Semester only. 5 hr./wk.; 2 cr.

33200: Physical Chemistry II

Spectroscopy, quantum mechanics, and statistical thermodynamics. Students who feel that they would benefit from workshops should also take Chem 33201. Prereq: Chem 33300 or (ChE 22900 and ChE 33000). Math 391 is highly recommended. 3 hr./wk.; 3 cr.

33201: Physical Chemistry II Workshop

(Optional workshop) Coreq.: Chem 33200. 2 hr./wk.; 0 cr.

33500: Physical Biochemistry

(For students taking the biochemistry concentration) Thermodynamics, kinetics, transport, spectroscopy, solids, surface and electrochemistry as applied to biological systems. Prereq.: Chem 24300, 26300, and 33000. Spring semester only. (W) 3 lect., 1 rec., 4 lab. hr./wk.; 5 cr.

37400: Organic Chemistry Laboratory II

A continuation of Chemistry 26200/27200 stressing qualitative organic analysis. Prereq.: Chem 26300 and Chem 26200 or 27200. 6 hr./wk.; 3 cr.

38200: Chemistry-Physics-Engineering Seminar I

Required for certain undergraduate students; emphasis on topics in physical,

organic and inorganic chemistry. Fall semester only. 1 cr.

38300: Chemistry-Physics-Engineering Seminar II

Required for certain undergraduate students; emphasis on topics in physical, organic and inorganic chemistry. Spring semester only. 1 cr.

40300: Chemical Information Sources

An introduction to the retrieval of chemical information. Topics covered: primary, secondary and tertiary literature, including the major abstract journals, data sources, compendia, patents, current awareness, and computer readable sources. Prereq.: Chem 10401 and Chem 26100. Spring semester only. 1 hr./wk.; 1 cr.

40500: Safety in Chemistry

Laboratory and plant safety and toxicology; safety regulations. Prereq.: Chem 10401 and Chem 26100. Spring semester only. 1 hr./wk.; 1 cr.

40600: Environmental Chemistry

Chemical cycles, aquatic chemistry and microbial biochemistry, phase interactions, water pollution and treatment, atmospheric chemistry and pollution, geochemistry, soil chemistry, energy resources, hazardous wastes, toxicological chemistry, and analytical methods. Intended to broaden the students' understanding of chemical processes taking place in our environment. The relationship between atmospheric, soil and water chemistry will be underlined.

This course draws upon general, analytical and organic chemistry experience. Prereq.: Chem 24300 and 26100. 3 hr./wk.; 3 cr.

40601: Environmental Chemistry Laboratory

Introduction to environmental analysis. Samples of water, air, soil, food, etc. will be obtained and analyzed both qualitatively and quantitatively for pollutants. The effects of these pollutants on the environment will be discussed and linked to urban problems. Analytical techniques will include titrations, separations (GC, HPLC, GC/MS), and polarography. Prereq.: Chem 40600. 4 hr./wk.; 2 cr.

40700: Environmental Organic Chemistry

An examination of processes that affect the behavior and fate of anthropogenic organic contaminants in aquatic environments. Students learn to predict chemical properties that are influencing the transfers between hydrophobic organic chemicals, air, water, sediments and biota. This knowledge will be based on a fundamental understanding of intermolecular interactions and thermodynamic principles. Mechanisms of important thermochemical, photochemical, and biochemical

transformation reactions are also investigated, leading to the development of techniques (such as structure-reactivity relationships) for assessing environmental fate or human exposure potential. Prereq.: Chem 26100. 3 hr./wk.; 3 cr.

42500: Inorganic Chemistry

Concepts of inorganic chemistry including bonding theory, structure of complexes, symmetry, and reaction mechanisms. Prereq.: Chem. 26100, 26300, 33000; pre-or coreq: Chem. 33200 or 33500 recommended. 3 hr./wk.; 3 cr.

43400: Physical Chemistry and Chemical Instrumentation Laboratory II

This course will introduce students to experimental methods in physical chemistry, instrumental analysis and the principles and applications of chemical instrumentation. The course will acquaint the student with the behavior of real chemical systems, the theory of the chemical phenomenon under observation and the design and methodology of measurement systems to detect the chemical phenomenon. Prereq.: Chem 33100; pre or coreq: Chem 33200. (W) Fall semester only. 1 lect., 5 lab. hr./wk.; 3 cr.

45902: Biochemistry I

The course covers the cellular biochemistry of amino acids, proteins, carbohydrates, lipids and nucleic acids. Prereq.: Chem 26300. 3 hr./wk.; 3 cr.

45904: Biochemistry Laboratory

The laboratory exercises include chromatography, electrophoresis, spectroscopy, and other quantitative laboratory techniques that are applied to the isolation and analysis of amino acids, proteins, carbohydrates, lipids, and nucleic acids. (W) 4 hr./wk.; 2 cr.

48005: Biochemistry II

Molecular basis of enzyme action, membranes (transport and transduction), protein structure, signal transduction, virology, bioinformatics, genomics, proteomics, molecular basis of replication, transcription and translation of genetic information, and immunology. Prereq.: Chem 45900. Spring semester only. 3 hr./wk.; 3 cr.

HONORS, INDEPENDENT STUDY AND SPECIAL COURSES

Students can register for undergraduate research projects in the Honors Program or the Independent Study Program. In order to graduate "with Honors," the student must maintain a "B" average or better in the Major

subject, submit an Honors paper which is a report in research publication format, and be given 9 credits of "A" for this work by the mentor. A maximum of nine credits may be credited toward the degree.

Students are trained to design and perform experiments, to keep a notebook, to write a report and research paper, and to make oral and poster presentations. Research reports are required for all undergraduate research students for every term for which a grade is given.

Every student in these programs must have a conference with the designated departmental advisor (Prof. Simms), every term he or she is working in research. An information form, including the student's major, the name of the mentor, the title of the research project and the projected graduation date must be on file with the advisor.

Please make an appointment with Prof. Simms in MR 1024 or call (212) 650-8402.

30100-30400: Honors

Students are provided the opportunity to do individual laboratory research under the direction of a member of the faculty which culminates in a term paper. A G.P.A. of 3.0 in chemistry courses is required. Approval of Department Undergraduate Research Supervisor required prior to registration. 3 cr./sem.

31001-31004: Independent Study

Students are provided the opportunity to do individual library, special project or laboratory research under the direction of a member of the faculty which culminates in a term paper. A G.P.A. of 2.5 in chemistry courses is required. Approval of Department Undergraduate Research Supervisor required prior to registration. 1-4 cr./sem.

31100-32000: Selected Topics in Chemistry

Special topics not covered in the usual department offerings. Topics will vary from semester to semester depending on student and instructor interest. Credits and hours to be determined by instructor and department with a maximum of 4 cr. per course.

GRADUATE COURSES OPEN TO UNDERGRADUATES

Qualified students with departmental approval may take any course available in the master's programs or the first year of the doctoral programs in Chemistry or Biochemistry. These courses are described in their appropriate bulletins.

FACULTY

Daniel L. Akins, Professor

B.S., Howard Univ.; Ph.D., Univ. of California, Berkeley

Valeria Balogh-Nair, Professor

B.Sc., Univ. of Louvain (Belgium), Ph.D.

Teresa Bandoz, Professor

B.S., M.S., Univ. of Mining Metallurgy (Cracow, Poland); Ph.D., Technical Univ. of Cracow

Ronald Birke, Professor

B.S., Univ. of North Carolina; Ph.D., M.I.T.

Mark Biscoe, Assistant Professor

B.A., Wesleyan Univ.; Ph.D., Columbia Univ.

David H. Calhoun, Professor

B.A., Birmingham-Southern College; Ph.D., Univ. of Alabama

Marco Ceruso, Assistant Professor

Diplome d'Ingénieur Chimiste, CPE Lyon (France); Ph.D., SUNY (Stonybrook)

Sacha DeCarlo, Assistant Professor

B.Sc., Univ. of Lausanne (Switzerland), M.Sc., Ph.D.

Ranajeet Ghose, Associate Professor

B.Sc., Presidency College (India); M.S., Yale Univ., Ph.D.

David K. Gosser, Professor

B.S., St. Joseph's Univ.; Ph.D., Brown Univ.

Michael E. Green, Professor

A.B., Cornell Univ.; M.S., Yale Univ., Ph.D.

Urs Jans, Associate Professor

Diploma in Chemistry, Swiss Federal Inst. of Technology, Ph.D.

George John, Associate Professor

B.S., Univ. of Kerala (India), Ph.D.

Glen Kowach, Associate Professor

B.S., Univ. of Wisconsin, Madison; Ph.D., Cornell Univ.

Mahesh Lakshman, Professor

B.S., University of Bombay (India), M.S.; Ph.D., University of Oklahoma

Themis Lazaridis, Professor

Diploma in Chemical Engineering, Aristotle Univ. (Greece); Ph.D., Univ. Of Delaware

John R. Lombardi, Professor

A.B., Cornell Univ.; M.A., Harvard Univ., Ph.D.

Stephen O'Brien, Associate Professor

B.Sc., Sussex Univ. (UK); D. Phil., Oxford Univ. (UK)

Kevin Ryan, Associate Professor

B.S., Providence College; M.S., Univ. of Rochester, Ph.D.

Issa Salame, Assistant Professor

B.S., The City College; M.Phil., CUNY, Ph.D.

Simon A. Simms, Associate Professor and Chair

B.S., The City College; Ph.D., Princeton Univ.

Ruth Stark, Distinguished Professor

A.B., Cornell Univ., Ph.D. Univ. of California (San Diego)

Mark L. Steinberg, Professor

B.A., Univ. of Michigan; Ph.D., Univ. of Pennsylvania

Maria Tamargo, Professor

B.S., Univ. of Puerto Rico; M.S., Johns Hopkins Univ., Ph.D.

Zhonghua Yu, Assistant Professor

B.S., Univ. of Science and Technology (Hefei, China); Ph.D., Columbia Univ.

Barbara Zajc, Associate Professor

B.S., Univ. of Ljubljana, M.S., Ph.D.

PROFESSORS EMERITI

John S. Arents

Theodore Axenrod

Vernon G.S. Box

Thomas Haines

Neil McKelvie

Jack I. Morrow

Stanley R. Radel

Henri L. Rosano

Charlotte S. Russell

Leonard H. Schwartz

Horst Schulz

Amos Turk

Michael Weiner

Arthur E. Woodward

Comparative Literature Program

(DIVISION OF HUMANITIES AND THE ARTS)

Professor Joshua Wilner, Director • Program Office: NA 6/317B • Tel: 212-650-6307

GENERAL INFORMATION

The City College offers the following undergraduate degree in Comparative Literature:

B.A.

PROGRAMS AND OBJECTIVES

The Comparative Literature program offers students an opportunity to study literature from a broader, more comprehensive point of view than one restricted to the works of a single nation or a single language area.

The B.A. program is designed to make the student aware of the international culture in which national literatures flourish. The student will study the ways in which the literatures of different nations enrich, influence, and help define each other, in order to be able to recognize those traits that are universally shared and those that are distinctive and unique to each one.

The program in Comparative Literature also gives the student the opportunity to enhance his or her competence in a foreign language through the study of literature.

Each student majoring in Comparative Literature will design his or her own program in consultation with one of the faculty advisors, whose approval of the program is required. The choice of electives will reflect the student's background, special interests, and objectives.

Students should review course offerings in the departments or programs of Foreign Languages and Literatures, English, Asian Studies, Black Studies, Jewish Studies, Latin American and Hispanic Caribbean Studies, and Women's Studies.

The possibilities for interdisciplinary study are numerous. Students may, for example, choose to orient their study of the national literatures to such topics as literature and science, literature and society, or literature and other arts, and may include in their programs related courses in such fields as anthropology, art, history, music and theatre.

REQUIREMENTS FOR MAJORS

Students majoring in Comparative Literature must complete the following:

Required Courses

| | |
|---|---|
| 35000: Introduction to Comparative Literature | 3 |
| 41100-42000: Seminars in Comparative Literature | 3 |

Elective Courses

| | |
|--|----|
| National literatures in the original language: | |
| Courses in the first language minimum | 15 |
| Courses in a second language minimum | 6 |
| Related free electives | 9 |

Total Credits 36

ADDITIONAL REQUIREMENTS

All Comparative Literature majors must also complete the following:

1. General Education Requirement (for students who entered after Fall 2007) or Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)
2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

ADVISEMENT

Students interested in Comparative Literature should consult with the Director, Professor Joshua Wilner, who will assist them in identifying a faculty advisor.

COURSE DESCRIPTIONS

Advanced Courses

35000: Introduction to Comparative Literature

Study of major themes, genres, and periods. Basic introduction to ways of comparing various literatures and to the relations between literature and other art forms. Readings from world literature (in translation, as necessary) and from secondary sources. Prereq.: World Humanities C10100 and C10200. (W) 3 hr./wk.; 3 cr.

31100-32000: Selected Topics in Comparative Literature

A changing series of innovative and experimental cases on topics not generally covered in regular courses. Students should consult the list of course offerings each semester to determine which selected topic will be offered. (W) 3 hr./wk.; 3 cr.

41100-42000: Seminars in Comparative Literature

Intensive study of a particular period, theme, genre, or literary movement, or of a particular problem in the theory and methods of comparative literature. Prereq.: Comp Lit 35000 or approval of the instructor. (W) 2 hr./wk.; 3 cr.

FACULTY

The faculty of the program includes those professors who teach the program's courses and those whose departmental courses may be credited to the major.

Department of Earth and Atmospheric Science

(DIVISION OF SCIENCE)

Professor Jeffrey Steiner, Chair • Department Office: MR 106 • Tel: 212-650-6984

GENERAL INFORMATION

The City College offers the following undergraduate degrees in Earth and Atmospheric Sciences:

B.A. in Geology

B.S. in Geology

PROGRAMS AND OBJECTIVES

The Department of Earth and Atmospheric Sciences offers a unique version of the Earth System Science (ESS) model, the proposed national curriculum for the earth sciences. The ESS approach has been adopted by NASA and other government agencies as the appropriate method for understanding and modeling the complexities of the world system. By understanding the relationships that sustain the earth's oceans and atmosphere we can better develop methods for phrasing and solving environmental problems. EAS/ESS emphasizes a curriculum that deals with the geochemical and geophysical relationships that produce an environmentally sound and self-perpetuating world.

This new approach attempts to be as multi-disciplinary as possible, allowing students to choose electives from other science departments and from engineering. The special strengths of the department include hydrology/subsurface remediation, geophysics and environmental geophysics, meteorology and remote sensing, and environmental geochemistry. New courses in this catalog include Atmospheric Change, Environmental Remote Sensing/Image Analysis, and Geographic Information Science (GIS). Students graduating from EAS with the system science training are especially able to include geological/GIS mapping and remote

sensing in their portfolio of skills. These and related skills are especially valuable to engineering geology companies, government agencies, such as NASA and NOAA, and a multitude of areas that involve spatial planning. By careful selection of electives students can be equally well prepared for careers ranging from Classical Geology to Environmental Public Policy, and Terrestrial Ecology. Majors are also ideally prepared to pursue careers in education and advanced degrees in the Earth Sciences.

DEPARTMENTAL FACILITIES

The EAS Department houses a Weather/Remote Sensing Laboratory with computer links to Unidata. The IBM RISC 6000 and Sun Sparc workstations permit access to national data banks and are networked via direct satellite link to Internet sources. The Department also maintains well equipped hydrology, geophysics and geochemistry laboratories. Equipment includes Philips x-ray fluorescence and x-ray diffraction stations. Thermo flame and graphite furnace atomic absorption facilities, a Thermo Finnigan Trace DSQ Gas Chromatography/Mass Spectrometry station with chemical ionization and autosampler, a Glas-Col Soxhlet extraction system, Dionex Suymmit HPLC with gradient pump and Uv detector, a Kodak Image Station 2000MM Multi-Modal high performance digital imaging system and related equipment for quantitative hydrology. The High Pressure Laboratory includes a 0-100,000 PSI Harwood Intensifier, a Honeywell temperature-regulating systems and a petrographic microscope laboratory. Additional equipment includes access to a ZEISS SEM

with a Princeton Gammatech Energy Dispersive Analysis System and Phillips Transmission Electron Microscopes. The Geophysics Laboratory is equipped with a 24-channel Strataview engineering seismograph system, an EM-31 electromagnetic ground conductivity meter, a Syscal Kid Switch 24 automated resistivity system, an older Soiltest resistivity meter, a Worden student gravimeter, and a GSM-19T proton precession magnetometer. EAS maintains a cloud laboratory at Steamboat Springs, Colorado that has been the resource for student meteorology projects for the last two decades.

RESEARCH

Qualified students are encouraged to become research assistants to faculty, and must complete a capstone research project as part of the major requirements sequence. Many are assisted in their research with support from the CCNY National Oceanic and Atmospheric Administration Cooperative for Remote Sensing Science and Technology (CREST) Center and the CUNY-GISS REU: Global Climate Change. Through an exciting research program with the United States Geological Survey (USGS), up to twenty students per summer are supported to perform fieldwork under the direct supervision of a USGS scientist. Student fieldwork has been carried out from New Jersey to Massachusetts, with new possibilities being created for 2010 throughout the United States.

DEPARTMENTAL ACTIVITIES

The Green Planet Society

The Green Planet has meetings during club hours. Meetings include guest

lectures, environmental films, and field trips in the NYC area.

American Meteorological Society

The American Meteorological Society is for students interested in meteorology and its applications. Weather station operation and visits to other weather stations are scheduled.

AWARDS

The Ward Medal

Presented each year to outstanding graduating seniors in Geology and Meteorology. For detailed information, see the Guide to City College Prizes, Awards, and Medals in the office of the Chair.

ADVISEMENT

For general advisement for all program options:

Professor Jeffrey Steiner
MR 106; 212-650-6984

Professor Margaret Winslow
MR 930; 212-650-6471

REQUIREMENTS FOR MAJORS

The EAS Curriculum comprises a basic set of courses (Basic Courses for EAS Majors) complemented by elective courses (Electives for Standard EAS Option). The EAS elective set is variable and can be supplemented by electives from other departments as illustrated in the Engineering Geology Option. Courses from other departments and selections from the set of electives are chosen in consultation with either Professor Steiner or Professor Winslow. Courses suggested for electives from other departments should be higher-level electives, though selections are at the discretion of the advisor.

It is recommended that EAS majors complete Physics 20700-20800 though the Physics 20300-20400 sequence may be preferred for some students; Math 20100-20300 is recommended but Math 20500-20900 is an acceptable option for some students. Recommendations are on a case-by-case basis.

All EAS majors must complete Basic Courses for EAS Majors and select from the Elective list.

Core Courses

Earth and Atmospheric Sciences:

One of the following: 3-4
10000: The Dynamic Earth (for B.A. only) (3 cr.)
10600: Earth Systems Science (for B.S. majors) (4 cr.)
21300: Engineering Geology (for B.S. and engineering students) (3 cr.)

Basic Courses for EAS Majors:

10600: Earth Systems Science 3

Earth and Atmospheric Sciences:

21700: ESS: Systems Analysis of the Earth 4
22700: Structural Geology 4
30800: ESS: Modeling/Databases 3
41300: Environmental Geochemistry 3
47200: Environmental Project 4

Electives for Standard EAS Option: 33

EAS 31700: Atmospheric Change (3 cr.)
EAS 33000: Geographic Information Systems (3 cr.)
EAS 34500: Hydrology (3 cr.)
EAS 35600: Field Methods in Hydrology (Experimental Course) (3 cr.)
EAS 42600: Environmental Remote Sensing & Image Analysis (3 cr.)
EAS 43900: Mineral/Energy Resources (4 cr.)
EAS 44600: Groundwater Hydrology (3 cr.)
EAS 48800: Climate Changed (4 cr.)
EAS 52800: Plate Tectonics/Geodynamics (3 cr.)
EAS 56100: Geophysics (3 cr.)
EAS 56500: Environmental Geophysics (3 cr.)

Engineering Geology Option: 33

Physics 20700-20800 and Math 20100-20300 are required for Engineering Geology
EAS 21300: Engineering Geology (3 cr.)
EAS 33000: Geographic Information Systems (3 cr.)
EAS 34500: Hydrology (3 cr.)
EAS 35600: Field Methods in Hydrology (Experimental Course) (3 cr.)
EAS 42600: Environmental Remote Sensing & Image Analysis (3 cr.)
EAS 43900: Mineral/Energy Resources (4 cr.)

EAS 44600: Groundwater Hydrology (3 cr.)
EAS 56100: Geophysics (3 cr.)
EAS 56500: Environmental Geophysics (3 cr.)
CSC 10200: Introduction to Computing (3 cr.)
CE 26400: Civil Engineering Data Analysis (3 cr.)

Total Credits: 57-58

REQUIREMENTS FOR A B.A. IN EAS

Basic Courses for EAS Majors

| | |
|-----------------------|-----------|
| B.A. Science core | 9 |
| Required EAS Courses | 18 |
| EAS Electives | 24 |
| Total Credits: | 51 |

REQUIREMENTS FOR A MINOR IN EAS

A minor in EAS requires a minimum of 9 credits beyond the introductory courses (10600 or 21300). These courses are in addition to the science core requirements.

SECONDARY EDUCATION CONCENTRATION

Major requirements are listed below. Pedagogical requirements are listed in the Department of Education section of this Bulletin.

Basic Courses:

Physics:
30500: Methods in Astronomy 3

Required Courses:

| | |
|---|---|
| 21700: ESS: Systems Analysis of the Earth | 3 |
| 22700: Structural Geology | 4 |
| 30800: ESS: Modeling Data Bases | 3 |
| 41300: Environmental Geochemistry | 3 |
| 47200: Environmental Project | 4 |

Electives: 9

| | |
|---|--|
| 21900: Weather Casting (3 cr.) | |
| 31900: Geographic Information Systems (offered at Hunter or Lehman College) (3 cr.) | |
| 32800: Global Environment Hazards (3 cr.) | |
| 34500: Hydrology (3 cr.) | |
| 36500: Coast and Ocean Processes (3 cr.) | |
| 43900: Mineral and Energy Resources (4 cr.) | |

44600: Groundwater Hydrology (3 cr.)
 48800: Climate Change (3 cr.)
 56100: Geophysics (3 cr.)
 56600: Solid Earth Geochemistry
 (3 cr.)

Total Credits: 29

ADDITIONAL REQUIREMENTS

In addition to major requirements, B.A. in EAS majors must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) or Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)
2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

In addition to major requirements, all B.S. in EAS majors must complete the following:

1. General Education Requirement including FIQWS, Calculus, Perspective and In-depth requirements (for students who entered after Fall 2008) or Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2008)
2. English 21003
3. Foreign Language Requirement
4. CPE Examination
5. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

COURSE DESCRIPTIONS

CORE COURSES

10000: The Dynamic Earth

Basic concepts of geology. The materials, structures, and surface features of the earth, and the processes which have produced them. 3 lect. hr./wk.; 3 cr.

10100: The Atmosphere

An introduction to the processes and phenomena of our atmosphere. Topics include clouds, sky color, greenhouse effect, storms, climates and Ice Ages. 3 lect. hr./wk.; 3 cr.

10600: Earth Systems Science

A systematic global view of the features, processes, and underlying scientific concepts of the earth, atmosphere, and oceans, emphasizing environmental applications. 3 lect., 3 lab. hr./wk.; 4 cr.

21300: Engineering Geology

Fundamental facts and principles of geology with special reference to their importance in engineering projects; geologic perspective on current environmental issues; remote sensing; techniques for geologic study of project sites in terms of the surface and subsurface environment. 3 lect. hr./wk., nine 3 hr. lab. sessions/sem.; 3 cr.

ADVANCED COURSES

21700: ESS: Systems Analysis of the Earth

Analysis and modeling of the grand cycles and systems in the Earth Sciences including plate tectonics and climate change by incorporating the underlying physical, chemical and biological principles. Physical and chemical properties of earth materials are examined. EXCEL, Visual Basic and PowerPoint are all used extensively. Prereq.: EAS 10600 or 21300, Physics 20300 or Chemistry 10300 or equivalent; coreq.: Sci 20000. (W) 3 lect., 2 lab. hr. wk.; 4 cr.

22700: Structural Geology

Geometry of elementary earth structures, especially faults and fractures, their modes of origin, stress analyses, and models. The mechanics of naturally occurring structures and their relationship to human-made structures. Includes earthquake mechanics and development of geological maps. Prereq.: EAS 10000, 10600 or 21300. 3 lect., 2 lab. hr./wk.; 4 cr.

30100-30400: Honors I-IV

Research and studies in Earth Systems Science. Approval of Dean and Department required. Apply in J1328, no later than December 10 in the Fall term or May 1 in

the Spring term. Variable cr., usually 3 cr./sem.

30800: ESS: Modeling/Databases

Applications of the principles of ESS to the diagnosis and modeling of global and local environmental problems. Introduction to remote sensing techniques, processing, and analyses of global data sets, and computer models of Earth Systems. Prereq.: EAS 21700, or permission of instructor. (W) 3 lect., 1 lab. hr./wk.; 3 cr.

31000: Independent Study

Individual laboratory, field or library investigation of a problem in Earth Systems Science. Approval of instructor required. 1-4 cr./sem.

31100-31500: Selected Topics in Earth Systems Science

Current topics and problems with emphasis on aspects not treated in regular courses. Department permission required. 3 lect. or rec. hr./wk.; 3 cr./sem.

31700: Atmospheric Change

Introduction to the phenomena and processes of the atmosphere and their interactions with the oceans and solid earth, including atmospheric composition, chemistry and evolution, atmospheric structure, radiation, heating, clouds and precipitation, atmospheric motions, circulation systems, storms, and climate. Applications include elements of weather forecasting, air quality monitoring and remote sensing. Prerequisites: EAS 21700 and Science 20000, or permission of instructor. 3 hr./wk.: 3 cr.

32000: Global Change

Analysis and modeling of the grand cycles and systems in the Earth Sciences including plate tectonics and climate change by incorporating the underlying physical, chemical and biological principles. Physical and chemical properties of earth materials are examined. Prereq.: EAS 10600 or 21300; coreq.: Physics 20300 or Physics 20700 or Chemistry 10300; Math 10100 or Math 10500 or equivalent. 2 lect., 2 lab. hr./wk; 3 cr.

32800: Global Environmental Hazards

Study of important, naturally-occurring, destructive phenomena, such as earthquakes, volcanic eruptions, landslides and coastal flooding. Long-term causes and remediation of these problems. Topics will focus on consequences to urban environments. 3 lect. hr./wk.; 3 cr.

33000: Geographic Information Systems

Introduction to Geographic Information Systems using ArcGIS. Analysis of spatial data based on location. Hands-on work with downloading databases from the

Internet, modification of formats, editing, and data analyses. Visual representation of data will emphasize different data types (point, linear, and spatial) and use of various analytical tools (IDW, spline, nearest neighbor, quadrat analysis, and different pattern types, such as random, clustered, uniform, bi-modal, etc. Environmental Applications are stressed in class and include: Earthquake Patterns and Risk Analysis, Vegetation Patterns and Changes over Time, Patterns of Sea Level Change due to Global Warming, remote sensing of fracture patterns, aerosol dispersal over time, pollution plumes in subsurface groundwater. 3 hr./wk.; 3 cr.

34500: Hydrology

Introduction to hydrological data, the hydrologic cycle. Precipitation, streamflow, evaporation, and runoff. Emphasis is on their interactions and processes. Prereq.: Math 20300 or 20800, Physics 20800, or permission of instructor. 2 lect., 2 lab. hr./wk.; 3 cr.

36400: Field Methods in Oceanography

An interdisciplinary introduction to theories, principles and laboratory methods in aquatic and coastal sciences. Includes extensive fieldwork involving cruises on a research vessel. Course is taught as a continuous three week block of lectures and laboratories during summer session. Students will be required to be in residence at an appropriate field station in the New York area for the duration of the course. Prereq.: Completion of a lecture plus laboratory course designed for majors in either Biology or Geology. Completion of one year of chemistry and one semester of calculus is strongly recommended. Enrollment by application only. 4 cr.

36500: Coast and Ocean Processes

Principles governing atmosphere-coast-ocean interactions. This course utilizes the Department's Weather Station and Geosciences Computer Laboratory where oceanographic and atmospheric data are remotely sensed from space. The role of the world's oceans to current global warming/cooling models will be examined. Topics also include: bathymetric features, origins of the hydrosphere, sea-level change, wave formation, temperature, salinity, and density of the ocean water. Prereq.: EAS 10600 or 21300, or Bio 10200 or 10500, or permission of instructor. 3 lect. hr./wk.; 3 cr.

41300: Environmental Geochemistry

A traditional geochemistry survey course that emphasizes earth system science considerations. The survey includes groundwater systems, the ocean system, carbon-silicon cycle relative to these systems, stable and radioisotope geochemistry, trace metal distribution theory and applications, and an introduction to igneous and

metamorphic petrology. Hands-on exercises in x-ray fluorescence and x-ray diffraction spectrometry complement lecture materials. Prereq.: EAS 21700, or permission of instructor; pre- or co-req. Chem 10401. (W) 3 lect., 1 lab. hr./wk.; 3 cr.

42600: Environmental Remote Sensing and Image Analysis

Remote sensing of the environment is a course devoted to the study of earth system interactions through downloading and manipulating satellite data. The course reviews the historical creation of satellite platforms, current usages of satellite data in the earth sciences, and emphasizes image analytical techniques used to highlight important data sets. Lecture and laboratory work emphasizes the use of Interactive Data Language (IDL) programming to perform image manipulations. Prerequisites: undergraduate course in computer science or permission of instructor. 3 lect. hr./wk.; 3 cr.

43900: Mineral/Energy Resources

Minerals in Earth Systems Science: principles of mineral stability and mineral associations; identification and recovery of earth resources. Mineral issues in human terms: toxic waste sites, climatology, and slope stability. Course introduces mineral optics and x-ray diffraction. Prereq.: EAS 21700, or permission of instructor. 2 lect., 4 lab. hr./wk.; 4 cr.

44600: Groundwater Hydrology

Occurrence of ground water. Basic equations and concepts of groundwater flow. Flow nets. Methods of groundwater investigation. Prereq.: Math 20300 or 20800, Physics 20800, EAS 10600 or 21300, or permission of instructor. 2 lect., 2 rec. hr./wk.; 3 cr.

47200: Environmental Project

Senior-level project utilizes field data to solve an urban environmental problem. Can be taken in the spring semester or in the summer. Also open to post-graduates in the environmental fields, by permission. Prereq.: EAS 21700 and 22700; coreq.: EAS 30800, or permission of instructor. (W) 4 weeks in field plus lab. analyses; 6 cr.

48800: Climate Change

This course links processes and interactions of the atmosphere, ocean, and solid earth and their impact on climate and climate change. Topics include the physical principles of climate; climates of the past and present; Ice Age theories; the Greenhouse Effect; and human impact on climate. Prereq.: EAS 10100 or 10600; one semester of college math. 3 lect., 2 lab. hr./wk.; 4 cr.

52800: Plate Tectonics/Geodynamics

This course treats the processes that change the face of the earth. It includes the concepts of mantle convection, continental drift, leading to the modern theory of plate tectonics. The perspective is global and process-oriented, with examples from nearby active plate boundaries. The plate tectonic model explains global distributions of earthquakes, volcanoes, mineral deposits, and long-term climate patterns. Prereq.: EAS 10600 and EAS 22700. 3 lect. hr./wk.; 3 cr.

56100: Geophysics

This course covers the physical principles that govern the behavior and techniques used to infer the earth's internal structure, composition, and mineral resources. It provides earth scientists and engineers with the techniques to determine earth structures, locate environmental pollutants, and prospect for natural resources from remote locations. Topics include: seismology, geodesy, gravity, magnetism, and thermal properties of the earth. Prereq.: EAS 10600 or 21300 and Physics 20800. 3 lect. hr./wk.; 3 cr.

56500: Environmental Geophysics

The application of geophysics to environmental and engineering problems. Hands-on work and demonstrations on seismic, electrical, electromagnetic and magnetic instruments and techniques. Survey design and execution. Computer analysis of survey results. Prereq.: EAS 56100. 3 lect., demonstration, or fieldwork hr./wk.; 3 cr.

56600: Solid Earth Geochemistry

Deep earth involvement in Earth Systems Science: plutonism and volcanism; isotopic age dating; non-radiogenic isotope systematics; and trace metal characteristics of evolving earth systems. Course introduces petrography and x-ray fluorescence. 3 lect. hr./wk.; 3 cr.

GRADUATE COURSES OPEN TO UNDERGRADUATES

Qualified undergraduate students may take, with permission of department, courses available in the Master's Program in Earth Systems Science (see Graduate catalogue) or at Lehman College or other CUNY campuses.

FACULTY**Karin Block, Assistant Professor**

B.S., Univ. of Michigan, M.S., CUNY,
Ph.D.

Stanley Gedzelman, Professor

B.S., CCNY; Ph.D., M.I.T.

Patricia Kenyon, Associate Professor

B.S., Rensselaer Polytechnic Inst.;
Ph.D., Cornell Univ.

Johnny Luo, Assistant Professor

B.S., Peking Univ. (China); M.Phil.,
Columbia Univ., Ph.D.

Federica Raia, Associate Professor

B.S., Univ. of Naples, Ph.D.

Jeffrey Steiner, Professor and Chair

B.S., Washington State Univ.; Ph.D.,
Stanford Univ.

Marco Tedesco, Assistant Professor

B.S. University of Napoli "Federico II",
Ph.D.

Margaret Anne Winslow, Professor

B.S., Columbia Univ. M.A., M. Phil.,
Ph.D.

Pengfei Zhang, Associate Professor

B.S. Univ. of Science & Technology of
China; M.S., Montana Tech of the Univ.
of Montana; Ph.D., Univ. of Utah

PROFESSOR EMERITUS

Edward Hindman

Department of Economics

(DIVISION OF SOCIAL SCIENCE)

Professor Joseph Berechman, Chair • Department Office: NA 5/144 • Tel: 212-650-5403

GENERAL INFORMATION

The City College offers the following undergraduate and combined degrees:

B.A. (Economics)

B.A. (Management and Administration)

B.A./M.A. (Combined Degree)

PROGRAMS AND OBJECTIVES

Economists are concerned with the problems that arise in allocating scarce resources to alternative uses. They analyze supply, demand and market conditions both for individual goods and services the public sector, and the economy as a whole. Students prepare for a variety of careers in the business, non-profit, public and academic sectors of society. The study of Economics helps people to make informed decisions as citizens and community leaders and in their private affairs.

The Management and Administration major prepares students to be effective contributors to organizations by developing key managerial abilities critical for success in the contemporary workplace. Students develop their abilities to research and critically analyze business information, make recommendations to solve real-world business problems, and become effective team members and team leaders. The Management and Administration major uses an integrating management framework (manager's environment, strategy & leadership, business functions) to develop systems thinking and analysis, problem solving, and interacting and leading as key managerial abilities. This framework enables students to view organizations as complex systems and to make decisions

that recognize the diverse needs of multiple stakeholders.

B.A./M.A. Program

The B.A./M.A. program is an intensive program that affords academically gifted undergraduate students the opportunity to obtain an M.A. degree along with a B.A. degree. Entering students with a superior high school record making them eligible for Freshman Honors and sophomores or juniors with a B+ overall average are eligible for the B.A./M.A. program.

DEGREE REQUIREMENTS

Economics

Required Courses

One of the following alternatives: 3-6

Alternative 1:

10000: Principles of Microeconomics (3 cr.)
10300: Principles of Macroeconomics (3 cr.)

Alternative 2:

10101: Introduction to Economics (4 cr.)

Alternative 3:

10400: Introduction to Quantitative Economics (3 cr.)
22000: Microeconomic Theory I 3
22500: Macroeconomics I 3
29000: Principles of Statistics 4
29400: Computer Aided Economic Analysis 4
One of the following two: 3-4

Mathematics:*

20100: Calculus I (3 cr.)
20500: Elements of Calculus I (4 cr.)

* Additional mathematics courses are strongly recommended for majors, particularly Math 20200, 20300, 20600, or 20800.

Elective Courses

Five additional economics elective courses 15-20

Total Credits 35-44

Management and Administration

Required Courses

Economics:

One of the following alternatives: 3-6

Alternative 1

10000: Principles of Microeconomics (3 cr.)
10300: Principles of Macroeconomics (3 cr.)

Alternative 2

10101: Introduction to Economics (4 cr.)

Alternative 3

10400: Introduction to Quantitative Economics (3 cr.)

Mathematics:

One of the following: 3-4
20100: Calculus I (3 cr.)
20500: Elements of Calculus (4 cr.)

Economics:

34000: Principles of Management 3
29000: Principles of Statistics 4
29900: Developing Management Skills 3

One course from Group A:

Manager's Environment 3

One course from Group B: Strategy & Leadership 3

One course from Group C: Business Functions 3

Three additional elective courses from Groups A, B or C 9-12

Total Credits 34-41

Dual Major in Management & Administration/Economics

Required Courses

Economics:

One of the following alternatives: 3-6

Alternative 1

10000: Principles of Microeconomics (3 cr.)

| | |
|---|--------------|
| 10300: Principles of Macroeconomics (3 cr.) | |
| Alternative 2 | |
| 10101: Introduction to Economics (4 cr.) | |
| Alternative 3 | |
| 10400: Introduction to Quantitative Economics (3 cr.) | |
| Mathematics: | |
| One of the following: | 3-4 |
| 20100: Calculus I (3 cr.) | |
| 20500: Elements of Calculus (4 cr.) | |
| Economics: | |
| 22000: Microeconomic Theory I | 3 |
| 22500: Macroeconomics I | 3 |
| 29400: Introduction to Econometrics | 4 |
| 29000: Principles of Statistics | 4 |
| 34000: Principles of Management | 3 |
| 29900: Developing Management Skills | 3 |
| One course from Group A: Manager's Environment | 3 |
| One course from Group B: Strategy & Leadership | 3 |
| One course from Group C: Business Functions | 3 |
| Three additional management electives | 9 |
| Six additional economics electives | 18 |
| Total Credits | 62-66 |

A. Courses in The Manager's Environment include: Eco 23200: International Environment of Business, 26000: Industrial Organization and Public Policy, 35800: Business & Society, 38000: Law of Business Contracts, and 38100: Law of Business Organization. Other courses may be added at the discretion of the department advisor.

B. Courses in Strategy & Leadership include: Eco 35300: Strategic Management, Eco 35400: Information and Technology Management, Eco 35500: Leadership, and Eco 35700: Entrepreneurship. Other courses may be added at the discretion of the department advisor.

C. Courses in Business Functions include: Eco 27100: Corporate Finance, Eco 33000: Principles of Marketing, Eco 35000: Managerial Economics, Eco 35100: Human Resources Management, Eco 35200: Operations & Production, Eco 36000: Principles of Accounting, and Eco 36100: Principles of

Accounting II. Other courses may be added at the discretion of the department advisor.

ADDITIONAL REQUIREMENTS

In addition to major requirements, all Economics majors must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) or Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)
2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this Bulletin.

ADVISEMENT

Majors should consult with an advisor at least once per year.

B.A. Program
Professor Kevin Foster
NA 5/103A

B.A./M.A. Program
Professor Mitchell Kellman
NA 5/103C

Graduate
Professor Mitchell Kellman
NA 5/103C

DEPARTMENTAL ACTIVITIES

The Economics Society

The Economics Society is an undergraduate student organization.

Omicron Delta Epsilon

Omicron Delta Epsilon, a National Honor Economics Society, originated at this college. Open to outstanding undergraduate and graduate students specializing in Economics. See Prof. Y. Shachmurove, NA 5/103B.

AWARDS

The Department of Economics bestows Approximately thirty awards annually. For information, contact the department office.

COURSE DESCRIPTIONS

INTRODUCTORY COURSES

10000: Principles of Microeconomics

This introductory course develops the basic tools and methods of microeconomic analysis. The choices of individual decision makers are analyzed in studying how markets operate. The fundamentals of supply and demand, consumer and firm behavior, and market interactions are examined. Applications to current microeconomic issues are discussed in the course, for example, the role of government in markets. 3 hr./wk.; 3 cr.

10101: Introduction to Economics

For students enrolled in Freshman Honors Program. Replaces Eco 10000 and 10300. 4 hr./wk.; 4 cr.

10300: Principles of Macroeconomics

This introductory course develops the basic tools and methods of macroeconomic analysis. Issues of employment and unemployment, inflation, the level of output and its growth, and other important current policy problems are examined within the framework of models that economists use. The main area of current applications will be the United States economy, but attention will also be given to international economic issues. 3 hr./wk.; 3 cr.

10400: Introduction to Quantitative Economics

For students enrolled in the School of Engineering. An integrated intensive treatment of micro- and macroeconomics. Modern analytical approach employed to treat topics including theory of consumer demand, theory of firm, market structure, inflation, unemployment, and economic growth. Special emphasis on managerial economics and empirical methods by which economists test hypotheses and estimate parameters. Prereq.: Math 20100 or Math 20500. 3 hr./wk.; 3 cr.

INTRODUCTORY ELECTIVE

12200: Public Economics

For students enrolled in Media and Communication Arts and in the Program in Public Policy and Public Affairs. Microeconomic analysis of group decision-making; resource allocation in profit and not-for-profit entities. Public policy alternatives. 3 hr./wk.; 3 cr.

ADVANCED ELECTIVES

Engineering students who wish to take advanced courses should take Economics 22000, 22100, and 26500. Economics 22000 is especially recommended for students planning to take courses at the master's level.

Economic Analysis

22000: Microeconomic Theory I

Forces determining product and factor prices and quantities under alternative market structures. Consumer demand, production, and cost; firm and industry. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

22100: Microeconomic Theory II

Factor markets; introduction to general equilibrium theory, capital theory, and welfare economics. Prereq.: Eco 22000, Math 20100 20500. 3 hr./wk.; 3 cr.

22500: Macroeconomics I

Factors determining income, employment, price levels, and interest rates. Emphasis placed on policy problems. Prereq.: Eco 10000 or 10101 or Eco 10200 or Eco 10400. 3 hr./wk.; 3 cr.

22600: Macroeconomics II

Theoretical analysis of economic growth, fluctuations and technological change. Emphasis placed on policy implications, with particular reference to developed economies. Prereq.: Eco 22500. 3 hr./wk.; 3 cr.

International Economics

23000: International Trade Theory

Development; trade doctrines; gains from trade; theory and practice of protection; balance of payments, capital exports, and theory of transfer; interrelations between domestic economies and international economy. Prereq.: Eco 22000. 3 hr./wk.; 3 cr.

23100: International Finance

Macroeconomic theory and policy in open economy. Issues associated with balance of payments disequilibrium, fluctuating currency values, international factor flows and international capital mobility. Extensions of Keynesian model; monetary and fiscal policy for internal and external balance, macro policy coordination. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

23200: International Environment of Business

Causes, dimensions, consequences, and evolution of our current interdependent world economy. Examines the institutional background of the world financial order, international income comparisons, foreign

exchange, balance of payments, the multinational enterprise, international trade, and international investment. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

Economic Development and Comparative Economic Systems

24000: Economic Development

Rates of growth and stages of development; strategic factors in theory and practice; domestic and international problems of growth, with principal attention to underdeveloped countries. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

24300: European Economic Development

Emphasis on factors responsible for industrialization and growth, interrelation of theory and economic history. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

24400: American Economic Development

Factors responsible for growth of the American economy; emphasis on the period since 1860. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

24500: Asian Economic Development

Economic-social structure and developmental process of India, China, Japan and Southeast Asia. Domestic and international conditions and practices favoring or retarding economic progress in Asia past and future in the light of principles of development. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

24600: Comparative Economic Systems

Compares American capitalism with other ways of organizing economic activity, with special emphasis on price systems and central planning. Prereq.: Eco 10000 or 10101 or 10400. 3 hr./wk.; 3 cr.

Economic Policy and Problems

25000: Contemporary Domestic Economic Problems

Considers efficiency of free enterprise, with emphasis on the resource waste involved in depressions, lack of competition, inflation, advertising, farm surpluses, tariffs; measurements of waste; procedures to improve performance. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

25100: Contemporary International Economic Problems

Trade liberalization, the balance of payments, regional integration, East-West relations, economic development, and foreign aid. Particular attention to U.S. policy, U.N. activities, and international agencies.

Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

25400: Urban Economics

Economic origins of cities and suburbs; effects of technological change on industrial structure and urban land use patterns; economics of urban transportation, housing, public utilities, and municipal services; roles of government and private enterprise. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

26000: Industrial Organization and Public Policy

Structure of the American economy. Public policy in maintaining competition. Antitrust activities of Justice Department and F.T.C., with special emphasis on leading recent cases. Prereq.: Eco 10000 or 10101 or 10003 or 10400. 3 hr./wk.; 3 cr.

26100: Economics of Regulation

Study of appropriate social controls where competition is lacking; role of government in direct regulation of price and output, and related matters. Prereq.: Eco 26000. 3 hr./wk.; 3 cr.

26400: Public Finance

Taxes and debts of federal, state and local government; budgets and intergovernmental fiscal relationships; the economic implications of their financial activities. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

26500: Public Expenditure

Introduction to public expenditure theory (cost-benefit analysis); political and economic approaches to government decision making. Prereq.: Eco 10000 or 10101 or 10300 or 10400 3 hr./wk.; 3 cr.

Economics of Finance

27000: Money and Banking

Organization and operation of U.S. financial system, both public and private; money and capital markets, commercial banking policy; relationship between financial and economic activity, including monetary and fiscal policy. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

27100: Economics of Corporate Finance

Economic principles underlying operations of modern business corporations and regulatory controls pertaining thereto. Procurement of capital and conservation of capital resources. Problems of capitalization. Prereq.: Eco 10000 or 10101 or 10300 or 10400 and 29000 and 36000. 3 hr./wk.; 3 cr.

27200: Economics of Investment

Security analysis with emphasis upon meaning, measurements and relationship of risk. Portfolio analysis, alternative

approaches to valuation, determination of asset values in open market, internal and external rates of return, objectives of investment decision. Prereq.: Eco 27100. 3 hr./wk.; 3 cr.

27300: Personal Finance

Problems involved in efficient handling of personal affairs and consumption expenditure, including consumer protection, taxation, insurance, home financing, and methods of borrowing and investing money. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

27400: Advanced Financial Economics

Leading and contemporary developments in financial management, including security analysis, portfolio analysis, capital budgeting, working capital management, and benefit-cost analysis. Prereq.: Eco 27100 and 27200. 3 hr./wk.; 3 cr.

27500: Options and Futures

Option pricing theory and applications to corporate finance and security valuation. Options on stocks, futures, commodities and currencies. Organization and operation of futures markets. Futures on commodities and fixed income securities. Stock indexes and international securities. Applications of futures for financial management. Prereq.: Eco 27100 and 27200. 3 hr./wk.; 3 cr.

27600: Banking and the Financial Services Industry

Current policies, problems and banking practices. Interaction of nonbank depository institutions and nonfinancial intermediaries with evolving commercial banking. Prereq.: Eco 27000. 3 hr./wk.; 3 cr.

Labor Economics

28000: Economics of Labor

Survey of labor, utilization, allocation and compensation of labor. Unionism, government regulation, and other factors affecting labor resources. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

28100: Trade Unionism in the United States

History and structure of the labor movement in the United States. Detailed analysis of policies, functions, methods and procedures of trade unions. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

28200: Comparative Labor Movements

Labor movements in foreign countries with reference to the American scene; relationship between various economic systems and accompanying labor movements, together with appraisal of the work of international labor institutions. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

28500: Economics of Economic and Social Security

Causes and solutions of economic and social insecurity. Special attention given to problems of poverty and unemployment in United States, including examination of alternative Social Security systems. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

Statistics

29000: Principles of Statistics

Introduction to statistical methods and reasoning. Nature and scope of statistical inquiries, collection, and presentation of data. Descriptive methods, with particular reference to frequency distribution, regression and correlation, index numbers and time series analysis. Elements of probability, sampling methods, sampling error, and principles of estimation and testing. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 4 hr./wk.; 4 cr.

29400: Introduction to Econometrics

To introduce students to the fundamentals of econometric models and techniques. Course includes critical evaluation of economic modeling objectives; econometric methods; examples of empirical economic research and exercises in applied econometrics. Emphasizes applications to economics, finance and business. Prereq.: Eco 10000 or 10101 or 10300 or 10400 and Eco 29000 or permission of the instructor. 4 hr./wk.; 4 cr.

29700: Econometrics

Statistical models and problems arising in econometrics. Recent work in econometrics applications. Prereq.: Eco 22000 and 29400, or permission of the instructor. 4 hr./wk.; 4 cr.

Management

29900: Developing Management Skills

This experiential course attempts to bridge the theory-practice gap, addressing both time-honored principles of effective management and the latest research in the area. Students are introduced to surveys, exercises, and simulations that help them analyze and evaluate their existing managerial skills. A variety of conceptual tools help students develop and refine these skills. 3 hr./wk.; 3 cr.

33000: Principles of Marketing

Distribution and sale of goods and services from production to final consumption. Includes changing behavior of consumers and relationship to producers' selling behavior; and the economics of merchandising, including product life cycle, location theory, and optimal sales effort. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

34000: Principles of Management

Theory and practice of the modern organization, its historic development, and its role in our modern society. The course takes a functional approach, first introducing the role of a manager and the modern managerial environment, then exploring planning, organizing, leading, and control. Particular attention is given to developing the skills necessary to manage, lead, and compete in today's world. 3 hr./wk.; 3 cr.

35000: Managerial Economics

Use of management science for the efficient administration of economic units, including applications to production, financial, and marketing operations. Attention given to the formulation of models to analyze management problems. Prereq.: Eco 10000 or 10101 or 10300 or 10400 and Eco 29000 and Eco 29400. 3 hr./wk.; 3 cr.

35100: Human Resources Management

Critical assessment and evaluation of human resources management (HRM) policies and practices. Emphasized skills include: Understanding performance appraisal forms; conducting basic job analysis and applying understanding of job requirements to other HRM systems such as selection and compensation; related applications of theories on managing people in organizations. Personnel functions in larger organizations; attitudes toward work; role of government, public interest groups and unions in determining job environment. Development of manpower and management resources; planning manpower needs, management of compensation programs. Prereq.: Eco 34000. 3 hr./wk.; 3 cr.

35200: Operations and Production

Investigation of production systems. Application of analytical techniques to product and process design, optimal plant location, efficient plant design. Planning for production. Systems of inventory and quality control. Prereq.: Eco 10000 or 10101 or 10300 or 10400 and Eco 29000 and 34000. 3 hr./wk.; 3 cr.

35300: Strategic Management

Focuses on developing coherent and lasting visions for organizations' future survival and prosperity. Examines decision processes that link an organization's internal capabilities with the external opportunities it faces in the environment. Tools of analysis, planning, and action related to keeping an organization aligned with its environment are introduced. Prereq.: Eco 34000. 3 hr./wk.; 3 cr.

35400: Information and Technology Management

Critical analysis of the issues facing managers of information technology. The course explores possible information technology management strategies of an

organization, and provides conceptual frameworks for the development and evaluation of information technology management strategies. Emphasis on information technology as a process enabler and strategic facilitator in the Internet age. Prereq.: Eco 34000. 3 hr./wk.; 3 cr.

35500: Leadership

Leadership in an organizational context. This course serves to encourage students to carefully analyze their responsibilities and commitments in the context of leadership for the common good and for purposeful change. Includes the study of leadership as well as the application of leadership theories, concepts, and skills. Prereq.: Eco 34000. 3 hr./wk.; 3 cr.

35700: Entrepreneurship

Emphasis on the identification and analysis of competencies required to launch new ventures. Topics include: the study of entrepreneurial behavior, characteristics of successful entrepreneurs, scanning for unique ideas, methods and techniques for analyzing the competitive environment, writing a business plan, and understanding the challenges of managing a startup organization through various stages of growth. 3 hr./wk.; 3 cr.

35800: Business and Society

Analysis of a business's social, legal, political, and ethical responsibilities to both external and internal groups that have a stake, or interest, in that business. An emphasis is placed on the need to understand that business situations will continually arise that will truly test one's values and ethics. Application of stakeholder and ethical systems to specific business problems. Prereq.: Eco 34000. 3 hr./wk.; 3 cr.

Accounting

36000: Principles of Accounting I

Introduction to accounting cycle, fundamental concepts and techniques of accounting for business transactions and preparation of financial statements. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 4 hr./wk.; 3 cr.

36100: Principles of Accounting II

Emphasis on the use of accounting data and analysis of management decisions. Prereq.: Eco 36000. 4 hr./wk.; 3 cr.

Law

38000: Law of Business Contracts

Basic principles of law of business contracts and their applications to business transactions. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

38100: Law of Business Organization

Basic principles of law governing the formation, operations and dissolution of

proprietorships, partnerships and corporations. Prereq.: Eco 10000 or 10101 or 10300 or 10400. 3 hr./wk.; 3 cr.

Advanced Independent Study

30100-30400: Honors I-IV

Approval of Dean and Chair is required. Apply no later than December 10 in the Fall term or May 1 in the Spring term. Variable cr.

31000: Independent Study

The student will pursue a program under the direction of a member of the Department with approval of the Chair. Credit may be from 1-4 credits, determined before registration, by the instructor with the approval of the Department Chair.

31001-32000: Selected Topics in Economics

Advanced independent study, chosen from the following areas. Flexible cr., usually 3 cr./sem.

31100: Micro Theory

31200: Macro and Monetary Theory

31300: Computer Applications for Business and Management Information Processing

31400: Management

31500: Managerial Accounting

31600: Statistical Analysis and Mathematical Economics

31700: Finance

31800: Economic Systems

31900: Economic Development

32000: Cost Accounting

42000-42100: Internship

Work in a city agency or a private organization for a year as research aide, gaining some practical applications of economic analysis to urban policy programs. Students work approximately ten hours per week in the placement and attend a seminar on campus. Student is expected to complete two consecutive semesters. Prereq.: junior or senior status, completion of, or current enrollment in, Eco 22000, 22500 and 29000, permission of the instructor. 3 cr./sem.

FACULTY

Joseph Berechman, Professor and Chair

B.A. Hebrew Univ. (Israel), M.B.A.; Ph.D., Univ. of Pennsylvania

Adib Birkland, Assistant Professor
B.A., Univ. of Minnesota, Ph.D.

Maria C. Binz-Scharf, Assistant Professor

B.A., Bocconi Univ. (Switzerland); Ph.D., Univ. of St. Gallen (Switzerland)

Peter Chow, Professor

B.A., National Taiwan Univ.; M.S., Southern Illinois Univ., Ph.D.

Prabal Kumar De, Assistant Professor

B.Sc., Presidency College (India); M.A., Jawaharlal Nehru Univ. (India); M.A., New York Univ., Ph.D.

Kevin Foster, Assistant Professor

B.A., Bard College; M.A., Yale Univ., Ph.D.

Mitchell H. Kellman, Professor

B.A., Univ. of Pennsylvania, M.A., Ph.D.

Zhou Lu, Assistant Professor

B.S., Zhejiang Univ. (China); LL.B. Foreign Affairs College (China), M.A., Univ. of California (Davis), Ph.D., Johns Hopkins Univ.

Matthew G. Nagler, Associate Professor

B.A. Cornell Univ.; Ph.D., Univ. of California (Berkeley)

Gökçe Sargut, Assistant Professor

B.S., Bilkent Univ. (Turkey); M.B.A., Univ. of Illinois at Urbana-Champaign; Ph.D., Columbia Business School

Yochanan Shachmurove, Professor

B.A., Tel Aviv Univ. (Israel), M.B.A.; M.A., Univ. of Minnesota, Ph.D.

Kameshwari Shankar, Assistant Professor

B.A., Lady Shri Ram College, (India), M.A., Delhi School of Economics (India), Ph.D., Cornell Univ.

Leonard Trugman, Lecturer

B.A., CUNY; M.A., Polytechnic Inst. of NY; D.Sci., Stevens Inst. of Tech.; M.B.A., Fairleigh Dickinson Univ.

Yan Zhao, Assistant Professor

B.A., Peking Univ. (China); M.S. Univ. of Nottingham (UK); Ph.D., Brandeis Univ.

Lin Zheng, Assistant Professor

B.A., Peking Univ. (China), M.A.; Ph.D., Cornell Univ.

PROFESSORS EMERITI

Stanley L. Friedlander

Malcolm Galatin

William I. Greenwald

Eric Isaac

Benjamin J. Klebaner

Marvin Kristein

Abraham Melezin

Edwin P. Reubens

Morris Silver

Gerald Sirkin

Department of English

(DIVISION OF HUMANITIES AND THE ARTS)

Professor Paul Oppenheimer, Chair • Department Office: NA 6/219 • Tel: 212-650-6302

GENERAL INFORMATION

The City College offers the following undergraduate degree in English:

B.A.

PROGRAMS AND OBJECTIVES

Courses in literature and writing enhance the experience of students in virtually all areas of the liberal arts, the performing arts, and the sciences.

Departmental majors may concentrate in the following:

- Literature
- Creative Writing
- Secondary English Education

The discipline of English has changed dramatically over the past few decades, and the offerings of the City College English Department reflect those changes. The two required “Critical Reading and Writing” courses, English 33000 and English 33100, take poetry and narrative as their respective subjects. These courses help students develop the basic vocabulary and skills of close textual analysis, but they also introduce influential theoretical concepts and encourage students to read literary texts in light of these concepts. The “Representative Writers” sequences in United States and British literature replace traditional surveys of major writers and provide a more interdisciplinary and intertextual approach to the American and British literary traditions. The “Selected Topics” courses offer visiting and permanent faculty members the opportunity to share their particular research interests with students, while the “Seminars” allow for comprehensive treatment of a particular topic in a more intimate classroom setting.

Creative Writing

The teaching of creative writing at the College began in 1919, and the Department’s graduates include some of the most eminent authors of this century. Workshops in fiction, poetry, and playwriting are regularly offered by professors who are themselves accomplished authors.

Secondary English Education

The teaching concentration is a specific regimen of literature, language, and writing courses required by most states (including New York) of candidates for high school teaching certification.

Publishing Certificate Program

This program is for students interested in pursuing a career in publishing. Students take four courses—one of which must be Introduction to Publishing—offered campus-wide in the editorial, marketing and design track. To complete the certificate, students must maintain a 3.0 average in their publishing courses and take part in paid internships at a publishing house suitable to their career goals. Faculty and guests include some of the leading publishing professionals in the country. For information, contact David Unger, the Program Director, at 212-650-7925.

Minor in English

The Department offers a minor as well as a major in English. Students wishing to pursue a specialized minor, such as “Literature and Law” or “Literature and History” will develop a program in consultation with their English Department advisor and advisors from other relevant departments or programs.

The English Honors Program

Majors and minors with a 3.3 GPA who have taken at least two upper-division English electives may apply to the English Honors Program, which includes two seminars and a course devoted to the writing of a thesis under the supervision of a faculty mentor. The program also offers advising, lectures, outings, and opportunities for students to share their work. Creative writing students may submit a manuscript of poems or stories in lieu of the thesis. Students should contact the program’s administrative assistant, Ms. Renee Philippi, or the Program Director, Professor Mikhal Dekel for information.

REQUIREMENTS FOR ENGLISH MAJORS

Required Courses

| | |
|---|---|
| English: 33000-33100: Critical Reading and Writing | 6 |
|---|---|

Elective Courses

| | |
|---|----|
| Electives in one of the three concentrations [See specific requirements for concentrations below.] | 30 |
|---|----|

| | |
|----------------------|-----------|
| Total Credits | 36 |
|----------------------|-----------|

Students are urged to enroll in English 33000-33100 as soon as possible after declaring the major. Composition and World Humanities are prerequisites to all concentrations within the English major.

Areas of Concentration

English majors choose one of the three areas of concentration and complete 30 credits as listed below:

Literature

| | |
|---|----|
| Additional literature courses (30000-level or above) | 30 |
|---|----|

[See the chief departmental advisor for a list of the department's recommendations.]

Creative Writing

Additional literature courses (30000-level or above) 12
Creative writing (22000 or 30000-level or above) 18

Secondary English Education

Specific courses required by the New York State Department of Education 21
Electives 9
[See the chief departmental advisor for appropriate requirements.]

ADDITIONAL REQUIREMENTS

In addition to major requirements, all English majors must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) or Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)
2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this Bulletin.

REQUIREMENTS FOR THE MINOR IN ENGLISH

English:
33000 or 33100: Critical Reading and Writing 3

Elective Courses

Additional credits in English (22000-level or above) 12

Total Credits for Minor 15

ADVISEMENT

English

Ms. Michelle Valladares NA 6/219; 212-650-6360

Freshman English

Professor Renata K. Miller, Director
NA 6/234; 212-650-6391

English Honors Program

Professor Mikhal Dekel
Fellowship Office
NA 6/348; 212-650-6305

DEPARTMENTAL ACTIVITIES

Arts and Letters Society

The Arts and Letters Society, a student-run group, promotes writing by members of the City College community and publishes *Promethean* and *Tribes*. Information about the Society, which all majors are urged to join, can be obtained at department office, NA 6/219.

Publications

Fiction, the internationally renowned literary magazine.

Promethean, the City College literary magazine.

Global City Review, an eclectic journal of literature and ideas.

Events and Productions

Members of the English Department arrange events throughout the year, including:

The Langston Hughes Festival
The Spring Poetry Festival
The English Department Annual Awards Ceremony

AWARDS

The Department of English awards \$50,000 in prizes and over \$20,000 in grants every year to undergraduate students.

Creative Writing Awards

- The Henry Roth Memorial Scholarship
- The Geraldine Griffin Moore Award in Creative Writing
- The Goodman Fund Grants
- The Goodman Fund Short Story Award
- The Professor Abraham A. Bernstein Class of 1930 Award
- The Undergraduate Children's Writing Award

Poetry Awards

- The David Markowitz Poetry Award
- The Esther Unger Poetry Award
- The Goodman Fund Poetry Award
- The James Emmanuel Poetry Prize

Essay Awards

- The Allan Danzig Memorial Award in Victorian and Romantic Literature
- The David Markowitz Essay Award
- Riggs Gold Medal Essay Award

The Irwin and Alice Stark Awards

- The Stark Short Fiction Prize
- The Stark Award in Fiction in Honor of Henry R. Roth
- The Stark Award for Essay in Literature
- The Stark English Composition Award in Memory of Mina Shaugnessy

General Excellence Awards

- The Albert Friend Award for Excellence in Medieval Studies
- The Edward C. and Ruth P. Mack Graduate Fellowship
- The Julius and Elizabeth Isaacs Scholarship
- The Leon/Ward Prize
- The Paul Roberts Memorial Scholarship Fund
- The Richard Shephard Award for Excellence in Writing
- The Sydney Jacoff Graduate Fellowship
- The Tony Cade Bambara Endowed Scholarship
- The William Bradley Otis Fellowship in American Literature

COURSE DESCRIPTIONS

WRITING COURSES

11000: Freshman Composition

The longer paper, and practice in essay forms. 3 hr./wk., plus conf.; 3 cr.

21000: Introduction to Academic Writing

Practice in the styles and forms of expository writing required in specific disciplines. Readings that acquaint students with standards of good writing in their field. Prereq: English 11000, or exemption from it on the

basis of the placement test. 3 hr./wk., plus conf.; 3 cr.

21001: Writing for Humanities and the Arts

21002: Writing for the Social Sciences

21003: Writing for the Sciences

21007: Writing for Engineering

23000: Writing Workshop in Prose

Emphasis on development of a prose style appropriate to a given disciplinary or work-world context. Prereq. Eng. 21000. May be repeated for credit when focus varies. 3 hr./wk., plus conf.; 3 cr.

Creative Writing

All Creative Writing courses are conducted by teachers who are themselves professional creative writers sensitive to the efforts of the beginning writer. Interested students should check the available descriptions for information concerning specific sections, which may vary from term to term.

22000: Introductory Workshop in Creative Writing

For students who wish to explore the various areas of creative writing. May be taken twice for credit. 3 hr./wk.; 3 cr.

32000: Workshop in Fiction

More advanced than 22000, for students who wish to concentrate on the writing of fiction. Reading and analyzing contemporary short stories, and writing stories that will be discussed in class with other students and in regular conferences. May be taken three times for credit. Prereq.: English 22001 or 22002. (W) 3 hr./wk.; 3 cr.

32100: Workshop in Poetry

More advanced than 22000, for students who wish to concentrate on the writing of poetry. Regular conferences. May be taken twice for credit. Prereq.: English 22001 or 22002. 3 hr./wk.; 3 cr.

32200: Workshop in Drama

More advanced than 22000, for students who wish to concentrate on the writing of drama. Work in both the one-act and full-length play forms. Student work will be the basis for class readings and discussions. Regular conferences. May be taken twice for credit. (W) 3 hr./wk.; 3 cr.

32300: Workshop in Film and Television

Writing scripts for film and television. Regular conferences. (W) 3 hr./wk.; 3 cr.

32400: Reading and Writing Children's Literature

This course investigates the essential aspects of writing for children, including: appropriate vocabulary, voice, audience, theme, style and technique. Both fiction and poetry are examined. Skills of editing, revision, and presentation are presented. 3 hr./wk.; 3 cr.

LITERATURE COURSES

Prerequisite: students must, unless granted special permission, take composition and introductory literature courses before enrolling in literature electives. All English majors must take the sequence below. See Requirements for English Majors.

33000-33100: Critical Reading and Writing

A year-long course providing a practical introduction to the fundamental concepts and methods of literary analysis. The course begins with short texts and moves progressively to longer forms. Readings include poems, plays, novels and stories written in English (as well as examples of less strictly literary forms). (W) 3 hr./wk.; 3 cr./sem.

English Literature

35000-35100: A Historical Approach to Literature

A year-long course in English literature from the Middle Ages to the present. (W) 3 hr./wk.; 3 cr./sem.

35001-35101: A Generic Approach to Literature

First semester: tragedy and comedy; second semester: lyric and epic. (W) 3 hr./wk.; 3 cr./sem.

35200: Representative British Writers of the Middle Ages

An introduction to the literature of the Middle Ages in England. Readings include narrative poetry and prose, religious writings, drama, and lyrics. (W) 3 hr./wk.; 3 cr.

35201: Old English

The language and literature of the Anglo-Saxons. (W) 3 hr./wk.; 3 cr.

35202: Chaucer: The Canterbury Tales

(W) 3 hr./wk.; 3 cr.

35300: Representative Writers of the Renaissance

An introduction to Renaissance literature. Readings include a variety of genres: poems, plays, epic, literary criticism, and fiction. (W) 3 hr./wk.; 3 cr.

35301: Shakespeare I

Early and middle comedies, major histories, early tragedies, poems, and sonnets. (W) 3 hr./wk.; 3 cr.

35302: Shakespeare II

The major tragedies, the problem plays, the late comedies, and romances. (W) 3 hr./wk.; 3 cr.

35303: Shakespeare on Film

(W) 3 hr./wk.; 3 cr.

35304: Seventeenth-Century English Poetry

Donne, Herbert, Jonson, the early Milton. (W) 3 hr./wk.; 3 cr.

35500: Representative British Writers of the Restoration and Eighteenth Century

An introduction to English Romantic poetry and prose. Readings include poetry, fiction, autobiography, philosophy, literary criticism, letters and personal journals from men and women of the period. (W) 3 hr./wk.; 3 cr.

35501: Milton

Paradise Lost and other major works. (W) 3 hr./wk.; 3 cr.

35502: The Eighteenth-Century English Novel

From the beginnings to Austen. (W) 3 hr./wk.; 3 cr.

35600: Representative British Writers of the Romantic Period

An introduction to English Romantic poetry and prose. Readings include poetry, fiction, autobiography, philosophy, literary criticism, letters, and personal journals from men and women of the period. (W) 3 hr./wk.; 3 cr.

35700: Representative British Writers of the Victorian Period

An introduction to Victorian literature through representative works in a variety of genres. (W) 3 hr./wk.; 3 cr.

35701: Nineteenth-Century British Novel

From Austen to Hardy. (W) 3 hr./wk.; 3 cr.

35800: Representative British Writers of the Modernist Period

An introduction to representative modern writers of England and Ireland. (W) 3 hr./wk.; 3 cr.

35802: The Twentieth-Century British Novel

(W) 3 hr./wk.; 3 cr.

American Literature

36000: Representative Writers of the United States: Early American Literature

Literature of the Colonial and Revolutionary periods, including devotional literature, captivity narratives, slave narratives, political rhetoric, and the gothic and sentimental novel. (W) 3 hr./wk.; 3 cr.

36100: Representative Writers of the United States: The Nineteenth Century

Embraces the antebellum period and the late nineteenth century; likely topics include Transcendentalism, literary nationalism, the literature of emancipation, and the cult of domesticity as well as post-Civil War developments in regionalism, realism, and naturalism. (W) 3 hr./wk.; 3 cr.

36200: Representative Writers of the United States: The Twentieth Century

Modern and contemporary American literature from the rise of modernism to postmodernist developments in the late twentieth century. (W) 3 hr./wk.; 3 cr.

36201: Twentieth-Century American Poetry

(W) 3 hr./wk.; 3 cr.

36300: Latino Literature in the U.S.

A one semester elective course on selected literature, from of a variety of genres, by contemporary Latino writers. 3 hr./wk.; 3 cr.

Africana Literature

37001: African American Literature in America

A historical survey. (W) 3 hr./wk.; 3 cr.

37004: African American Fiction (W)

3 hr./wk.; 3 cr.

37006: Comparative Africana Fiction

Africa, the United States, the Caribbean. (W) 3 hr./wk.; 3 cr.

Literary Perspectives on Women

37501: Women Writers of the Middle Ages and the Renaissance

An historic and thematic examination of significant works by women of the Middle Ages and Renaissance, with consideration of related historical, social, and religious issues. (W) 3 hr./wk.; 3 cr.

37502: Nineteenth-Century Women Writers

Austen, Eliot, the Brontes, and minor figures. (W) 3 hr./wk.; 3 cr.

37503: Twentieth-Century Women Writers

Woolf, Bowen, Wharton, Glasgow, Moore, Lessing, Murdoch, Mansfield, Stein, Porter,

McCullers, Welty, Plath, and others. (W) 3 hr./wk.; 3 cr.

Historical Studies in World and Comparative Literature

38001: Oriental Literature I

Readings in Arabian, Iranian and Hindu Indian literature, secular and sacred. (W) 3 hr./wk.; 3 cr.

38002: Oriental Literature II

Readings in Buddhist, Indian, Chinese and Japanese literature. (W) 3 hr./wk.; 3 cr.

38003: The Bible as Literature I

The Old Testament. (W) 3 hr./wk.; 3 cr.

38004: The Bible as Literature II

The New Testament. (W) 3 hr./wk.; 3 cr.

38007: Introduction to Comparative Literature

Introduction to ways of comparing various literatures. Readings from world literature. (W) 3 hr./wk.; 3 cr.

Modern Studies in World and Comparative Literature

38104: Modern Drama I

Nineteenth century to 1914. Ibsen, Chekhov, Strindberg, Shaw, Synge. (W) 3 hr./wk.; 3 cr.

38105: Modern Drama II

Since 1914. (W) 3 hr./wk.; 3 cr.

Genres

39000: Genres

Studies of the forms and historical development of various literary genres. (W) 3 hr./wk.; 3 cr.

39001: Satire (W)

39006: Science Fiction (W)

39100: Themes

Consideration of various themes, ideas, literary patterns, and concepts in literature. 3 hr./wk.; 3 cr.

39102: The Vampire

An exploration of certain ideas of evil in Western literature. (W)

Literature and Other Disciplines

39200: Literature and Other Disciplines

The relationship of literature to spiritual and social forces, to science, and to art. 3 hr./wk.; 3 cr.

39203: The Political Novel (W)

Selected Topics

31100-32000: Selected Topics in Language and Literature

A changing series of innovative and experimental courses on topics not generally covered in regular courses. Students should consult the Department's course offerings booklet each semester to determine which selected topics courses will be offered. (W) 3 hr./wk.; 3 cr.

Seminars

41100-42000: Seminars in Language and Literature

One writer, a group of writers, a literary subject, a theme, or a period is studied intensively. Offerings change each term, and students should consult the Department's course offerings booklet each semester to determine which seminars will be given. (W) 2 hr./wk.; 3 cr.

Tutorial Courses

These courses provide students an opportunity to pursue independent study and research in areas of literature and language beyond the scope of departmental offerings. Except in extraordinary circumstances, no tutorial in a given subject shall extend beyond one semester; no more than one tutorial may be taken in any semester.

In order to be admitted to a tutorial course, a student must:

- Have completed twelve credits of elective work with an average of B or better;
- Present a letter of recommendation from an instructor who is willing to serve as a mentor.

31001-31004: Independent Study

Independent study and research under the supervision of a mentor. (W) 1-4 cr.

39501-39504: Group Tutorial

For groups engaged in specialized study, beyond the scope of departmental courses, under the direction of one or more mentors. (W) 1-4 cr.

LANGUAGE, LINGUISTICS, AND LITERACY

34005: TESOL Materials and Testing

Approaches to the use and creation of instructional material for the teaching of English as a Second Language. (W) 3 hr./wk.; 3 cr.

34200: Advanced Grammar

This course describes, reviews, and clarifies principles of English grammar and usage, particularly for Learning Center tutors and those who plan to teach English. 3 hr./wk.; 3 cr.

PUBLISHING CERTIFICATE PROGRAM

32501: Introduction to Publishing I

A dynamic overview of who does what and why in book publishing, providing broad knowledge of book acquisitions, editing, design and production, sales, marketing, advertising, corporate management, and the financial and legal professional areas of the industry. 3 hr./wk.; 3 cr.

32502: Publishing Practicum.

A simulation of the complete book publishing process from contract negotiations to bound book. Designed to complement the fall-semester *Introduction to Publishing* by providing opportunities for students to put their previous learning to practical use. Prereq.: 32501. 3 hr./wk.; 3 cr.

32600: Books for Young Readers

A practical look at the specialized world of publishing for children and young adults, with an emphasis on the creative passion involved in producing books for American young people. Licensing, merchandising, sales and marketing to all age groups and every category in publishing will be discussed. Substantial reading of children's titles and discussions of the development of publishing programs, with special focus on multicultural programs. 3 hr./wk.; 3 cr.

32700: The Editorial Process

An in-depth look at the process specific to the editorial profession, including book acquisition, manuscript editing (copyediting, line editing, proofreading); selling a manuscript at the editorial meeting; author/agent/editor relations; book contracts and subsidiary rights; seeing a writer's project from concept to manuscript to bound book; the book review process; and the editor's relationship with the marketing, sales, and advertising departments. This course will include class visits by authors and industry professionals, who will explore their individual relationship to the process of book making. Students will acquire the basic skills and knowledge necessary to successfully enter a professional editorial position. 3 hr./wk.; 3 cr.

32800: Fundamentals of Copyediting and Proofreading

Intensive, practical instruction in basic copyediting and proofreading. Working with a variety of texts (including fiction, nonfiction, cookbooks, reference works), students will learn how to assess a

manuscript and employ universal copyediting/proofreading symbols in type-marking manuscripts. Students will also learn design coding; drafting a style sheet; querying; preparing a manuscript for author review and typesetting; composition quality standards; and how to perform the tasks at each stage of the bookmaking process. Prereq.: Eng 32501. 3 hr./wk.; 3 cr.

32900: Independent Study: Publishing Internship

Students work a minimum of 150 hours in the department of their choice. An essay reviewing and analyzing the relationship between the student's academic and work experience is required. Publishers offering past internships include: Random House, Inc., John Wiley & Sons, Inc., Time Warner Books, W.W. Norton, Inc., Harcourt, Inc., Simon & Schuster, Inc., and Harper Collins. Prereq.: permission of the director. 150 hrs.; 3 cr.

31003: Independent Study: Publishing Internship

This course is the final requirement towards the Publishing Certificate and is available to those students who have completed four courses in the Program with a 3.0 average or better. Publishers offering internships include: Random House, Inc., John Wiley and Sons, Inc., Time Warner Books, W.W. Norton, Inc., Simon and Schuster, Inc., and HarperCollins. Students work in the department of their choice. An essay reviewing and analyzing the relationship between the students' academic and work experience is required. Permission of the Director is required. 150 hrs./3 cr.

FACULTY

Salar Abdoh, Associate Professor

B.A., U.C. Berkeley; M.A. City College

Linsey Abrams, Professor

B.A., Sarah Lawrence College; M.A. The City College

Doris Barkin, Lecturer

B.A., Queens College; M.A., CUNY

Felicia Bonaparte, Professor

B.A., New York Univ.; M.A., Yale Univ.; Ph.D., New York Univ.

Richard Braverman, Lecturer

B.A., Hamilton College; M.A., Columbia University, Ph.D.

Carla Cappetti, Professor

B.A., Torino; M.A., Univ. of Wisconsin; M. Phil., Columbia Univ., Ph.D.

Gladys Carro, Associate Professor

B.A., Manhattanville College; M.S., Fordham Univ., Ph.D.

James De Jongh, Professor

B.A., Williams College; M.A., Yale Univ.; Ph.D., New York Univ.

Mikhal Dekel, Assistant Professor

Tel Aviv School of Law; M.A., The City College; Ph.D., Columbia University

Lyn Di Iorio, Associate Professor

B.A., Harvard Univ.; M.A., Stanford Univ.; Ph.D., Univ. Of California (Berkeley)

Grazyna Drabik, Lecturer

M.A., Univ. of Warsaw; M.A., Columbia Univ., M. Phil.

Barbara Gleason, Associate Professor

B.S., Univ. of Missouri (Columbia); M.A., Oklahoma State Univ.; Ph.D., Univ. of Southern California

Leon Guilhamet, Professor

B.A., Syracuse Univ.; M.A., Rutgers Univ.; Ph.D., Harvard Univ.

Marilyn Hacker, Professor

B.A., New York University

Jo-Ann W. Hamilton, Lecturer

B.A., Univ. of Pennsylvania; M.F.A., The City College; Ed.D., Teachers College, Columbia University

Laura Hinton, Professor

B.A., Univ. of Arizona, M.A.; Ph.D., Stanford Univ.

András Kiséry, Assistant Professor

M.A., Univ. of Bristol (U.K.); M.Phil., Columbia Univ., Ph.D.

Pamela Laskin, Lecturer

B.A., Harper College, M.A.

Jane Marcus, Distinguished Professor

A.B., Radcliffe College; M.A., Brandeis Univ.; Ph.D., Northwestern Univ.

Elizabeth Mazzola, Professor

B.A., Univ. of Virginia, M.A., New York Univ., Ph.D.

Renata K. Miller, Associate Professor

B.A., Princeton; M.A., Univ. of Indiana, Ph.D.

Mark Mirsky, Professor

B.A., Harvard Univ.; M.A., Stanford Univ.

Geraldine Murphy, Professor

B.A., Boston Univ.; M.A., Columbia Univ., Ph.D.

Department of English

Paul Oppenheimer, Professor and Chair

B.A., Princeton Univ.; M.A., Columbia Univ., Ph.D.

Emily Raboteau, Associate Professor

B.A., Yale Univ.; M.F.A., New York Univ.

Fred Reynolds, Professor and Dean, Division of Humanities and the Arts

B.A. Midwestern State Univ.; M.A., M.A. (Speech), Univ. of Oklahoma, Ph.D.

Gordon Thompson, Assistant Professor

B.A., The City College; M.A., Yale Univ., Ph.D.

Michelle Valladares, Lecturer

B.A., Bryn Mawr College; M.F.A., Sarah Lawrence College

Harold A. Veese, Associate Professor

B.A., Columbia Univ., M.A., Ph.D.

Michele Wallace, Professor

B.A., CCNY, M.A.

Joshua Wilner, Professor

B.A., Cornell Univ.; M. Phil., Yale Univ., Ph.D.

PROFESSORS EMERITI

Marcia Allentuck

Iona Anderson

Nathan Berall

Saul N. Brody

David P. Buckley

Roger Boxill

Arthur K. Burt

Alice Chandler

Morton Cohen

James A. Emanuel

Barbara Fisher

Byrne R. S. Fone

Arthur Ganz

Robert Ghiradella

Arthur Golden

Frederick Goldin

Ralph Gordon

Theodore Gross

James Hatch

William Herman

Mary V. Jackson

Norman Kelvin

Leonard Kriegel

Valerie Krishna

Patricia Laurence

Daniel Leary

Irving Malin

Karl Malkoff

Philip Miller

Samuel Mintz

Robert K. Morris

Stephen Merton

Nathaniel Norment, Jr.

William L. Payne

Beatrice Popper

Edward Quinn

Irving Rosenthal

Earl Rovit

Paul Sherwin

Robert Silber

Frederic Tuten

Geoffrey Wagner

Arthur Waldhorn

Barry Wallenstein

Barbara Bellow Watson

English as a Second Language Courses

(DIVISION OF HUMANITIES AND THE ARTS)

GENERAL INFORMATION

Courses in American English are offered to non-native speakers whose CUNY/ACT scores indicate that their language skills (listening, speaking, reading, and writing) are insufficient for college-level work. The goals of the program are to help students become fluent, clear and correct in their writing, reading and oral communication skills.

The coursework in the ESL Department is on two levels. Students are placed in class on the basis of their CUNY/ACT scores; English 11000 must be taken following completion of the Level II courses; Speech 11100 may be taken following completion of ESL 03000. Upon completion of English 11000 and Speech 11100, students should be ready to pass the CUNY Proficiency Examination and Speech Proficiency Examination.

Students are permitted to take ESL classes along with certain liberal arts electives and Core required courses. Students are encouraged to advance as rapidly as possible. A student may be exempted from any course in the sequence upon recommendation of the instructor and approval by the course coordinator.

COURSE DESCRIPTIONS

Level I

02000: Intermediate American English for Non-Native Speakers

An intensive writing course that focuses on clarity of ideas with heavy emphasis on academic writing and reading as related to the liberal arts elective course(s) being taken. 3 hr./wk.; 0 cr.

02100: Reading for Non-Native

Speakers

Instruction in reading and vocabulary development necessary to pass the liberal arts course(s) being taken. 3 hr./wk.; 0 cr. Students take ESL 02000 and 02100 along with required Core and/or elective Liberal Arts courses (e.g. Sociology, Art).

Level II

03000: Advanced Composition for Non-Native Speakers

An intensive writing course that focuses on correctness in argumentative and persuasive writing. Reading materials are included to help develop expository skills in the Core and/or liberal arts elective courses being taken and to help students pass the CUNY/ACT. Special sections of 03000 are offered for graduate and transfer students. Prereq.: ESL 02000 or placement. 4 hr./wk.; 2 cr.

09901: History, Society, and Culture

Advanced reading course for ESL students at the second level of the reading sequence. Designed to introduce concepts related to the Core and Liberal Arts elective course(s) in which students are registered and to help students pass the CUNY/ACT. Prereq.: ESL 02100 or placement. 4 hr./wk.; 2 cr.

Note: Students take ESL 03000 and/or 09901 along with Core required and/or Liberal Arts elective courses (e.g., World Civilization, Anthropology, Computer Science, etc.).

Environmental Earth Systems Science Program

(INTERDISCIPLINARY PROGRAM OF THE DIVISION OF SCIENCE AND THE GROVE SCHOOL OF ENGINEERING)

Dr. Meg Krudysz, Program Administrator • Program Office: ST 416 • Tel: 212-650-8299

Professor Fred Moshary, Program Director • ST 417 • Tel: 212-650-7251

Professor Jeffrey Steiner, Program Deputy Director and Science Advisor • MR 106 • Tel: 212-650-6984

GENERAL INFORMATION

The City College offers the following undergraduate degree in Environmental Earth Systems Science:

B.S.

PROGRAMS AND OBJECTIVES

Environmental Earth Systems Science (EESS) is designed for students interested in emerging environmental issues as well as environmental policy. A combined curriculum of science and engineering courses provides a foundation for studying emission control, climate change, global warming, resource management, public health, and environmental remediation. These broad areas will continue to drive environmental research for the coming decades with the goal of providing lawmakers with accurate information for developing sound environmental policies. The EESS degree program is designed to connect to major existing environmental research programs at CCNY, including the National Oceanic and Atmospheric Administration Center for Cooperative Remote Sensing Science and Technology (NOAA-CREST) and the National Aeronautics and Space Administration Center for Optical Sensing and Imaging (NASA-COSI). Together, the curriculum and associated science and engineering research provide a superior basis for entry into careers in environmental and earth system science at local and federal levels and in related industries as well as government regulatory and policy arenas.

PROGRAM SPECIALIZATIONS

Environmental Earth Systems Science and the related centers provide state-of-the-art equipment in the areas of remote sensing, hydrology and groundwater hydrology, emergent contaminant evaluation and remediation, subsurface sensing-environmental geophysics, aerosol particulate collection and analysis and a host of related fields. The remote sensing laboratories coordinate a state-of-the-art LIDAR sensor with environmental aerosol collectors (such as the Environmental Beta-Attenuation Monitor) and a new satellite receiving station together with sophisticated satellite data analysis software (such as Interactive Data Language and ENVI). The EESS facilities also include a complete Weather Center that operates a wide range of weather-analyzing systems including a Mesoscale Meteorological System (MM5) and coordinated links with the National Weather Service.

The Geochemical and Geophysical Laboratories include an extensive array of equipment including x-ray fluorescence, x-ray diffraction, atomic absorption spectrometers, gas chromatography-mass spectrometry, and ion chromatography. Specialized systems include photo-dye tracing diffusion systems, electromagnetic geophysics, gravitational geophysics and related techniques. The laboratories have access to scanning and transmission electron microscopes and complete image-processing software, including ImagePro.

PROGRAM REQUIREMENTS

The EESS Program leads to a Bachelors of Science degree whereas its sister program Earth System Science and Environmental Engineering leads to a Bachelors of Engineering degree concentration (see the Engineering Section of this Bulletin). The two programs share some of the lower and upper division courses, but do not have the same requirements. Both programs have suggested degree concentrations for students, but these can be modified to better suit a particular area of study interest. There is an EESS/ESE Committee responsible for assuring that course tracks are appropriate for each student.

Students entering the EESS/ESE Programs are interviewed initially by the Program Administrator, Dr. Meg Krudysz, and are then assigned to the EESS general advisor, Professor Jeffrey Steiner, for the first year in EESS. In the sophomore year, the student is assigned a mentor faculty member whose research most closely matches the career interest of the individual student. By year three, students are expected to focus on a particular environmental area of study and create an appropriate program of study from a list of approved Elective Courses

Flexibility within EESS is achieved by creating a core sequence of essential courses and a relatively large number of electives. This allows a student to focus on specific career objectives.

REQUIREMENTS FOR ALL EESS MAJORS

Science and Engineering Courses 33

To be selected in consultation with a major advisor. The program of study will require approval of the EESS curriculum committee. Refer to the list of required and elective courses under the Earth System Science and Environmental Engineering Program.

In addition to major requirements, all EESS majors must complete the following:

1. General Education Requirement including FIQWS, Calculus, Perspective and In-depth requirements (for students who entered after Fall 2008) *or* Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2008)
2. English 21003
3. Foreign Language Requirement
4. CPE Examination
5. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

FACULTY ADVISORS

For a complete list of participating Science and Engineering Faculty, please refer to the section on Earth System Science and Environmental Engineering in the Grove School of Engineering section of this Bulletin.

Department of Foreign Languages and Literatures

(DIVISION OF HUMANITIES AND THE ARTS)

Professor Richard Calichman, Chair • Department Office: NA 5/223 • Tel: 212-650-6731

GENERAL INFORMATION

The City College offers the following undergraduate degrees in Foreign Languages:

B.A. in Romance Languages

PROGRAMS AND OBJECTIVES

The Department of Foreign Languages and Literatures offers undergraduate courses in: Arabic, Chinese, Classical Greek, French, German, Hebrew, Hindi, Italian, Japanese, Latin, Linguistics, Portuguese, and Spanish.

PLACEMENT EXAMINATIONS

All students wishing to take a language course at a level higher than Elementary I must take a language placement examination. Students should arrange to take the placement examination as early as possible before starting language study.

Placement exams are graded with a level of Elementary I, Elementary II, Intermediate I, Intermediate II, Elective or Exempted. If a student is placed at the level of Exempted, he/she is excused from taking foreign language courses at CCNY (no credit is granted for the exam). In the event that the student is not exempted, he/she has two options: to finish language requirement in the language in which the student took the placement exam or to take another language.

The Department of Foreign Languages and Literatures also administers competency examinations, which students may take to be considered for exemption from the language requirement, in the following languages: Albanian, Czech, Danish, Farsi/Persian, Filipino/Indonesian, German, Greek, Hauser/TWI, Ibo-Yoruba, Korean,

Polish, Russian, Rumanian, Serbo-Croatian, Sinhala, Somalian/Swahili, and Turkish. Students who wish to be examined for competency in another language must identify an instructor within the CUNY system who would be able to evaluate their language competency, and submit the name of the faculty member to the Department of Foreign Languages and Literatures. An exam will be administered and graded in collaboration with that faculty member.

For more information about placement and competency exams, please contact the Department of Foreign Languages and Literatures.

ADVISEMENT

Students wishing to take courses in any of the listed languages should consult with Professor Richard Calichman, Chairperson, or a designated faculty member:

Chinese

Professor Ya-chen Chen
NA 5/223F; 212-650-8120

Classical Studies

Professor Jennifer Roberts
NA 6/343; 212-650-6397

French

Professor Maxime Blanchard
NA 320B; 212-650-7932

Professor Bettina Lerner
NA 6/320A; 211-650-7935

Professor Eve Sourian
NA 6/320C; 6338

Hebrew

Professor Amy Kratka
NA 5/223E; 212-650-6790

Professor Roy Mittelman
NA 5/218C; 212-650-7522

Italian

Professor Vittorio Rotella
NA 6/371; 212-650-7937

Japanese

Professor Richard Calichman
NA 5/223K; 212-650-6731

Spanish

Professor Mary Ruth Strzeszewski
NA 5/223I; 212-650-6381

Professor Araceli Tinajero
NA 6/336A; 212-650-6382

Spanish Linguistics

Professor Laura Callahan
NA 6/331A; 212-650-7928

Professor Dulce García
NA 6/364; 212-650-7921

TUTORING OFFICE

The Department offers tutoring to any student enrolled in courses who needs additional help. Tutors are advanced students who have been recommended by the faculty. The tutoring office is open on a regular basis. The schedule is posted outside the department office, NA 5/223.

DEPARTMENT ACTIVITIES

Clubs

The Department sponsors the following student clubs:

La Lumière, for students of Francophone cultures.

Spanías, a student association devoted to the appreciation of Iberian and Latin American culture.

Honor Societies

Students who meet the necessary scholastic requirements may apply to become members of the National Honor Societies:

Pi Delta Phi (French)

Sigma Delta Pi (Spanish)

| | |
|--|-----------|
| 35300: Studies in Spanish American Literature | 3 |
| 37300: Advanced Composition and Conversation | 3 |
| 45201: Topics in Spanish American Civilization | 3 |
| 47400: Literature in Spanish for Children and Adolescents Living in the U.S. | 3 |
| 45400: Latino Culture and Literature in the U.S. Elective Courses | 9 |
| Total Credits | 36 |

CONCENTRATION IN TWO ROMANCE LANGUAGES

A student concentrating in two Romance languages will be required to complete a minimum of twelve advanced courses, including a minimum of six in each language. Among the six advanced courses chosen in each language, two must be from Group A and two must be from Group B. The remaining two courses may be selected from either group A or B.

Students concentrating in two languages will be required to have two specialization advisors, one from each language area. With guidance from their advisors, students will choose those courses that are most pertinent to their backgrounds and objectives.

ADDITIONAL REQUIREMENTS

In addition to major requirements, all Foreign Languages and Literatures majors must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) or Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)
2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree

Requirements at the end of this Bulletin.

CURRICULUM FOR MINORS IN FRENCH, ITALIAN, PORTUGUESE, SPANISH, HISPANIC LINGUISTICS, AND CLASSICAL STUDIES

The prerequisite for a minor in French, Portuguese and Italian is 12100, 12200 and 22500. The prerequisite for a minor in Spanish is: for native Spanish speakers, 19100, 19200 and either 32100 or 32200; for non-native Spanish speakers it is 12100, 12200, 23000 and 22400 (22500 may be substituted for 22300 and 22400). For all of these languages, these prerequisites may also be satisfied by four years of high school preparation or by passing a placement examination. All minors must be approved by the Chair of the Department of Foreign Languages and Literatures.

Minor in French, Italian or Portuguese (15 credits)

A student minoring in French, Italian or Portuguese will be required to take any five-course combination (Group A or B) at the advanced level (30000 or above).

Minor in Spanish (15 credits)

The minor in Spanish consists of 5 advanced courses at the 30000 and 40000 levels, distributed in the following manner:

A student minoring in Spanish is required to take one language course (Spanish 32100 or 32200); one survey course (Spanish 35100, 35200 or 35300); one course in civilization and culture (Spanish 45100, 45201 or 45202); and two courses to be chosen from Group B (Literature) at the 40000 level.

Minor in Spanish Linguistics

The minor in Spanish Linguistics consists of the 15 credits from the courses listed below. The courses should be taken in the indicated sequence.

One of the following two: 3
Spanish 32700: Introduction to Spanish Linguistics (3 cr.)

| | |
|--|---|
| Linguistics 22100: General Introduction to Linguistics (3 cr.) | 3 |
| One of the following two: | |
| Spanish 46200: Spanish Dialectology and Sociolinguistics (3 cr.) | 3 |
| Spanish 37000: History of the Spanish Language (3 cr.) | |
| Spanish 32500: Phonetics and Phonology | 3 |
| Spanish 46301: Spanish in Contact Worldwide | 3 |
| Spanish 46302: Spanish in Contact in the U.S. | 3 |

Minor in Classical Studies

Students minoring in Classical Studies must take a minimum of 12 credits. These will include some combination of (a) courses at the 20000 level or above in which readings are in English, and (b) Greek and Latin courses beyond the first semester of instruction (Latin 12200 and above, Greek 12200 and above). In addition to Greek and Latin classes, students are encouraged to select from the following courses. Consult the corresponding department section of this Bulletin for full course descriptions.

Art 27000: Egyptian Art and Architecture

Art 27100: Greek and Roman Art

Classics 32100: Classical Mythology

Classics 32300: Greek and Roman Comedy and Satire in Translation

Classics 33100: Latin Literature in Translation

Classics 40100: Modern Problems in Perspective

History 32100: The Ancient World: The Near East and Greece

History 32200: The Ancient World: The Hellenistic World and Rome

Philosophy 30500: History of Philosophy

Political Science 27300: Classical Political Thought

Other courses dealing with the Greco-Roman world may be substituted with permission.

COURSE DESCRIPTIONS

Arabic

12100: Elementary Arabic I

The course teaches modern standard Arabic (contemporary classical Arabic). Emphasis is on pronunciation of basic everyday vocabulary and simple grammar through conversation and drills based on a situational approach. The reading and writing practice of Arabic script is introduced. Videos are shown to familiarize the students with the language speakers and their culture. 4 hr./wk.; 3 cr.

12200: Elementary Arabic II

Further practice and drills in conversation, using basic structural patterns and reading of simple texts constructed for this level and of short suras from the *Qu'ran*. Videos and discussion of the cultural aspect of Arabic-speaking people are included. All writing is done in Arabic script. Prereq.: Arabic 12100 or equivalent. 4 hr./wk.; 3 cr.

22500: Intensive Intermediate Arabic

An intensive course that will build on the skills acquired in basic Arabic 12100 and 12200 with increased emphasis on reading and writing from modern sources in addition to aural/oral proficiency. Prereq.: Arabic 12200 or placement exam. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

ASIAN LANGUAGES

All Asian languages are offered at elementary and intermediate levels. No credit will be given for taking only the first part of any level of language courses.

Chinese

12100: Elementary Chinese (Mandarin) I

Modern vernacular Chinese based on the speech of Beijing. Essentials of sound patterns, grammar and vocabulary. Practice in speaking, reading and dictation. 4 hr./wk.; 3 cr.

12200: Elementary Chinese (Mandarin) II

Further practice in modern vernacular Chinese based on the speech of Beijing. Essentials of sound patterns, grammar and vocabulary. Practice in speaking, reading and dictation. Prereq.: Chinese 12100 or permission of the instructor. 4 hr./wk.; 3 cr.

22500: Intensive Intermediate Chinese

An intensive one-semester Chinese course at the intermediate level. This course

will continue to develop communicative competence through the study of grammar and new vocabulary. Using communication-oriented activities, this course will help students to be better able to speak naturally and spontaneously. Reading and writing will be stressed through regular assignments to be handed in for review. Additionally, content-appropriate cultural information will be presented to promote the students' understanding of the Chinese-speaking world. Prereq.: Chinese 12200 or placement exam. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

Hindi

12100: Elementary Hindi I

An intensive course in the spoken and written language. In addition to classroom hours, students will be expected to do some work in the language laboratory. 4 hr./wk.; 3 cr.

12200: Elementary Hindi II

Further practice in oral and written skills. In addition to classroom hours, students will be expected to do some work in the language laboratory. Prereq.: Hindi 12100 or permission of the instructor. 4 hr./wk.; 3 cr.

22500: Intensive Intermediate Hindi

An intensive one-semester Hindi course at the intermediate level. This course will review the grammar of the Hindi language, enhance vocabulary, increase fluency in reading and writing, and will include literary and cultural content. The four basic skills of listening, speaking, reading comprehension and writing will be further developed through class discussions, writing exercises and the use of multimedia and the Internet. Prereq.: Hindi 12100 and Hindi 12200 or placement exam. Recommended for the students who have completed two semesters of Elementary Hindi with a grade of A or B. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

Japanese

12100: Elementary Japanese I

An intensive course in the spoken and written language. In addition to classroom hours, students will be expected to do some work in the language laboratory. 4 hr./wk.; 3 cr.

12200: Elementary Japanese II

Further practice in oral and written skills. In addition to classroom hours, students will be expected to do some work in the language laboratory. Prereq.: Japanese 12100 or permission of the instructor. 4 hr./wk.; 3 cr.

22500: Intensive Intermediate Japanese

An intensive one-semester Japanese course at the intermediate level. This course will review the grammar of the Japanese language, enhance vocabulary, and will include literary and cultural readings. It will further develop listening, speaking, reading comprehension and writing skills through class discussions and the use of multimedia and the Internet. Prereq.: Japanese 12100 and 12200 or placement exam. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

CLASSICAL STUDIES

Greek

12100-12200: Elementary Greek

An introduction to the vocabulary and grammar of ancient Greek. Introduces students to Greek civilization and prepares them to read the New Testament and classical Greek literature. 4 hr./wk.; 3 cr. each

22300: Introduction to Plato: *Apology and Crito*

A first course in Greek literature, focusing on the death of Socrates. Prereq.: Greek 12200. 4 hr./wk.; 3 cr.

22400: Introduction to Homer:

Selections from the *Iliad* or *Odyssey*
Readings from the epic poem by Homer that formed the core of education throughout the Greek world. Prereq.: Greek 22300. 4 hr./wk.; 3 cr.

30100-30300: Honors I-III

Approval of Dean and Department Honors Supervisor required. Apply no later than December 10 in the Fall term or May 10 in the Spring term. (W) Variable cr.

31000: Independent Study

Approval of Department required before registration. 1-4 cr.

31100-32000: Selected Topics

Selected topics. Consult Department prior to registration for offerings.

Latin

12100-12200: Elementary Latin

An introduction to the Latin language, to the Latin roots of English and the Romance languages, and to the civilization of the ancient Romans. Prepares students to read Latin literature. 4 hr./wk.; 3 cr. each

22500: Selections from Latin Prose

Students will complete their study of the grammar of the Latin language and proceed to readings from Cicero and other prose authors. Prereq.: Latin 12100-12200 or two years of Latin in high school. 4 hr./wk.; 3 cr.

30100-30300: Honors I-III

Approval of Dean and Department Honors Supervisor required. Apply in NA 5/225 no later than December 10 in the Fall term or May 1 in the Spring term. (W) Variable cr.

31000: Independent Study

Approval of Department required before registration. 1-4 cr.

31100-32000: Selected Topics

Consult Department prior to registration for offerings.

35300: Virgil

Selections from the *Aeneid*. Prereq.: three years of high school Latin, three semesters of college Latin or permission of the department. 4 hr./wk.; 3 cr.

Classical Culture

No knowledge of Greek or Latin is required for these courses.

12100: Greek and Latin Roots in the English Language

A practical analysis of Greek and Latin stems, prefixes and suffixes and their functions in various types of English vocabulary. 3 hr./wk.; 3 cr.

32100: Classical Mythology

Greek and Roman myths, their connections with religion, the ancient sources, and the survival and reinterpretation of classical myth in subsequent literature and film up to the present day. 3 hr./wk.; 3 cr.

32300: Greek and Roman Comedy and Satire in Translation

Selections from Aristophanes, Menander, Plautus, Terence, Horace, Juvenal, Martial, and Lucian. The comic and satiric spirit; the classical forms and their modern counterparts. 3 hr./wk.; 3 cr. (W)

33100: Latin Literature in Translation

The principal literary works of ancient Rome, studied both in their historical settings and as contributions to the development of modern literature. 3 hr./wk.; 3 cr. (W)

34100: Science in Antiquity

The origins of Greek scientific thought; its substantive achievements in Mathematics, Astronomy, Physical and Biological Sciences, Technology, and Medicine; its social and cultural relations; its impact upon subsequent ages. 3 hr./wk.; 3 cr.

40100: Modern Problems in Perspective

Problems of the individual and society as they appear in the general cultural tradition, particularly in the literature of the ancient Greek, Hebrew, and Roman civilizations. Problems selected according to the interests of faculty members and students. 3 hr./wk.; 3 cr. (W)

40103: Women in Antiquity

From prostitutes to priestesses and even prophets, women played a variety of roles in the cultures of antiquity. In this course, we will study their lives and men's perceptions of them through both literary and visual remains. An exploration of the role of women in the development of Christianity and the ways in which Christianity affected expectations and opportunities for both sexes will also be explored. 3 hr./wk.; 3 cr.

FRENCH**Introductory and Intermediate Courses****12100: Introductory French I**

An intensive course using a communicative approach to develop conversational skills and provide the student with a foundation in French grammar, pronunciation and vocabulary. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

12200: Introductory French II

A continuation of 12100 using a communicative approach to develop conversational skills and provide students with further study of French grammar and vocabulary. Introduction of selection of readings. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

22500: Intensive Intermediate French

An intensive one-semester French course at the intermediate level. This course will review the grammar of the French language, enhance vocabulary, and will include literary and cultural readings. It will further develop listening, speaking, reading comprehension, and writing skills through class discussions and the use of multimedia and the Internet. Prereq.: French 12100, 12200 or placement examination. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

Advanced Courses

The prerequisite for all 30000-level French courses is French 22500 or four years of high school preparation. The prerequisite for all 40000-level courses is at least one of the following: French 32100 or 32200.

Group A: Language**32100: Problems of French Grammar**

Applied review of grammar. Extensive practice in applying the grammatical structures needed for the correct use of the language. 3 hr./wk.; 3 cr.

32200: Practice in Writing French

Study of contemporary prose to acquaint students with standards of good writing. Intensive practice in writing different

types of compositions in French. 3 hr./wk.; 3 cr.

32300: Spoken French

Intensive practice of the spoken language focused on topics of current interest. Work on oral comprehension, correct pronunciation and contemporary idiomatic speech. Discussion of topics of current interest. 4 hr./wk.; 3 cr.

32400: Studies in Translation

Development of skills in the art of translation from French to English and vice versa through the use of a wide range of materials. 3 hr./wk.; 3 cr.

Group B: Literature**33300: French Cinéma and Literature**

In this course, students will discuss important ideological, and formal questions related to the cinematographic adaptation of canonical French texts. In analyzing historical contexts, characters, narrative structures, themes, styles, and techniques, students will think about the relationship between cinema and literature, and about the political and social implications of each film. Close readings of films by Demy, Bresson, Clouzot, Clément, Resnais, Vadim, Chabrol, Angelo, and Miller adapted from texts by Perrault, Diderot, Laclous, Zola, Duras, Flaubert, Balzac, and Carrère will engage students in a larger critique of contemporary visual culture. The course is taught in English. Films (with English subtitles) will be watched in class. French majors and minors students may write their papers in French. 3 hr./wk.; 3 cr.

42100: French Poetry

A survey of French poetry from the Middle Ages to the present day in light of the evolution of different styles, themes and cultural contexts. 3 hr./wk.; 3 cr.

42300: French Philosophers and Essayists

Study of representative works of Montaigne, Descartes, Pascal, Montesquieu, Diderot, Rousseau, Saint-Simon and Auguste Comte. Emphasis will be placed on the evolution of ideas by French thinkers, and on the style of their writings. 3 hr./wk.; 3 cr.

42500: French Theatre

Study of major plays (tragedy, drama and comedy) from the Middle Ages to the present day taking into account the evolution of the French theatre in terms of themes, styles and social contexts. 3 hr./wk.; 3 cr.

42700: French Novel

Study of representative narrative works by selected authors from different literary periods and trends. 3 hr./wk.; 3 cr.

42701: The Novel in France before 1850**42702: The Novel in France from Flaubert to the Present****44100: French Literature Outside France**

A survey of the major literary works from Francophone regions and countries such as Belgium, Switzerland, French Africa, Canada, the French West Indies, and others. 3 hr./wk.; 3 cr.

45100: French Civilization

The study of the cultural history of France along with its social and political structures and attitudes, with an emphasis on current evolution. 3 hr./wk.; 3 cr.

30103-30300: Honors I-III

Variable cr., 1-4

31000: Independent Study

Variable cr., 1-4

31100-32000: Selected Topics

3 hr./wk.; 3 cr.

French Literature in Translation**28300: The Literature of Contemporary France**

Critical analysis of representative works, writers and movements. Proust, Gide, Camus, Sartre, Malraux, Duras, Robbe-Grillet and others. (W) 3 hr./wk.; 3 cr.

GERMAN**12100: Introductory German I**

An intensive course using a communicative approach to develop conversational skills and provide the student with a foundation in German grammar, pronunciation and vocabulary. 6 hr./wk.; 4 cr.

12200: Introductory German II

A continuation of 12100 using a communicative approach to further develop conversational skills and provide the student with a further study of German grammar, pronunciation and vocabulary. Introduction to a selection of readings. Prereq: German 12100. 6 hr./wk.; 4 cr.

22500: Intensive Intermediate German

An intensive one-semester German course at the intermediate level. This course will review the grammar of the German language, enhance vocabulary, and will include literary and cultural readings. It will further develop listening, speaking, reading comprehension, and writing skills through class discussions and the use of multimedia and the Internet. Prereq.: German 12100, 12200 or placement examination. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

HEBREW**12100-12200: Elementary Hebrew**

Emphasis on rapid progress in conversational and written Hebrew in the modern idiom. Basic speech patterns, grammar, syntax and vocabulary through drill and conversation. 4 hr./wk.; 3 cr.

22500: Intensive Intermediate Hebrew

An intensive one-semester Hebrew course at the intermediate level. This course will review Hebrew grammar, enhance vocabulary, and will include readings in classical as well as contemporary Hebrew literature. Further goals of this course will be to develop speaking and writing skills through classroom activities as well as through multimedia and Internet. Prereq.: Hebrew 12100-12200 or placement examination. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

30100-30300: Honors I-III

Approval of Dean and Departmental Honors Supervisor required. Apply in NA 5/225 no later than December 10 in the Fall term or May 1 in the Spring term. Variable cr.

31000: Independent Study

Approval of Department required before registration. 1-4 cr.

31100-33900: Selected Topics

Including: The Bible and Archaeology; Bible, Law and Society; The Bible in Light of Ancient Near Eastern Texts; The Dead Sea Scrolls; Messianism; Biblical Themes in Art and Literature; The Bible and Its Commentaries; Comparative Religions; Jewish Law and Lore; Biblical and Classical Foundations of Modern Legal and Bio-ethical Issues. For other offerings, please consult the Department. 3 hr./wk.; 3 cr.

ITALIAN**Introductory and Intermediate Courses****12100: Introductory Italian I**

An intensive course using a communicative approach to develop conversational skills and provide the student with a foundation in Italian grammar, pronunciation and vocabulary. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

12200: Introductory Italian II

A continuation of 12100 using a communicative approach to further develop conversational skills and provide the student with a further study of Italian grammar and vocabulary. Introduction to a selection of readings. Prereq.: Italian 12100. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

22500: Intensive Intermediate Italian

An intensive one-semester Italian course at the intermediate level which will be equivalent for requirement purposes to Italian 22300 and 22400. This course will review the grammar of the Italian language, enhance vocabulary, and will include literary and cultural readings. It will further develop listening, speaking, reading comprehension, and writing skills through class discussions and the use of multimedia and the Internet. Prereq.: Italian 12100, 12200 or placement examination. Recommended for students who have completed Italian 12100 and 12200 with a grade of A or B. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

Advanced Courses

The prerequisite to all advanced Italian elective courses is Italian 22500 or placement.

Group A: Language**32300: Spoken Italian**

Practice in conversation with emphasis on contemporary idiomatic speech. Discussions of topics of current interest. 4 hr./wk.; 3 cr.

Group B: Literature**42200: The Divine Comedy**

A reading of the *Divine Comedy* within the political, religious and intellectual background of Dante's time. 3 hr./wk.; 3 cr.

42400: Renaissance Literature

Study of the major works written during the Italian Renaissance with an emphasis on their cultural, political and aesthetic context. The topics will vary. 3 hr./wk.; 3 cr.

43200: Contemporary Literature

Major currents in the poetry, fiction and drama. Topics will vary. 3 hr./wk.; 3 cr.

Courses Taught in English**28100: Dante to Machiavelli**

Dante's and Boccaccio's *Decameron*, a selection of Petrarch's love poetry, and Machiavelli's *The Prince*. (W) 3 hr./wk.; 3 cr.

28200: Pirandello to Moravia

The great authors of modern Italian literature: Pirandello, Svevo, Vittorini and Moravia. (W) 3 hr./wk.; 3 cr.

28700: Italian Cinema and Literature

A study of the different relationships that have occurred between Italian film and literature in this century. The cinematic translation of literature will be reviewed through the works of Visconti, Pasolini, DeSica, Bertolucci, Antonioni, Rossellini, Fellini and others. 3 hr./wk.; 3 cr.

45000: Italian Culture and Civilization

The course will attempt to set forth the uniqueness of Italian civilization and to show how these qualities have been transmitted from Italy to other nations. 3 hr./wk.; 3 cr.

LINGUISTICS**22100: General Introduction to Linguistics**

The nature of language, the methods and principles of linguistic science, factors in the evolution of language, and language as a medium of cultural tradition. 3 hr./wk.; 3 cr.

32100: General Linguistics

A continuation of Linguistics 22100 with more detailed treatment of topics in descriptive, historical and comparative linguistics. Prereq.: Linguistics 22100 or permission of the Department. 3 hr./wk.; 3 cr.

42001: Linguistics and Literary Analysis

Linguistic theories and techniques relevant to the typological, semiotic and stylistic description of literature. Linguistic approaches applied to literary theory and to analysis of selected works. 3 hr./wk.; 3 cr.

30100-30300: Honors I-III

Approval of Dean and Department Honors Supervisor required. Apply in NA 5/225 no later than December 10 in the Fall term or May 1 in the Spring term. Variable cr.

31000: Independent Study

For students with special literary or linguistic interests who desire to pursue independent study and research. Generally for juniors and seniors. Department approval required. Variable cr.

PORTUGUESE**12100: Introductory Portuguese I**

An intensive course using a communicative approach to develop conversational skills and provide the student with a foundation in Portuguese grammar, pronunciation and vocabulary. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

12200: Introductory Portuguese II

A continuation of 12100 using a communicative approach to develop conversational skills and provide the student with a further study of Portuguese grammar, pronunciation and vocabulary. Introduction to a selection of readings. Prereq.: Portuguese 12100. 5 hr./wk. plus one hr. at the Language Media Center; 4 cr.

22500: Intensive Intermediate Portuguese

An intensive one-semester Portuguese course at the intermediate level. This

course will review the grammar of the Portuguese language, enhance vocabulary, and will include literary and cultural readings. It will further develop listening, speaking, reading comprehension, and writing skills through class discussions and the use of multimedia and the Internet. Prereq.: Portuguese 12100, 12200 or placement examination. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

SPANISH**Introductory and Intermediate Courses****12100: Introductory Spanish I**

An intensive course for non-native speakers using a communicative approach to develop conversational skills and provide the student with a foundation in Spanish grammar, pronunciation and vocabulary. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

12200: Introductory Spanish II

A continuation of 12100 using a communicative approach to develop conversational skills and provide students with further study of Spanish grammar and vocabulary. Selection of readings. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

22300: Intermediate Spanish I

A review of the most important aspects of Spanish grammar, further vocabulary development through conversation and reading. Prereq.: Spanish 12200 or placement examination. 3 hr./wk.; 2 cr.

22400: Reading in Spanish

Readings for conversation and composition with grammatical support as needed. Prereq.: Spanish 22300 or placement examination. 3 hr./wk.; 2 cr.

22500: Intensive Intermediate Spanish

An intensive one-semester Spanish course at the intermediate level. This course will review the grammar of the Spanish language, enhance vocabulary, and will include literary and cultural readings. It will further develop listening, speaking, reading comprehension, and writing skills through class discussions and the use of multimedia and the Internet. Prereq.: Spanish 12100, 12200 or placement. Recommended for students who have completed Spanish 12100 and 12200 with a grade of A or B. 5 hr./wk. plus 1 hr. at the Language Media Center; 4 cr.

19100: Intensive Spanish for Latino Students and Bilingual Students I

A course designed for Latino or near-native speakers of Spanish who speak and understand the language. This intensive course emphasizes grammar, reading, writing and

vocabulary acquisition, so as to help the students become truly bilingual. 5 hr./wk. plus 1 hr. at the Language Media Center; 5 cr.

19200: Intensive Spanish for Latino Students and Bilingual Students II

A further study of the grammatical structure of Spanish with emphasis on the nuances of the target language and more intensive practice in reading, writing and vocabulary acquisition. 5 hr./wk. plus 1 hr. at the Language Media Center; 5 cr.

Advanced Courses

The prerequisite for all 30000-level Spanish courses is Spanish 22400 or 22500 or four years of high school preparation. The prerequisite for 40000-level courses is Spanish 32200.

Group A: Language**32100: Problems of Spanish Grammar**

An advanced look at Spanish grammar focusing on description and explanation of selected Spanish syntactic phenomena such as uses of infinitive *ser/estar*, the order of major constituents, uses of *se*, and uses of the subjunctive. Students will analyze Spanish syntax increase their understanding of the structure of Spanish and develop stylistically correct Spanish prose. 3 hr./wk.; 3 cr.

32200: Practice in Writing Spanish

An intensive course in written Spanish, with stress on correct structure of descriptive, narrative and expository prose. 3 hr./wk.; 3 cr.

32300: Spanish Conversation

Development of speaking skills through discussion of current topics (not open to native speakers). 4 hr./wk.; 3 cr.

32400: Translation

Development of skills in the art of translation from English to Spanish and vice versa through the use of a wide range of materials. Prereq.: Spanish 32401 or placement exam or permission of the instructor. 3 hr./wk.; 3 cr.

32401: Studies in Translation I**32402: Studies in Translation II****32500: Spanish Phonetics and Phonology**

A study of phonetic transcription and phonetic and phonological theory in the different Spanish-speaking areas. Especially recommended for students who plan to teach Spanish. 3 hr./wk.; 3 cr.

32600: Spanish in the Business World

Development of technical vocabulary and forms of expression used in the world of commerce, economics and finance. 3 hr./wk.; 3 cr.

32700: Introduction to Spanish Linguistics

A presentation of the tools and methods of modern linguistics and their application to the study of the phonological, morphological and syntactic characteristics of contemporary Spanish, especially those related to Spanish in the Americas. 3 hr./wk.; 3 cr.

37000: History of the Spanish Language

Study of the development of the Spanish language from Latin to the present, including language contact, especially in the area of lexicology. Prereq.: Spanish 32700 or Linguistics 22100, Spanish 32500 or Education 35000, Spanish 32100 or permission of the instructor. Latin 12100 strongly recommended. 3 hr./wk.; 3 cr.

37300: Advanced Spanish Composition & Conversation

This course is required for bilingual education majors. The course will develop and improve the students' capacity to express themselves in writing and speech utilizing various techniques. Prereq.: Permission of the School of Education advisor or placement. 3 hr./wk.; 3 cr.

46200: Spanish Dialectology and Sociolinguistics

This course examines regional and social variation in the Spanish of Spain and Latin America. It examines variable phenomena in Spanish phonology and morphosyntax, and correlates them with predictive factors such as region, nationality, level of education, sex, and age. Also included is a look at such areas as language attitudes, policy and planning, and discourse analysis. 3 hr./wk.; 3 cr.

46301: Spanish in Contact Worldwide

This course examines varieties Spanish spoken in areas where another language is also in widespread use, in Latin America, Spain, North America and other areas where Spanish is spoken. The course considers some of the linguistic and socio-cultural effects of bilingualism. Through readings, multimedia materials, and web-based interactive discussions, students learn to appreciate, describe, and compare different varieties of Spanish in contact as they learn to think critically in the field. 3 hr./wk.; 3 cr.

46302: Spanish in Contact in the US

The course examines varieties of Spanish spoken in the continental United States, focusing on variable phenomena and on the role of the home dialects in shaping US varieties. Special emphasis is placed on contact with English and on the public policy and educational consequences of the widespread use of Spanish in the US. 3 hr./wk.; 3 cr.

Group B: Literature**Spanish 33000: Representations of Contemporary Spain in its Cinema**

This course is designed to introduce students to major social, historical, and cultural issues in Spain since the end of the Franco dictatorship in 1975, through an exploration of some of the most outstanding films of the contemporary period. Class discussions may be held either in English or Spanish or both. Prerequisites: Spanish 22400, 22500 or permission of the instructor. 3 hr./wk.; 3 cr.

33100: Representations of Latin America Through its Cinema

This course will analyze various aspects of the culture and society of Latin American countries through film. A careful selection of movies and texts presented in class will help students improve their ability to read films aesthetically, culturally, and historically. Cultural and social aspects such as the role of women in Latin American society, political ideologies, social and economic structures, power institutions, e.g. the Catholic Church, the State, drug lords, etc. will be examined and discussed through a systematic study of films selected. Prerequisites: Spanish 22400/22500 or permission of chairperson or instructor. 3 hr./wk.; 3 cr.

35100: Studies in Spanish Literature I

A survey of the literature of Spain from the Middle Ages to the end of the 17th century, with emphasis on the different styles and periods and on the characteristics of representative genres. 3 hr./wk.; 3 cr.

35200: Studies in Spanish Literature II

A survey of the literature of Spain from the 18th century to the present, with emphasis on the different styles and periods and on the characteristics of representative genres. 3 hr./wk.; 3 cr.

35300: Studies in Spanish American Literature

An overview of the development of Spanish American literature since its origins to contemporary times. This course will emphasize the literary trends and cultural currents that have shaped Spanish-American letters through the analysis of representative works. 3 hr./wk.; 3 cr.

35400: Dominican Literature and Culture

This course will use a variety of texts including the novel, the essay, the short story, popular poetry, representations of the oral tradition, paintings, music, films, to provide students with a unique opportunity to learn about some of the first literary and cultural manifestations in the Dominican Republic. Readings will cover

selections from Columbus Diary and letters, and other selections from chronicles. The course will also focus on how Dominican intellectuals have incorporated modern artistic trends into their creations. Prereq: Spanish 22400 and 22500. 3 hr./wk.; 3 cr.

36000: Techniques for Literary Analysis

The study of critical techniques and terminology for the analysis of different literary genres and contemporary criticism. 3 hr./wk.; 3 cr.

42100: Studies in Medieval Spanish Literature
A literary and linguistic analysis of the major texts of the medieval period, including "cantigas," *Poema del Cid*, *Milagros de Nuestra Señora*, *Libro de Buen Amor*, and *La Celestina*. 3 hr./wk.; 3 cr.

42400: Cervantes: *Don Quijote*

An exploration of Cervantes' major work from different critical points of view. 3 hr./wk.; 3 cr.

42600: Golden Age of Spanish

The study of the major literary and ideological currents that developed in Spain during the Renaissance and the Baroque periods along with the reading and analysis of representative works. 3 hr./wk.; 3 cr.

42601: Lope de Vega and the Evolution of the Spanish Theatre**42602: Renaissance and Baroque Prose and Poetry****42800: Spanish Literature of the 18th and 19th Centuries**

Representative authors and main currents in prose, poetry and drama from various periods: Neoclassicism, Romanticism, Realism and Naturalism. 3 hr./wk.; 3 cr.

43200: The Generation of 1898

Ideas and themes in the works of Unamuno, Azorín, Baroja, Valle Inclán and other major writers of this period. 3 hr./wk.; 3 cr.

43400: Studies in Contemporary Spanish Literature

An exploration of the major trends in Spanish Literature of the 20th century through the study of different genres. 3 hr./wk.; 3 cr.

43401: The Spanish Novel since the Civil War**43402: Contemporary Spanish Poetry and Theater****43600: Spanish American Colonial Literature**

The formation and development of colonial discourse focusing on how indigenous and foreign modes interacted in order to represent a complex reality. 3 hr./wk.; 3 cr.

43800: Spanish American Literature of the 19th Century

A study of literary currents of 19th century Spanish America through its major works. 3 hr./wk.; 3 cr.

44100: The Literature of Social Protest in Spanish America

A study of literary works from different genres focusing on how they portray and respond to a given social, political and/or economic situation. 3 hr./wk.; 3 cr.

44200: The Spanish American Essay

The evolution of the essay from the period of independence to the present, taking into account the philosophical currents and historical events that have shaped this genre. 3 hr./wk.; 3 cr.

44400: Studies in Contemporary Spanish American Literature

Major developments in narrative, poetry and theater from the early 20th century to the present. 3 hr./wk.; 3 cr.

44402: Contemporary Spanish American Poetry and Theater**44403: Contemporary Spanish American Short Story****44404: The Spanish American Contemporary Novel****44600: Literature of the Spanish Caribbean**

Differences and similarities in the cultural and social structures of Cuba, Puerto Rico and the Dominican Republic through the analysis of selected texts of various genres. 3 hr./wk.; 3 cr.

45100: Spanish Civilization

An exploration of Spanish history and culture from their origins to the present. Topics include geography, folklore, development of the arts, ideologies, socio-political changes and social issues. 3 hr./wk.; 3 cr.

45200: Topics in Spanish American Civilization

A study of the social, cultural and political developments of Spanish America. Topics include the contributions of the Native, Iberian and African civilizations; the struggle for independence; the development of the arts; the impact of revolutionary movements; and the place of women in society. 3 hr./wk.; 3 cr.

45201: Topics in Spanish American Civilization I**45202: Topics in Spanish American Civilization II****45300: Gender Issues in Hispanic Letters**

An exploration of the impact of gender in the literature of the Spanish-speaking world. 3 hr./wk.; 3 cr.

45400: Latino Culture and Literature in the U.S.

An exploration of the Latino cultural legacy and its contemporary influence in the United States. The study of the development of Latino communities, history and patterns of immigration, and similarities and differences among these communities. This course will also focus on sociological, economic, political and anthropological factors such as transculturation, assimilation, linguistic similarities, problems of identity and discrimination. It will also examine various psychological factors of the Latino cultures throughout the U.S. through the different ways of expression such as art and literature, taking into account the elements that distinguish these from those of their countries of origin and North America. The course will normally be conducted in Spanish. Readings may be in Spanish and English. Prereq.: Spanish 22400 or placement examination. 3 hr./wk.; 3 cr.

30100-30300: Honors I-III

Approval of Dean and the Department Honors Supervisor required. Apply no later than December 10 in the Fall term or May 1 in the Spring term. Variable cr., 1-4

31000: Independent Study

For students with special literary or linguistic interests who desire to pursue independent study and research. For juniors and seniors, ordinarily. Departmental approval required. Variable cr., 1-4

31100-32000: Selected Topics

A series of advanced courses to be offered with varying frequency on selected topics not generally covered in the set course offerings. Topics to be announced in the preceding semester. 3 hr./wk.; 3 cr.

Spanish Literature in Translation**28100: Masterworks of Spanish Literature I**

The evolution of Spanish literature from the Medieval period through the Golden Age. Critical analysis of representative works and writers. (W) 3 hr./wk.; 3 cr.

28200: Masterworks of Spanish Literature II

The development of Spanish literature during the 18th and 19th centuries. Critical

analysis of representative works, writers and movements. (W) 3 hr./wk.; 3 cr.

28300: Masterworks of Latin American Literature

Representative works and authors of Spanish American letters from the mid 20th century to the present. The texts are analyzed in light of the social, political, cultural and ideological contexts in which they were produced. (W) 3 hr./wk.; 3 cr.

FOREIGN LANGUAGES AND LITERATURES**12100: Elementary Course in the "Less Commonly Taught Languages"**

A series of courses to be offered with varying frequency on languages not covered in the set course offerings. Languages to be announced in the preceding semester. 4 hr./wk.; 3 cr.

12200: Intensive Course in the "Less Commonly Taught Languages"

A series of courses to be offered with varying frequency on languages not covered in the set course offerings. Languages to be announced in the preceding semester. 12100 or permission of the instructor. 4 hr./wk.; 3 cr.

22500: Intensive Intermediate Course in the "Less Commonly Taught Languages"

A series of courses to be offered with varying frequency on languages not covered in the set course offerings. Languages to be announced in the preceding semester. 12200 or placement examination. 6 hr./wk.; 4 cr.

31100-32000: Selected Topics in the "Less Commonly Taught Languages"

A series of courses to be offered with varying frequency on selected topics not covered in the set course offerings. Topics to be announced in the preceding semester. 3 hr./wk.; 3 cr.

FACULTY

Carole Berger, Associate Professor
B.S., CCNY, M.S.; Ph.D., Yeshiva Univ.

Maxime Blanchard, Associate Professor

B.A., Univ. de Montreal; M.A., Univ. of Minn.; D.E.A., Univ. De Paris-IV; Ph.D., Harvard Univ.

Silvia Burunat, Professor

B.A., Boston Univ., M.A.; Ph.D., CUNY

Richard Calichman, Associate Professor and Chair

B.A, Colby College; Ph.D., Cornell Univ.

Laura Callahan, Associate Professor

B.A., San Jose State Univ., M.A.;
Ph.D., Univ. of California (Berkeley)

**Raquel Chang-Rodríguez,
Distinguished Professor**

B.A., Montana State Univ.; M.A., Univ.
of Ohio; Ph.D., New York Univ.

Ya-chen Chen, Assistant Professor

B.A., National Sun Yat-sen Univ, M.A.;
Ph.D., Purdue Univ.

Angel Estévez, Assistant Professor

B.A., Hunter College; Ph.D., CUNY

**Dulce María García, Associate
Professor**

B.A., Barry Univ.; M.S., Georgetown
Univ., Ph.D.

Amy Kratka, Lecturer

B.A., Queens College; M.A., Boston
Univ., Ph.D.

Bettina Lerner, Assistant Professor

B.A., Yale Univ., Ph.D.

**Juan Carlos Mercado, Professor and
Dean, Division of Interdisciplinary
Studies**

B.A., Univ. del Comahue (Argentina);
M.A., Queens College; Ph.D., CUNY

Roy Mittelman, Lecturer

B.A., Univ. of Pennsylvania; M.A.
Temple Univ., Ph.D.

Devid Paolini, Lecturer

M.A., Univ. of Bologna; Ph.D., CUNY

Carlos Riobo, Assistant Professor

B.A., Columbia; M.A., Yale Univ., Ph.D.

Jennifer Roberts, Professor

B.A., Yale College; M.A., Yale Univ.,
Ph.D.

Nelly D. Saint-Maurice, Lecturer

B.T.S., Conservatoire National des Arts
et Metiers (Paris); A.A., BMCC; B.F.A.,
CCNY; M.Phil., CUNY

Eve Sourian, Professor

Licence-es-Lettres, Sorbonne; M.A.,
Bucknell Univ.; Ph.D., Univ. of
Colorado (Boulder)

Elizabeth D. Starcevic, Professor

B.A., CCNY, M.A.; Ph.D., CUNY

**Mary Ruth Strzeczewski, Associate
Professor**

B.A., Columbia Univ., M.A., Ph.D.

Araceli Tinajero, Associate Professor

B.A., Rutgers Univ., M.A., Ph.D.

**Vanessa J. Valdes, Assistant
Professor**

B.A., Yale Univ.; M.A., Vanderbilt
Univ.; Ph.D.

PROFESSORS EMERITI**Gisele Corbière-Gille****Stephen G. Daitz****Gabriella de Beer****Antonio R. de la Campa****Manuel de la Nuez****Adriana Garcia-Davila****Françoise Dorenlot****Janette Gatty****Marshall S. Hurwitz****Theodore Litman****Antonio Sacoto****Zvi Henri Szubin****Renée Waldinger****Sharifa M. Zawawi****Jacques Zéphir**

Department of History

(DIVISION OF HUMANITIES AND THE ARTS)

Professor Clifford Rosenberg, Chair • Department Office: NA 5/144 • Tel: 212-650-7137

GENERAL INFORMATION

The City College offers the following undergraduate and combined degrees in History:

B.A.

B.A./M.A. (Combined Degree)

PROGRAMS AND OBJECTIVES

History is basic to a college education: it provides the knowledge of where we have been that is essential to any individual's understanding of his or her role in contemporary society; it advances analytical skills and promotes the expression of one's ideas in writing and speech; and it encourages students to think critically, which includes the ability to evaluate material and draw appropriate conclusions. The offerings at City College are designed to meet the needs of our diverse student body.

A wide range of occupations is open to history majors beyond those in the teaching area, including positions in business and industry, law, communications, and many agencies of government at all levels. A strong background in history also complements majors in social sciences because it provides the perspective that deepens one's understanding of contemporary developments and problems. In addition, historical study traditionally has been an asset to those interested in literature and other humanities and arts areas.

REQUIREMENTS FOR MAJORS

Elective Courses

Five courses in one selected field of history 15
[e.g., American History, Asian History, European History]

Six courses distributed among other fields of history 18

Total Credits 33

Teaching Social Science in Secondary Schools*

Students wishing to teach history in secondary schools must be certified in the area of Social Studies. Major requirements are listed below. Students should also consult Professor Susan Semel (School of Education).

Required Courses

Two courses in American History 6

Two courses in European History 6

One course in two of the following areas: Asian History, African History and Latin American History 6

Additional History courses in one area (American, African, Asian, European) 12

Additional History Elective 3

Upper division course in Economics or Political Science 3

Total Credits 36

*Social Science students also have these general education core requirements: ECO 10000: *Modern U.S. Economy* (3 cr.) and Pol Sci 10100: *U.S. Government and Politics* (3 cr.).

ADDITIONAL REQUIREMENTS

In addition to major requirements, all History majors must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) or Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)

2. Foreign Language Requirement

3. CPE Examination

4. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

THE B.A./M.A. DEGREE

The department offers a B.A./M.A. program that enables outstanding students to receive both degrees in four to five years upon the completion of 138 credits. For details see the Chair or the Departmental Advisor.

MINOR IN HISTORY

Students wishing to complete a minor in History must complete 15 credits of elective courses chosen in consultation with an advisor.

NON-MAJORS

Non-majors desiring an introductory course beyond the core level are advised to select courses from the following three areas: Area Studies, Topics in History, Comparative History. Those who wish to take courses in Comparative History and in Special Topics in History should have taken at least two courses in either Area Studies or Topics in History, or, alternatively, two electives in the Social Sciences or Humanities and the Arts.

Electives generally require core level courses in World Civilizations as a prerequisite. This requirement will be waived for students who want a course related to their major, e.g., a course in French history for students majoring in French, or the history of science for science majors.

ADVISEMENT

Departmental Advisor
Professor Gregory Downs
NA 5/137; 212-650-6288

MENTOR SYSTEM

The Department's mentor system enables each major to profit from more direct educational advice and a closer working relationship with a professor in his or her field of special interest. Each major is assigned to a member of the department and should maintain contact with that mentor on a regular basis.

DEPARTMENT ACTIVITIES

The History Club provides a student voice in departmental affairs, discuss problems in the field of history, and hear speakers. Open to all interested students.

AWARDS

The History Department awards a number of medals and grants to outstanding undergraduates. For detailed information see the Chair of the History Department.

Paul Aron Award

For the best undergraduate research paper.

Charles T. Cromwell Award

For a senior History major with the highest average in History.

Baily W. Diffie Award

For outstanding work in a core course.

Carl Dunat Scholarship

To help support future studies.

Joan Kelly Prize

For the best essay written in an elective course in History.

Oscar Lloyd Meyerson Prize

For the best Honors essay.

Sidney I. Pomerantz Prize

For the best essay on the history of New York City written in an elective course.

J. Salwyn Shapiro Award

For a senior who has done outstanding work in European History.

General Tremain Prize

For a student who writes the best essay on some aspect of American History related to the Civil War.

Joseph E. Wisan Prize

For the best essay on 20th century American History written in an elective course.

COURSE DESCRIPTIONS

The History Department Guide is available at the end of each semester in the Department Office with complete information about the content, hours and instructors of all courses for the following semester. The "30000" numbers designate introductory survey courses (e.g., Traditional Civilization of Japan or Modern Japan), the "40000" numbers indicate more intensive examination of a particular era or topic.

In addition to the electives detailed in this Bulletin, each term the Department of History offers several colloquia and other courses (History 31100-32000) to enable advanced students to explore specialized areas of knowledge in even greater depth. These courses, which cover different areas each term, are announced during the preceding term.

EUROPE

33001: The Ancient World: The Near East and Greece

Examines the rise and fall of civilizations in the ancient Near East and the Greek world to the Hellenistic Age. (W) 3 hr./wk.; 3 cr.

33006: The Ancient World: Rome

Surveys the history of classical antiquity from the Hellenistic Age to the fall of the Western Empire. (W) 3 hr./wk.; 3 cr.

33060: Early-Modern Europe

An overview of European history from the resurgence of urban life and classical culture during the Renaissance to the trials and tribulations of the French Revolution. (W) 3 hr./wk.; 3 cr.

31500: Modern Europe

An overview of social, economic, political, and intellectual developments in Europe from the Enlightenment to the present, and an introduction to the study of history. Topics include the problem of revolution, industrialization and the transformation of rural societies, the emergence of liberalism and the challenges it has faced in the twentieth century. (W) 3 hr./wk.; 3 cr.

35000: The Scientific Revolution

Especial emphasis will be placed upon the institutions, sociability and material

culture of science in the early modern period and their importance for the development of modern scientific theory. Topics will include: Renaissance natural philosophy; from natural to mechanical philosophy; the telescope and the new world view of Galileo; the culture of observation, the embrace of empiricism, and the invention of experimentation; the print culture of science and the dissemination of new scientific ideas. (W) 3 hr./wk.; 3 cr.

41000: The Age of the Renaissance

An in-depth exploration of the culture of the Italian Renaissance. Through primary sources, this course reconstructs experiences of: citizenship in the Italian city-states; the enterprises and vagaries of the business world; matrimony, paternity/matrimony and sexuality; elementary education and University study; art patronage and visual culture; the entertainments and decorum of life at Court as well as expressions of religiosity. (W) 3 hr./wk.; 3 cr.

41101: The Age of Enlightenment

An in-depth exploration of the protean culture and new knowledges of eighteenth-century Europe. Through primary sources and select historiography, this course reconstructs: the rising literacy rate and proliferation of print culture; the culture of literary and art salons; the appeal of the exotic and the idea of the noble savage; meditations on happiness and pleasure; the problem of luxury and the discovery of the market as well as the new sciences of the mind, of language and of progress. (W) 3 hr./wk.; 3 cr.

41201: Law & Society in Medieval and Early Modern Europe

An intensive survey of ideas about the nature and the natural rights of the individual and of the state in medieval and early modern Europe, placing an especial emphasis upon the legal writings of scholars such as Aquinas, Bartolus, Vitoria, Bodin, Grotius, Hobbes, Locke, Pufendorf, Vico, Montesquieu, Rousseau, Smith, and Kant. (W) 3 hr./wk.; 3 cr.

41301: Medicine and Society in Europe

The history of medicine in Europe from circa 1000 to 1750. Topics will include: the reception of Islamic medicine; the concomitant innovations in medical education and practices; the religious and cultural significance of disease; the development of public health services; the importance of gender for medical theory and practice as well as monumental figures in the modernization of medicine such as Vesalius and Harvey. (W) 3 hr./wk.; 3 cr.

41500: The French Revolution

A thorough introduction to the French Revolution - one of the defining events of

modern times, and the crucible in which key elements of modern politics were forged or redefined: universal manhood suffrage, human rights, civil equality, direct democracy, ideological dictatorship, nationalism, women's liberation, and revolution itself. (W) 3 hr./wk.; 3 cr.

41600: The Early-Modern European City

Urbanization in Europe from 1400 through 1800. In particular, it will reconstruct the spectacular emergence of the hallmark features of Europe's preeminent capital cities out of their most intense periods of crisis and transformation in the early modern period. Especial emphasis will be placed upon the new cosmopolitanism of Rome, London and Paris. (W) 3 hr./wk.; 3 cr.

42000: The Modern European City

Examines cities such as London, Paris, Vienna, Prague, and Berlin as incubators of specific versions of the "modern." Themes covered will include urban planning and architecture; class and ethnic conflict, and the rise of mass politics; the emergence of women's movements, youth culture, and anti-Semitism; and the relationship between modernism and mass culture. (W) 3 hr./wk.; 3 cr.

42100: Work and Welfare in Modern Europe

Examines the emergence of the industrial revolution and efforts to control it, to manage markets for capital and labor, since the eighteenth century. (W) 3 hr./wk.; 3 cr.

42200: Intellectual History of Modern Europe

Examines European thought from the Enlightenment and its ideological offspring – 19th C. liberalism and socialism – to the critique of the Enlightenment, beginning with Nietzsche and culminating in late 20th C. post-structuralism. (W) 3 hr./wk.; 3 cr.

42300: Psychiatry, Madness, and Society

Examines social, cultural, intellectual and institutional aspects of the history of madness in Europe since 1789. The course will begin with the age of the so-called "Great Confinement," then move on to consider the institutional and therapeutic reforms of the revolutionary and post-revolutionary era; the rise of theories of degeneration, hysteria and neurasthenia in the second half of the 19th century; psychoanalysis and sexology; war neurosis and military psychiatry; psychiatry under the Nazis. It will conclude by looking at the anti-psychiatry movement of the 1960s and the new biological psychiatry of the 1980s and 1990s. (W) 3 hr./wk.; 3 cr.

42400: The Great War

A comprehensive overview of World War I. Central themes include the origins of the conflict, both long- and short-term; the nature of industrial killing; the growth of the state, of mass armies, of economic regulation; and the revolutionary movements that the prolonged war effort spawned. (W) 3 hr./wk.; 3 cr.

42500: Age of Dictators

Examines the totalitarian regimes that emerged in Soviet Russia and Nazi Germany. Beginning with the impact of WWI on both societies and ending with WWII, it traces the rise of two regimes that despite their ideological opposition had many features in common: a single party system, the extensive use of propaganda and terror, an embrace of science and of cultural programming, the leadership cult surrounding Stalin and Hitler, and the camps system. (W) 3 hr./wk.; 3 cr.

42600: Europe Since 1945

The causes of World War II, the Cold War, and the factors leading to the policy of detente. A question to be probed is: can states with distinctly different notions of politics genuinely coexist in the power-political arena? (W) 3 hr./wk.; 3 cr.

42700: History of Socialism

The growth of the socialist movement in the nineteenth and twentieth centuries and its main ideological expressions: utopian, Marxist, revisionist, syndicalist. The relations between ideology and concrete historical circumstances; trade unionism; revolution; working class growth and change; Bolshevism; national liberation. (W) 3 hr./wk.; 3 cr.

42800: Conservatism and the New Right

Examines various conservative ideologies and movements, their social and intellectual bases, and historical interconnections. Special attention to the renewal of the Right in the late nineteenth and early twentieth centuries, and the Right's relation to fascism and national socialism. (W) 3 hr./wk.; 3 cr.

42900: Minorities in Modern Europe

Beginning with the emancipation of Jews during the French Revolution and the emergence of modern, national citizenship, the course will examine the ways in which European states have managed ethno-religious minorities, with a special emphasis on the 20th C. Topics will include WWI and the break-up of multi-ethnic empire, forced population transfers, refugees, and genocide, as well as the growth of labor migration, welfare and guest-worker systems. (W) 3 hr./wk.; 3 cr.

43000: France and Francophone Africa

Examines the relationships between France and countries of the former French overseas empire in Africa from the occupation of Algeria in 1830 to political independence, to issues of post-colonial dependency in Africa and the emergence of multicultural France today. (W) 3 hr./wk.; 3 cr.

43100: The History of Sexuality

This course examines how varying socio-political contexts and cultural systems have shaped people's understandings and expressions of sexuality through history. Themes include: same-sex and transgendered sexualities; sexual implications of colonialism and racism; pornography; prostitution; rape; and reproductive sexualities. (W) 3 hr./wk.; 3 cr.

43200: Modern Imperialism

The building of empires during the nineteenth and twentieth centuries in the name of national and international principles as well as economic and political interests. The extension of power over weaker regions by England and France, the U.S.A., the U.S.S.R, and China. Rivalries among imperial powers. (W) 3 hr./wk.; 3 cr.

THE UNITED STATES

32100: Early America: From Settlement to the Great Awakening

This course examines the formation of early American society on the Atlantic seaboard. Particular attention is given to the establishment of four distinct regional socio-political cultures in New England, the Middle Colonies, the Chesapeake, and the Deep South. Other topics include the impact of European settlement and trade on Amerindian life and culture, the emergence and rise of slavery, and the role of women and the family in early American society. (W) 3 hr./wk.; 3 cr.

32200: The Era of the American Revolution

This course details the causes, events, and consequences of one of the first and most important revolutionary movements of the Enlightenment, down to the creation and ratifications of the United States Constitution. Particular attention is devoted to the social and political causes of the uprising, as well as its cultural meaning for the different participants in the American scene. (W) 3 hr./wk.; 3 cr.

32300: The New Nation, Slave and Free

Republicanism and the democratization of politics, industrialization of an American working class, social reform and the making of the middle class, westward expansion and the removal of the Native

Americans, sectional conflict and slave culture. (W) 3 hr./wk.; 3 cr.

32400: The Era of Civil War and Reconstruction, 1840-1877

The causes and consequences of the American Civil War, focusing on the reasons for sectional conflict, emancipation, the role of Abraham Lincoln, the conflict over Reconstruction and the new status of emancipated slaves. (W) 3 hr./wk.; 3 cr.

32501: The Gilded Age and Progressive Era, 1877-1920

The political, economic, and social phases of the development of the United States from Reconstruction to WWI. Populism and Progressivism; the industrialization of society and emergence of the labor movement. (W) 3 hr./wk.; 3 cr.

32600: The U.S. from 1914-1945

America and WWI, the Roaring Twenties, the Depression, and the New Deal, Roosevelt's leadership, WWII, and the beginnings of the Cold War. (W) 3 hr./wk.; 3 cr.

32700: The U.S. Since 1945

The course will analyze the main political, social, and economic events shaping the United States during this period and try to explain the key political/economic change during these years: The transformation of a country employing an activist Keynesian economic policy and belief in government action to rectify social and economic ills to one espousing market or neo-liberal principles. (W) 3 hr./wk.; 3 cr.

44000: Labor, Technology, and the Changing Workplace

Technological change has a profound impact on both work and society. This course explores the meaning of these changes for workers, their unions and consumers. Questions related to resistance, progress and how new technologies are shaped are the main concerns of the course. Various issues and historical landmarks that pertain to the changing workplace; social and individual costs and benefits of technology; and work restructuring and how union respond to change will be examined. (W) 3 hr./wk.; 3 cr.

44100: The History of American Labor

Focuses on the period since 1850. Discusses industrialization and the worker, immigration, the impact of social reformers and radicals. Considerable attention to the labor movement, which is viewed within the broader context of American society. (W) 3 hr./wk.; 3 cr.

44300: African-American History from Emancipation to the Present

The post-slavery experience of African-Americans: the creation and destruction of

a black peasantry, the growth of a black working class, and the resulting change in black politics and culture. (W) 3 hr./wk.; 3 cr.

44400: U. S. Women's History

This course traces the linkage between women's roles in U.S. society and their activism to achieve women's rights Slavery. 3 hr./wk.; 3 cr.

44500: The Writing of American History

The aim of this course is to study selected writings of major American historians who have thought perceptively and written eloquently about the past. Readings will stress ideas that have challenged, and continue to challenge, thinking people. (W) 3 hr./wk.; 3 cr.

44600: The American Health Care System

The development of modern medicine, and the politics, economics, and organization of the current American health care system. Issues include whether the health care system favors the wealthy over the poor, discriminates against women, and results in the overutilization of drugs, surgery and hospitals. 4 hr./wk.; 4 cr.

44700: The Vietnam War and U.S. Society

Topics include: Vietnam before U.S. involvement, U.S. diplomatic involvement in Vietnam, the military aspects of the war, various Vietnamese points of view, relations between U.S. military men and indigenous women, and the anti-war movement, as well as the cultural expressions of the war, including music, films, and art. 3 hr./wk.; 3 cr.

44800: American Urban History

Economic, social, and physical development to the present. Merchant, industrial, and corporate stages of urbanization and their distinctive architectural expressions. Slides and walking tours to examine urban forms and spatial arrangements. Major objective is analysis of physical consequences of market decisions. (W) 3 hr./wk.; 3 cr.

44900: Power, Race, and Culture: The History of New York City

This course will introduce students to the interdisciplinary study of American culture through an examination of New York City—its history, literature and culture. Students will examine the historical and cultural context of New York as a center of migration and immigration and power, as a cultural capital, and as an arena of racial, ethnic, and religious traditions and conflicts. 3 hr./wk.; 3 cr.

45000: History of American Foreign Relations

Traces the interrelationship between basic domestic forces and their manifestation in the objectives of United States foreign policy. Emphasis is on Puritanism, Messianism, the rise of corporate capitalism, and twentieth-century attempts to shape the American imperium. (W) 3 hr./wk.; 3 cr.

45100: Comparative Slavery

Slavery, a relationship in which one man held property in another's person, existed in many societies, ancient and modern. By examining the role of slavery in various cultures over time, characteristics useful in understanding the development of New World slavery will be explored. The course will begin with slavery in ancient civilizations (e.g., Greece, Rome, Africa), and then examine the New World societies created after 1492. Finally, the sources and character of emancipation and abolition will be considered. (W) 3 hr./wk.; 3 cr.

ASIA

33101: Traditional China

The early formation of the Chinese state, the intellectual foundation that has sustained its long history, the shaping of the Confucian way of life, and the cultural sophistication and its decline on the eve of the modern world. (W) 3 hr./wk.; 3 cr.

33201: Modern China

Change and continuity in the Chinese tradition across the 19th and 20th centuries. The encounter with the West, social and political disruptions, efforts to industrialize, and especially the evolution and outcome of the Chinese revolution will be stressed. 3 hr./wk.; 3 cr.

33301: Traditional Japan

Japanese history from its origins to the nineteenth century, i.e., the "classic" Heian period, "medieval" Kamakura to Sengoku periods and the "early modern" Tokugawa world. Topics: Japan's contacts and borrowings from other civilizations, especially China; Shinto and Buddhism; women and the family; the rise and transformation of bushi or warriors; artistic traditions. (W) 3 hr./wk.; 3 cr.

33401: Modern Japan

Survey of the building of the modern Japanese state, society and economy from 1868 to the present, with focus on continuity and change, the social costs of rapid industrialization and the emergence of Japan in the global economy. 3 hr./wk.; 3 cr.

33501: Traditional Civilization of India

The history and culture of Indian civilization before modern times; major emphasis will be on its formation and classical age, its continuity and change, and the coming of Islam. 3 hr./wk.; 3 cr.

33601: Modern India

Surveys the elements which have shaped the characteristic institutions of India; the disintegration of the Mogul empire and the rise of the British to dominance; political, economic, cultural, and social developments during the British period and the changes wrought by the republic. 3 hr./wk.; 3 cr.

46000: Twentieth-Century China

This course will examine China's revolutionary changes in the last century. In particular, it will focus on major events from the Boxer uprising and the 1911 Revolution to the Cultural Revolution, the evolution of Sino-U.S. relations, and the post-Mao economic reforms and related social and political changes. 3 hr./wk.; 3 cr.

46100: China's "Cultural Revolution," 1966-1976

This course will help students to understand the origin, development, and consequences of the movement through the examination of key events, careers of major political players, and the life of average participants of the Cultural Revolution. It will also consider the source, difficulties, and prospects of the ongoing reforms in China. (W) 3 hr./wk.; 3 cr.

46200: Japanese Society since WWII

This course will look at changing dynamics of Japanese society since 1945, with some emphasis on Japan today in contrast to the United States. Topics include: dynamics of family and work life, popular culture, education, women's roles, major political and ethnic/regional issues, challenges of globalization, urban cultures, Japan's issues with terrorism, and Japan's status in Asia. (W) 3 hr./wk.; 3 cr.

46300: Education and Student Movements in Chinese History

An introduction to the history of education in China, with specific emphasis on student movements. Topics include classical learning, the civil service examination system and its educational significance, government school systems vs. private educational system (the academies), literacy, women and elementary education. (W) 3 hr./wk.; 3 cr.

46400: Science and Technology in China

A survey of the scientific and technological developments in China from ancient times to the present. The course covers not

only the great Chinese inventions and the decline of Chinese science and technology and its consequences, but also more recent achievements and their relation to developments elsewhere in Asia and around the world. (W) 3 hr./wk.; 3 cr.

46600: The Japanese Empire in the 20th Century

This course will examine Japan's modern history by considering historical work that reexamines the period of the Japanese empire, 1895-1945. Topics will include the dynamics of colonial culture, issues of gender and marginality, and emerging debates on wartime responsibility and memory. (W) 3 hr./wk.; 3 cr.

46700: The Pacific War, 1931-1945

This course will explore significant milestones and issues of both U.S. and Japanese societies during the course of the Pacific War. Our focus will be on the human experience and changes that came to both societies as well as contemporary issues regarding the contested memory and responsibility of many aspects of the war. (W) 3 hr./wk.; 3 cr.

46800: Architecture in Modern India

This course will explore the traditional (Hindu and Islamic), colonial, and modern representations of Indian architectural traditions of India. Central themes include: the political manipulation of architecture in different periods and its social and cultural influence in modern India. (W) 3 hr./wk.; 3 cr.

46900: Indian Cinema and Popular Culture

This course will explore the social impact of Indian cinema and the making of the new culture of Bollywood. Central themes include: How has Indian cinema influenced social change? What has been its social and cultural impact in modern India? (W) 3 hr./wk.; 3 cr.

47000: Religions of India

This course will explore the many religious traditions of India, including the dominant Hinduism, along with Buddhism, Jainism, Islam, Sikhism, and Zoroastrianism. Central themes include the origins of each religious tradition; the philosophical underpinnings and the historical growth of each religion; and the social and political conflict/accommodation of multiple religious traditions in modern India. (W) 3 hr./wk.; 3 cr.

47100: Pakistan: Religion, Military, and the State

This course will explore the complex ties between religion, politics, and military, while tracing the circumstances of the creation of Pakistan in 1947 out of British India. Central themes include: How was

Pakistan created? How did the military usurp political Power. Notwithstanding a sizeable middle class, why does religion play such an important role in Pakistan, and what ties does religion have with the military? Finally the central issue of Indo-Pakistan rivalry. (W) 3 hr./wk.; 3 cr.

LATIN AMERICA, THE MIDDLE EAST, AND AFRICA**34101: Colonial Latin America**

A study of the impact and meaning of colonial rule in Latin America and the Caribbean, focusing on the interaction between European goals and institutions, and indigenous American and African strategies of socio-cultural survival. (W) 3 hr./wk.; 3 cr.

34201: Modern and Contemporary Latin America

Contemporary economic, social and political problems of Latin America and the Caribbean studied in historical perspective. Themes include foreign economic and political intervention; labor systems and patterns of land ownership; class, ethnic, and racial relations; the politics of reform, revolution and authoritarianism. (W) 3 hr./wk.; 3 cr.

34301: Africa and the Modern World

A social history of Africa from the 19th century to the present, with emphasis on state formation, impact of the slave trade, and resistance to colonialism. (W) 3 hr./wk.; 3 cr.

34401: The Middle East Under Islam

The rise of Islam and Arab conquests of the Middle East and North Africa through the Crusades and Mongol invasion. Covering the period 600 to 1500, we will focus on politics, culture, and society. (W) 3 hr./wk.; 3 cr.

47000: Race and Ethnicity in Latin America

This course examines the complex and evolving identity and relation to the state of indigenous and African peoples in modern Latin America. Emphasis on how notions of ethnicity and race inform both state and community formation. (W) 3 hr./wk.; 3 cr.

48100: Power and Resistance in Latin America

This course analyzes the history and culture of recent indigenous insurgencies in Latin America. Focuses on the interplay between historical memory, subaltern organization, and anti-systemic politics in the formation of cultures of resistance. (W) 3 hr./wk.; 3 cr.

48200: Women and Gender Relations in Latin America

This course examines three broad themes in the history of Latin America and the Caribbean: colonial foundations of patriarchal relations; gender ideology and nation building; and gender transformations within the context of revolution and globalization. (W) 3 hr./wk.; 3 cr.

48400: The Modern Middle East

This course will introduce students to the history of the Middle East, including the region from North Africa to Afghanistan, in the nineteenth and twentieth centuries. Central themes include: modernizing attempts by the Ottoman and Qajar Empires in the face of European encroachment; transition from empire to nation-state; the role of religion in politics; Arab nationalism; and the role of tribes and oil in state formation. (W) 3 hr./wk.; 3 cr.

48500: Women and Gender in the Middle East

This course examines the history of women and gender from the rise of Islam to the spread of contemporary Islamic political movements. Particular attention will be paid to the ways in which religion shapes women's lives as well as the ways in which women shape religion, women's roles in political and social movements, gendered economic activities, and male-female relations. (W) 3 hr./wk.; 3 cr.

48600: Arab-Israeli Conflict

This course looks at a century of struggle between nationalist movements that have vied for control of the same territory. In the first fifty years, the conflict was more-or-less contained in territory under Ottoman and then British jurisdiction. In the second fifty years — from 1948 — the conflict widened as wars erupted every decade. The course considers the political, socio-economic, and cultural ramifications of the struggle. (W) 3 hr./wk.; 3 cr.

48700: Islamic Political Movements

This course will introduce students to the history of the Middle East, including the region from North Africa to Afghanistan, in the nineteenth and twentieth centuries. Central themes include: modernizing attempts by the Ottoman and Qajar Empires in the face of European encroachment; transition from empire to nation-state; the role of religion in politics; Arab nationalism; and the role of tribes and oil in state formation. (W) 3 hr./wk.; 3 cr.

48800: History of African Nationalist Thought

A historical treatment of African nationalist thought with special emphasis on the social movements and processes that stimulated the ideological development of the nationalist leaders. Readings will

include the writings of these leaders. (W) 3 hr./wk.; 3 cr.

48900: Power and Consciousness in Southern Africa**49100: Decolonization in Africa and the Caribbean****45100: Comparative Slavery****SCIENCE AND TECHNOLOGY****35000: Scientific Revolution****35101: Science, Technology, and Modernity**

Explores the relation between science, technology and modern society from the industrial revolution to the rise of fascism, paying particular attention to the life sciences.

35201: Science and Technology in the 20th Century

This course covers the history of major developments in science and technology during the 20th C. It presents the making of these scientific and technological achievements and the lives of some of the greatest scientists and inventors as well as their social, economic, and cultural influence. (W) 3 hr./wk.; 3 cr.

41300: Medicine and Society in Europe**42300: Psychiatry, Madness, and Society****43100: The History of Sexuality****44500: The American Health Care System****45400: Science and Technology in China****49200: Building Nukes: Science and Politics**

A country's nuclear weapons program represents both the scientific strength of the nation and the determination of the nation's political leaders. This course makes a comparative examination of the scientific and political issues associated with the nuclear weapons programs in the United States, the Soviet Union, and Asia. The goal of this course is to help students understand scientific developments and political conditions that were involved in these nations' decisions to make nuclear weapons. (W) 3 hr./wk.; 3 cr.

49300: Einstein and His World

Albert Einstein was a towering influence over the 20th century not only because of his epoch-making discoveries in physics but also because of his active involvements in social and political debates in

his world. This course will introduce to students Einstein's scientific achievements as well as his views on the social, political, and religious issues of his day. (W) 3 hr./wk.; 3 cr.

SPECIAL TOPICS IN HISTORY

These courses are intended for students who have completed at least two elective courses in history or other Social Science and Humanities and Arts disciplines. These course offerings, some of which are conducted as seminars or colloquia, vary from term to term, and students should consult the Department's published list to determine which courses are being offered in any semester.

31100-32000: Selected Topics in History

Special study in topics not covered in the usual department offerings. Topics vary from semester to semester, depending upon student and instructor interest. (W) Usually 3 hr./wk.; 3 cr.

ADVANCED RESEARCH IN HISTORY**30100-30300: Honors I-III**

A program of individual reading and research under the guidance of faculty members specializing in various areas of historical study. Ordinarily the three-term sequence culminates in the writing of an honors thesis. The Departmental Honors Committee also conducts informal colloquia on problems of historical method and criticism, and on important books on history. Approval of Dean and the Departmental Honors Committee is required. Apply no later than December 10 in the Fall term and May 1 in the Spring term. (W) Credit flexible but usually 3 cr./sem.

31000: Independent Study in History

Designed to meet the needs of students for work not covered in regular offerings. The student will pursue a reading program, with periodic conferences, under the direction of a member of the Department, and with the approval of the Department Chair; limited to juniors and seniors with an adequate background for the work to be pursued. (W) Credit flexible, but will not exceed 4 credits. Credit will be determined by the instructor with the approval of the Chair.

FACULTY**Harriet Alonso, Professor**

B.S., New York Univ.; M.A., Sarah Lawrence; Ph.D., SUNY (Stony Brook)

Emily Balic, Assistant Professor

B.A., William & Mary College, M.A., Stanford Univ.; Ph.D.

Beth Baron, Professor

B.A., Dartmouth College; M.A., Univ. of London; Ph.D., Univ. of California (Los Angeles)

Susan K. Besse, Associate Professor

Certificat, Institut d'Etudes du Developpement, Geneva, Switzerland; B.A., Smith College; Ph.D., Yale Univ.

Barbara Brooks, Associate Professor

B.A., Yale Univ.; Ph.D., Princeton Univ.

Craig Daigle, Assistant Professor

B.A., Univ. of Maryland; M.A., James Madison Univ.; Ph.D., George Washington Univ.

Gregory P. Downs, Assistant Professor

B.A., Yale Univ.; M.F.A., Univ. of Iowa; M.A., Northwestern Univ.; Ph.D., Univ. of Pennsylvania

John Gillody, Lecturer

B.A., UCLA.; M.A., Columbia Univ.; Ph.D.

Venus Green, Associate Professor

B.A., Hunter College; M.A., Columbia Univ., Ph.D.

Danian Hu, Assistant Professor

B.E., Beujung Jiaotong Univ.; M.A., Case Western Reserve Univ.; Ph.D., Yale Univ.

David Johnson, Associate Professor

B.A., Univ. of Sussex, England, M.A., Univ. of London, Ph.D.

Ravi Kalia, Professor

B.A., Univ. of Delhi, M.A.; Ph.D., Univ. of California (Los Angeles), M.B.A.

Andreas Killen, Associate Professor

B.A., Reed College (English); M.A., New York Univ., Ph.D.

Anne M. Kornhauser, Assistant Professor

B.A., Barnard College; M.A., Columbia Univ., Ph.D.

Barbara Naddeo, Assistant Professor

B.A., Princeton Univ.; Ph.D., Univ. of Chicago

Adrienne Petty-Roberts, Assistant Professor

B.S., Northwestern Univ.; M.A., Columbia Univ., Ph.D.

Gerardo Renique, Associate Professor

B.S., Universidad Nacional Agraria (Peru); M.A., Columbia Univ., Ph.D.

Clifford Rosenberg, Associate Professor and Chair

B.A., Carleton College; M.A., Princeton Univ., Ph.D.

Darren Staloff, Professor

B.A., Columbia College; M.A., Columbia Univ., Ph.D.

Judith Stein, Professor

B.A., Vassar College; Ph.D., Yale Univ.

Barbara Syrrakos, Lecturer

B.A. Univ. of Wisconsin, M.A.; M.A., New School for Social Research

PROFESSORS EMERITI**Bernard Bellush****Fred L. Israel****Lawrence Kaplan****Thomas H.C. Lee****Radmila Milentijevic****Dante A. Puzzo****George Schwab****Conrad M. Schirokauer****Richard Skolnik****Herbert A. Strauss****Walter Struve****Arthur Tiedemann****Robert Twombly****Martin Waldman****Joel Weiner****Irwin Yellowitz****Oscar Zeichner**

History and Philosophy of Science and Technology Program

(DIVISION OF HUMANITIES AND THE ARTS)

Program Office: NA 5/144

GENERAL INFORMATION

The program offers and coordinates courses for the following purposes:

- History and/or philosophy specialization in the history and philosophy of science and technology, as a preparation for graduate study in these fields;
- Electives for pre-professional programs in medicine, law, teacher education;
- Electives or sub-specialization for students of liberal arts and science who want to enhance their general education through a better understanding of the role of science and technology in the world.

REQUIREMENTS FOR SPECIALIZATION

In addition to their major requirements, History and Philosophy majors seeking specialization in History and Philosophy of Science and Technology complete a series of courses chosen in consultation with their advisor. Students completing majors other than history or philosophy and seeking elective coursework in History and Philosophy of Science and Technology should consult an advisor in either the History or Philosophy department.

Department of Interdisciplinary Arts and Sciences

(DIVISION OF INTERDISCIPLINARY STUDIES)

Professor Juan Carlos Mercado, Dean • Professor Kathlene McDonald, Chair • 25 Broadway at Bowling Green, 7th Floor, New York, New York • Telephone: 212-925-6625

GENERAL INFORMATION

The City College offers the following undergraduate degrees through the Division of Worker Education:

B.A. (Interdisciplinary Arts and Sciences)

B.S. (Early Childhood Education)

PROGRAMS AND OBJECTIVES

The Center for Worker Education, first established in 1981 by a collaboration of The City College, public employers, and public employee unions, celebrated its inception as a division of the College and its twenty-fifth anniversary in 2006. The Center for Worker Education name has been retained as the name of the City College satellite campus at Bowling Green where the Division of Worker Education and the Program in Early Childhood Education are housed.

MISSION STATEMENT

The City College Division of Interdisciplinary Studies is committed to offering and developing excellent degree programs in interdisciplinary liberal arts and science and in education for non-traditional students. The division's educational programs are designed especially for working adults whose access to higher education may have been limited or interrupted by work responsibilities and family obligations. The division maintains an intellectual environment of open inquiry, curricular innovation and academic integrity, and respects and benefits from the diverse cultural and societal perspectives of its students, staff, and faculty. The division encourages mutually beneficial relationships with labor unions, employers and civic and

community organizations who share our educational vision. With its dual focus on access and excellence, the division intends to be a positive force in lower Manhattan and in the New York metropolitan area.

PROGRAMS AND OBJECTIVES

The division offers working adults a flexible, interdisciplinary program leading either to the B.A. in the field of Interdisciplinary Arts & Sciences or the B.S. in Early Childhood Education. The division also sponsors research and conferences on issues having to do with work and workers. Classes are held and offices located at the Division's Wall Street-area campus in the historic Cunard Building at 25 Broadway, 7th Floor, adjacent to Bowling Green Park, near Battery Park and South Ferry. Most classes meet once a week in the evenings, Monday to Friday, and on Saturdays during the day.

Students must apply for admission directly at the center. Anyone with a high school diploma or a GED is eligible to apply. The program is geared for those twenty-five years and older; exceptions may be made for younger students who are working full time. The division accepts many students with transfer credits from other accredited colleges. Courses are generally open only to students who have been admitted to the program. The first step is attending an orientation/admissions workshop at which advisors assist students with the application process.

In order to select and register for courses, students are required to see an advisor by individual appointment; regular academic advisement is available to all students enrolled in the

degree programs and is one of the benefits of matriculating at the center.

CONCENTRATIONS FOR THE B.A. IN INTERDISCIPLINARY ARTS AND SCIENCES

For the B.A. degree, students are not required to elect a conventional major, but may construct an interdisciplinary liberal arts and sciences course of study in consultation with their advisors. The Department offers five distinct concentrations in the following areas:

- Cultural and Historical Studies
- Human Services
- Labor Studies
- Literature, Communications, and the Arts
- Public Administration

REQUIREMENTS FOR THE MAJOR

B.A. in Interdisciplinary Arts and Sciences

B.A. degree candidates must complete the following requirements or transfer equivalents:

IAS Core Courses

| | |
|--|---|
| IAS 10000, 10100: Core Humanities I and II | 8 |
| IAS 10200, 10300: Core Social Science I and II | 8 |
| IAS 10400, 10500: Core Science I and II | 8 |

Language Requirement

| | |
|---|------|
| Spanish 12100, 12200 and 22300: Basic Spanish I, II, and Intermediate Spanish I | 0-10 |
|---|------|

Depending on the student's individual circumstances, another foreign language may be accepted with the division's approval. The language requirement may also be satisfied by three years of one

language in high school, two semesters each of two different languages in college or by a test in which the student demonstrates proficiency.

Courses in the Concentration 28-48

Students may select one or two concentrations. Concentrations are chosen in consultation with an academic advisor and must follow the guidelines for the concentration.

Elective Courses 58-68

Students may select from a wide variety of upper-division interdisciplinary courses that compliment their concentration/s and/or allow them to explore new areas of study. In addition, the Division offers two other special options. Up to 28 credits may be earned in the Auto-biography/Life Experience Program; up to 16 credits may be earned through Independent Study.

Total Credits 120

ADDITIONAL DEGREE REQUIREMENTS

At least 32 credits must be earned in upper division courses. The last 30 credits must be earned in residence at the Division of Worker Education. No more than 16 credits of the residency requirement may be met through a combination of independent study and life experience credits.

Students must maintain a minimum GPA of 2.0 to graduate.

Students must pass the CUNY Proficiency Exam.

THE AUTOBIOGRAPHY & LIFE EXPERIENCE PROGRAM

The Autobiography & Life Experience Program is a special option available by permission to students in the program who have completed 45 credits and who have passed the CUNY Proficiency Exam. Other requirements are that students have been at the division for at least two semesters within the past two years including the current semester, have completed all the division core requirements and have a GPA of 3.0 or higher. (One

of the above pre-requisites may be waived with permission of the dean.) The program consists of three parts:

1. Two Required Courses (8 credits): The Seminar in Autobiography and the Advanced Seminar in Autobiography and Life Experience.
2. The Autobiographical Essay (0-8 credits): In a 50 to 100-page essay, students analyze prior experience in the context of their liberal arts education. The final essays are read by a divisional committee, which recommends the total number of credits to be awarded, up to a maximum of 8. A reader's fee of \$100.00 is due when the autobiographical essay is submitted.
3. The Life Experience Portfolio (0-12 credits): Students document college-level learning achieved through experiences outside conventional institutions of higher education. A committee of the division's faculty and staff recommends the total number of credits to be awarded for the Portfolio up to a maximum of 12.

COURSE DESCRIPTIONS

Core Courses

IAS 10000, 10100: Core Humanities

Core Humanities I and II are interdisciplinary, humanities-based writing courses. Reading includes a wide range of essays, each proposing a groundbreaking theory pertinent to a particular discipline. These essays will be matched with short fiction and shorter essays providing a social context for the theories proposed by writers such as Sigmund Freud, Karl Marx, Dr. Martin Luther King, Carl Jung, Alice Walker and Virginia Woolf, Thomas Kuhn, Charles Darwin and others. In response to these combinations, text-based student essays of at least 750 words will pair interdisciplinary theory with a social context. These courses emphasize critical reading, thinking, and writing skills as well as various rhetorical approaches to the composition of the academic essay. (Formerly CWE 10000, 10100) 4 hr./wk.; 4 cr. per course

IAS 10200, 10300: Core Social Science

These courses introduce students to the methodologies and approaches of the various social sciences by exploring themes and problems associated with the development of the modern world. Both courses focus on work and workers in various social

and historical contexts. (Formerly CWE 10200, 10300) Prereq.: IAS 10000 and IAS 10100. 4 hr./wk.; 4 cr. per course

IAS 10400, 10500: Core Science

These courses introduce students to fundamental ideas in the biological and physical sciences as well as the interaction of science with society. One of the important aims is to develop an understanding of scientific method with an emphasis on model building and its wide range of potential applicability. Another important goal is to convey an appreciation of both the possibilities and limitations of science and technology. (Formerly CWE 10400, 10500) Prereq.: IAS 10000, IAS 10100, IAS 10200, IAS 10300. 4 hr./wk.; 4 cr. per course

Elective Courses

The courses listed below represent a range of recent courses offered for the B.A. degree in interdisciplinary arts and sciences. Many more disciplinary and interdisciplinary courses are offered each term.

ANTH 31324: Landscaping Culture, Emotion and History

This course asks questions about the role of museums, monuments and memorials as narrative frameworks. Some of the divergences between history and memory are explored, and the ways in which multiple representations of memory orient social practice, images of difference and ideas of civility are examined. New York City is used as a kind of laboratory for observing contemporary debates over how public meaning is created and institutionalized. 4 hr./wk.; 4 cr.

ART 12104: Drawing I

Drawing is a process of discovery. The emphasis of this course is on the development of the perceptual skills necessary for creative, expressive work. Line, form and value are all studied—with pencil. Techniques explored include gesture, contour, modeling, automatic and memory drawing. Students work from life, still life, photos and imagination. Two hours of fieldwork is required. 4 hr./Lect., 2 hr./fieldwork; 4 cr.

ART 29104: Women and Art I

A survey of imagery of women in world art, including such topics as women as objects of veneration, mother, ruler, creator, worker, educator, patron, sexual object and victim. History of work by and status of women artists, including issues of biology, education, training, and social, economic and political pressures in a variety of times and cultures. 4 hr./wk.; 4 cr.

CLSS 31204: Greek Literature in Translation

Readings from the outstanding authors of classical Greece include Homer, Herodotus,

Aeschylus, Sophocles, Euripides, Aristophanes, Thucydides, Plato and Aristotle. Works are discussed both as literature, and as sources for our understanding of the ideas and values of the classical civilizations and their relation to our society. This course is recommended for those interested in classical civilization, English majors, and students of anthropology. 4 hr./wk.; 4 cr.

ENGL 31734: Cultural Appropriations of Shakespeare

This course focuses on how writers and filmmakers have appropriated or rewritten Shakespearean plays to serve their own cultural or political interests. The course begins with a comparison of Shakespeare's *Romeo and Juliet* with *West Side Story*. Aime Cesaire's *The Tempest*, Edward Braithwaite's poem "Caliban," and Elizabeth Nunez' *Prospero's Daughter* will be read against Shakespeare's *The Tempest*; Tayeb Salih's *Season of Migration to the North* and Tjanet Sears' *Harlem Duet* will be read with *Othello*; and Jane Smiley's *Thousand Acres* will be studied in relation to Shakespeare's *King Lear*. Various film adaptations will also be viewed. Students write papers on additional appropriations or create their own appropriation. 4 hr./wk.; 4 cr.

HIST 31534: Nationalism, Imperialism, Racism

The genesis of nationalism in the 19th and 20th centuries, particularly in Europe but also in Asia and the Americas as well, is explored. How did nationalism serve to unify diverse populations in the nation state? Did the creation of national identities depend on the exclusion of the "other"? What were the imperial ambitions of the more developed nationalisms, and in what ways did their imperial experience and ideology affect the domestic policies of those nations? What role did racial ideas play in the growth of nationalism and imperialism, and how did racism come to be an integral part of the state, as in Nazi Germany, and of national policy? 4 hr./wk.; 4 cr.

HIST 33604: Recent U.S. History

This course focuses on the period 1945 to the present. Important changes in American society and economy are studied, while also looking at the evolving American role in the world. Among topics considered: the Cold War, McCarthyism, the Civil Rights Movement, the growth of multinational corporations, the Vietnam conflict, the Great Society and the triumph of conservatism. A variety of texts are covered, including memoirs, and important films from the period are viewed. 4 hr./wk.; 4 cr.

IAS 31216: Women and Work

This course examines the impact of women workers on contemporary U.S. society and the role of work in women's lives. Women are most unlike male workers because they have two work sites: in the paid labor force and in the household. This course focuses on the intersection, conflicts, and tensions within as well as those between these work sites. The primary goal of the course is to provide students with the ability to understand the social, economic, and historical contexts of their lives as workers. 4 hr./wk.; 4 cr.

IAS 31255: The Human Body

How does our body sense and respond to the ever-changing demands of our environment? Does our biological heritage contribute to emotions such as love, aggression and our sense of beauty? What happens to our body as we exercise, and what is the role of nutrition? Why do we get sick, and how do we die? These and other issues will be explored on this tour of the fascinating workings of the human body. 4 hr./wk.; 4 cr.

IAS 31195: Introduction to Public Administration

This course examines bureaucratic organizations in modern society, emphasizing the effects of organizational forms on both bureaucrats and clients. Topics include: the external environments of administrative agencies, theories of organizational change, decentralization and leadership, the effects of specialization, and the distribution of power in governmental agencies. Primary emphasis is on the federal government, although state, local, and private bureaucracies are examined. 4 hr./wk.; 4 cr.

IAS 31199: New York in Literature and Film

This course takes an interdisciplinary approach to the rise of New York with an emphasis on fiction and film. On another level it will examine the rise of urban America through the example of the proto-typical city, New York. The main topics examined include the literature of immigrants, critical realism's New York by the slice, the Harlem Renaissance, the American dream in the big city, the modern Babylon, and the building and imagining of the Brooklyn Bridge. 4 hr./wk.; 4 cr.

IAS 31170: Seminar in Autobiography

This course explores various forms of autobiography, for example the "coming of age" autobiography, professional memoir, family memoir, and thematic memoir. Students read, discuss, and write about various full-length autobiographies and several shorter autobiographical stories and essays. Students will also write their own

autobiographical stories and essays, which will be shared with peers in writing workshops, edited and revised. 4 hr./wk.; 4 cr.

LBST 39804: Seminar in Labor Studies

A seminar for students who have completed courses in the Labor Studies Concentration. The course involves a review of labor history in New York City since World War II. The focus will be on unions in five areas: clothing, communications, education, health care, and the public sector. Reading, discussion and research on an advanced level will prepare students for careers in labor organizations, educational programs, or management. 4 hr./wk.; 4 cr.

LALS 31124: The Dominican Community

This course covers the socio-economic and political origins of migration from the Dominican Republic to the United States, with an emphasis placed on New York City. The course also focuses on the impact that U.S. society has had on Dominicans in New York and in other parts of the country in areas such as employment, social mobility, ethnic relations, education, housing, family life, and politics. 4 hr./wk.; 4 cr.

MCA 31644: Between the Lines: Critiquing the Movie Critics

How do critics decide if a movie is good, bad or ugly? Why do they so often disagree? This class is designed to look analytically at a few contemporary reviewers: What is consistent or inconsistent about their methodologies? What might Jim Hoberman of the *Village Voice* be hoping to discover when he sees a film? Is it the same thing that, say, Anthony Lane of *The New Yorker* is looking for? Shouldn't we expect reasonably intelligent reviewers to come to a consensus? Or is there something vital about their very disagreement? How, exactly, does critical discourse function in our culture? Although the main focus is on contemporary films and reviewers, some of the fundamentals of film theory, as well as the critical and popular histories of several directors will also be covered. The course requires several trips to movie theaters. 4 hr./wk.; 4 cr.

MUS 10104: Introduction to Music

Concepts underlying the understanding and enjoyment of music are the central focus of this course. Examples from around the world highlight matters of form and content. Emphasis is placed on attending live performance. How to sit still. How to listen. Understanding melody and rhythm, as well as basic rhythmic notation. Instruments of the orchestra will be discussed, and also basic conducting patterns, perceiving musical forms, emotional expression, settings of texts, and an overview of musical periods. 4 hr./wk.; 4 cr.

PHIL 30004: Introduction to Philosophy

An introduction to some of the central questions of philosophy, concerning our knowledge of the external world, causation, God, mind and body, freedom, justice, and moral judgment, via analysis of classical and contemporary philosophers such as Plato, Aristotle, Descartes, Locke, Hume, Mill, Kant, Russell, Wittgenstein, and Rawls. 4 hr./wk.; 4 cr.

PHIL 30804: Ethics

Analysis of the concepts employed in moral reasoning, such as good, right, duty, obligation, virtue, freedom and choice. Critical study of various theories of moral justification—such as utilitarianism, deontological ethics, virtue ethics, and of the status of moral judgments such as subjectivism, objectivism, relativism, and skepticism is encouraged. The relation between morality and religion, moral dilemmas, and some problems in practical ethics (abortion, famine, the environment, etc.) are considered. 4 hr./wk.; 4 cr.

PSC 25604: Contemporary World Conflict

The world in the late 20th century and at the beginning of the 21st century has witnessed several major conflicts locally, nationally and globally. Militarism, poverty, and socio-economic inequality, women's subordination and oppression, racial and ethnic discrimination, human rights violation, nationalism, religious fundamentalism, terrorism, globalization and environmental degradation constitute some of the more important factors generating the conflicts in question. This course attempts to do three things: (a) clarify the meaning of the term "conflict" and discuss the various means by which conflict management and resolution are achieved; (b) examine the nature and development of multi-factor conflicts in such selected situations as Northern Ireland, South Africa, the former Yugoslavia (especially Bosnia), Afghanistan, and Israel and the Palestinians; and (c) outline and analyze such phenomena as the struggle for human rights and women's rights, the peace movement, the confrontation between Islamic fundamentalism and the West, the (more) recent war against terrorism, the anti-globalization movement, and the politics of humanitarian intervention. 4 hr./wk.; 4 cr.

PSY 10204: Psychology in the Modern World

An introduction to the study of human development and learning, personality and motivation, sex differences, attitudes, aggressions, interpersonal attraction, behavior in groups and work settings, abnormal behavior and its treatment. Emphasis is

placed on the ways in which psychological theory and research can be applied to individual and social problems. 4 hr./wk.; 4 cr.

PSY 36504: Family Psychology

Family structure and process are studied in terms of historical, cultural and psychosocial factors. Emphasis on viewing family interactions is placed on viewing family in terms of a psychodynamic system and subsystems. The complex relationships within the family and between the family and society serve as a setting for theorizing, researching and developing models of constructive intervention. 4 hr./wk.; 4 cr.

SOC 31654: The Color Line: Sociological Perspectives on Race and Racism in 20th Century American Life

This course provides an historical and sociological background for examining the concept and expression of "race" and racism in America. The course does not confine itself to the traditional Black vs. White notions of race relations, but includes Latin, Asian, and Native American experiences, anti-Semitism and the experiences of "white" ethnic groups such as Italians and the Irish. The significance of the growth of "mixed race" population is also covered. The course intends to help those enrolled better understand personal experiences of race and to challenge stereotypes and pre-judgments. 4 hr./wk.; 4 cr.

THTR 31604: Courtroom Drama in Fact and Fiction

This course examines the judicial process as it is refracted and dramatized through the prism of theatre. Factual (documentary) plays will include Blank and Jensen's *The Exonerated*, Berrigan's *The Trial of the Catonsville Nine*, Bentley's *Are You Now or Have You Ever Been?* and Mann's *Execution of Justice*. Fictionalized accounts of justice will include Rose's *Twelve Angry Men*, Lawrence and Lee's *Inherit the Wind*, Miller's *The Crucible*, Levitt's *The Andersonville Trial*, Kaufman's *Gross Indecency: The Three Trials of Oscar Wilde*, Brecht's *The Caucasian Chalk Circle*, and Tendulkar's *Silence! The Court is in Session*. Courtroom drama in its many embodiments can be used to explore social, political, and psychological issues. Various critical writing exercises to examine these plays form an integral part of the course. 4 hr./wk.; 4 cr.

B. S. IN EARLY CHILDHOOD EDUCATION

In connection with the School of Education, the division offers a Bachelor of Science degree with a major in Early Childhood Education. In 2004, the ECE Program received

accreditation from the National Council for the Accreditation of Teacher Education (NCATE). The ECE Program's curriculum is designed to prepare knowledgeable, reflective, and caring educators who will be committed to teaching, participating, and leading in the life of diverse communities.

Students must apply for admission to the Early Childhood Education Program. The criteria for admissions are:

- Pass the School of Education Admissions Test (S.E.A.T.)
- Complete at least 45 credits including: IAS 10000, 10100, 10200, 10300, (or their transfer equivalents); SOC 38144; EDCE 20604 and 20614 (or their transfer equivalents)
- Maintain a 2.5 grade point average
- Submit a School of Education Undergraduate Admission Application
- Successfully complete an ECE Program admission interview with ECE faculty.

Candidates for Initial Certification in Early Childhood Education are required to complete 300 hours of supervised student teaching. The application for student teaching must be submitted one semester prior to student teaching placement. To be admitted to student teaching, students must have:

- A recommendation from their advisor
- Completed all requirements in the core and the co-major, and requisite education courses with grades of "C" or higher
- Maintained a GPA of 2.5 or higher
- Completed 100 hours of field experiences
- Passed the S.E.A.T. (satisfactory LAST scores are accepted in lieu of the S.E.A.T.)
- Passed the CPE
- Fulfilled all requirements set forth by New York State for Initial Certification in Early Childhood Education

- Upon completion of the B. S. degree, The City College will recommend the candidate for NYS Initial Certification once the following requirements are successfully fulfilled:
- Liberal Arts and Sciences Test (LAST)
- Assessment of Teaching Skills – Written (ATS-W)
- Content Specialty Test (CST).

Maintenance of Matriculation

As a professional school with the responsibility of recommending students for New York State certification, faculty of the Early Childhood Education Program must conduct ongoing professional assessment of all students. In cases where a faculty member determines that an individual is inappropriate for the teaching profession he/she may recommend removal from the teacher preparation program to the chair of the department. The student has the right to appeal to the Committee on Course and Standing. The findings of the Committee are final.

For additional requirements please see School of Education Undergraduate Programs in this catalogue.

REQUIREMENTS FOR THE MAJOR

DWE Core Courses

| | |
|--|---|
| IAS 10000, 10100: Core Humanities I and I | 8 |
| IAS 10200, 10300: Core Social Science I and II | 8 |
| IAS 10400, 10500: Core Science I and II | 8 |

Liberal Arts

| | |
|--|---|
| Speech 11104: Foundations of Speech Communication | 4 |
| Psychology 10204: Applications of Psychology in the Modern World | 4 |
| English 11004: English Composition | 4 |
| One of the following two: | 4 |
| 21014: Writing for the Humanities (4 cr.) | |
| 21024: Writing for the Social Sciences (4 cr.) | |

Language Requirement*

| | |
|--|-----|
| Spanish 12100 and 12200: Basic Spanish I, II | 0-8 |
|--|-----|

Mathematics

| | |
|-----------------------------------|---|
| 18000: Quantitative Reasoning | 3 |
| 18500: Basic Ideas in Mathematics | 3 |

Sociology

| | |
|-------------------------------------|---|
| 38144: School in American Societies | 4 |
|-------------------------------------|---|

U.S. History

| | |
|---|---|
| One of the following two: | 4 |
| 12404: American Civilization I, Colonial Period to 1865 (4 cr.) | |
| 12504: American Civilization II, 1865 to the Present (4 cr.) | |

**Depending on placement by advisor, another foreign language may be accepted if approved by advisor.*

Total General Ed. Core Credits 54-62

All Early Childhood Education majors at City College are required to complete a 32-credit liberal arts content core in either Communications and Literature or Social Science. Courses in the content core are selected in consultation with an academic advisor.

Education Courses

| | |
|--|---|
| EDCE 20604: Theories of Development Applied to Early Childhood Practice | 4 |
| EDCE 20614: Early Childhood: Development, Assessment, and Pedagogy in Inclusive Settings | 4 |
| EDCE 22100: Family, School, Community | 2 |
| EDCE 32204: How Children Learn Math | 4 |
| EDCE 32304: Literacy and Language I | 4 |
| EDCE 40200: Literacy and Language II | 2 |
| EDCE 40300: Social Studies Methods | 2 |
| EDCE 40500: Facilitating Children's Artistic Development 2 | 2 |
| EDCE 40600: Facilitating Children's Musical Development | 2 |
| EDCE 40800: Supervised Student Teaching | 6 |
| EDCE 31904: Science in Early Childhood Settings | 2 |
| EDCE 41900: Professional Development | 0 |

Subtotal 34

Total Credits 128

ECE Testing Requirements

Tests should be taken in the order listed:

1. School of Education Admissions Test (SEAT)

A passing score is required for admission into the ECE Program. The

SEAT is also used to assess writing proficiency and general liberal arts knowledge. If you submit passing LAST scores, you do not have to take the SEAT.

This test should be taken during your first semester at CWE. It is given 3-4 times a semester and is a 3 hour test consisting of an essay and 40 multiple choice questions in the areas of history and social science, mathematics, science, communications, and knowledge of the arts. Sign up to take the SEAT at the 7th Floor Reception Desk.

2. CUNY Proficiency Exam (CPE)

See CWE Student Handbook, pp.27 and 34 for description and details.

3. Liberal Arts and Sciences Test (LAST)

Early Childhood Education majors are required to achieve a minimum score of 220 and strong performance on the constructed response (essay question) to qualify for Supervised Student Teaching and to be recommended by City College School of Education for New York State Initial Teacher Certification. You should register to take this exam as soon as possible after passing the SEAT. Mastering the material taught in your liberal arts courses and your Content Core will help you prepare for this exam. We strongly recommend that you take a prep course as part of your preparation for the exam. The School of Education Learning Resource Center (LRC) offers free prep courses for the LAST, the ATS-W, and the CST. Contact the LRC at (212) 650-5455.

4. Multi-Subject Content Specialty Exam (CST)

A minimum score of 220 and strong performance in the constructed response (essay question) are required to be recommended by City College School of Education for New York State Initial Teacher Certification.

5. Assessment of Teaching Skills Written (ATS-W)

A minimum score of 220 and strong performance in the constructed response (essay question) are required to be recommended by City College School of Education for New York State Initial Teacher Certification

The City College School of Education will recommend Early Childhood Education majors for New York State Initial Certification in Early Childhood Education (Birth-8) upon completion of all the following:

- All required courses of the Undergraduate Early Childhood Education Program or their equivalent with a minimum GPA of 2.7
- Passing scores for the LAST, Multi-Subject CST, and ATS-W
- 100 hours of satisfactory fieldwork and 300 hours of satisfactory supervised student teaching

Transfer students are encouraged to schedule an advisement meeting with Deborah Edwards-Anderson, BS in Education Program Coordinator, during their first semester at DWE.

COURSE DESCRIPTIONS

EDCE 20604: Theories of Development Applied to Early Childhood Practice

An overview of early childhood education theory and practice from historical and sociocultural viewpoints. Major areas of study include child development, observation and recording techniques, developmentally appropriate practices, multicultural and inclusive classrooms, authentic assessment, family-child-teacher interactions, and subject area methods. Fieldwork required. 4 hr./wk.; 4 cr.

EDCE 20614: Early Childhood: Development, Assessment, and Pedagogy in Inclusive Settings

Students construct a working knowledge of developmental theories and approaches to assessment in relation to the needs of young children with disabilities in inclusive settings. Students will learn to develop appropriate inclusive settings based on examination of special needs in early childhood literature, knowledge of individual children, inclusive curricula models, classroom management, and working with

families, special education itinerant teachers, and early intervention and support agencies in multicultural settings. Prerequisite: EDCE 20604 or its equivalent. 4 cr. once per week for 15 weeks/ 15 hr. fieldwork. Open to all undergraduates.

EDCE 22100: Families, School, Community

Students gain an understanding of and skills for working with all kinds of families. This includes using the local community and cultures as resources and supports for the child and family, bringing the outside world into the school, and viewing the classroom as a community. Emphasis on special needs, inclusion, and children with English as a second language. Includes 15 hr. of fieldwork. 2 hr./wk.; 2 cr.

SOC 38144: School and American Societies

Students explore the complexities of the social institution of public schooling in the context of a democratic society: what the schools ought, can, and actually do. This exploration includes a progressive educational framework that considers a pluralistic society. Includes 15 hours of fieldwork. 4 hr./wk.; 4 cr.

EDCE 32204: How Children Learn Math

A constructivist foundation for teaching mathematics in Early Childhood based on Piaget, Vygotsky and current ECE theorists including Kamii. Development of mathematical concepts and skills in Early Childhood and through curricular materials. Field assignments link curriculum and theory with ECE classroom practice. 4 hr./wk.; 4 cr.

EDCE 32304: Literacy and Language I

Developmental and constructivist framework of early language development and emergent literacy. Children's language development, the development of other communication skills, and the relationship of these to the process of reading. Children's literature examined from sociocultural and multilingual perspectives. Field assignments provide experiences that link theory and practice. 4 hr./wk.; 4 cr.

EDCE 40200: Literacy and Language II

Developmental processes of emergent-to-fluent reading, writing, speaking, and communicating. Multiple teaching/curricular/ assessment approaches to beginning reading and writing for children of different cultures, linguistic backgrounds, abilities/ disabilities, and developmental level. Field assignments link theory and practice. 2 hr./wk.; 2 cr.

EDCE 40300: Social Studies in Early Childhood Education

Social studies is developed as the core of an integrated ECE curriculum involving

literacy, math, science, and play. Students will explore theories, methods, and materials to help the child understand his/her immediate environments and relationships to them. Emphasis on family, classroom, school and neighborhood. Field assignments link theory and practice. Prereq.: Educ. 32304. 2 hr./wk.; 2 cr.

EDCE 40500: Facilitating Children's Artistic Development

Students explore the use of a range of art materials and activities for young children at various developmental stages and methods for supporting their total development. The natural sequences and stages of children's drawings and their link to emergent literacy and other developmental areas. 2 hr./wk.; 2 cr.

EDCE 40600: Facilitating Children's Musical Development

A study of young children's interest and response to rhythms, dramatic play, and spontaneous imaginative experiences which the teacher can guide and incorporate into a program of developmental activities. 2 hr./wk.; 2 cr.

EDCE 40800: Student Teaching in Early Childhood Education

Supervised student teaching in two of the three ECE levels: Pre-K, Kindergarten, and grades 1 & 2, with a minimum of four weeks at each level. 25 hr./wk.; 6 cr.

EDCE 31904: Science in Early Childhood Settings

An introduction to science in classrooms with young children. Through interactions with the physical and natural world, teachers will investigate ways to bring opportunities for inquiry and discovery to early childhood classrooms. Teachers will draw on NAEYC's Program Standards to underscore everyday experiences in the sciences, and to develop and cultivate children's attempts at inquiry, discovery, and record keeping. Coreq.: Educ. 40800, 41900. 2 hr./wk.; 2 cr.

EDCE 41900: Professional Development Seminar

ADVISEMENT

Program Director

Dr. Vicki Garavuso

CWE students in both the B.A. and B.S. degree programs are required to select an advisor upon admission to the program and may not register each semester without careful planning of their course of study in consultation with that advisor.

AWARDS

Eugene Bellin Scholarship

A scholarship of \$300 for two consecutive years is awarded to a junior in the Division of Worker Education who has a documented record of activity on behalf of social justice and a grade point average of 3.0 or better.

The Edward Rivera Prize for Autobiography/Autobiographical Fiction

Administered by the Division of Worker Education in collaboration with the English Department, the Edward Rivera Prize is awarded to a student for excellence in autobiographical writing. The prize is named after Professor Edward Rivera, acclaimed novelist, writer, and teacher, who taught autobiography, fiction, and literature courses at the Center until his death in 2001.

The Jagna Sharff Award

An award is given annually to a student who excels in the area of Urban Anthropology. This award was established in 2001 by the friends, family, and faculty in honor of Jagna Sharff, anthropologist, who taught for several years at CWE until her death in 2001.

Leonard Spano Award

An award of \$100 given annually to the graduating senior who is judged by a committee established by the Division of Worker Education to have demonstrated excellence in the study of history or other social sciences.

Ada Shepherd Creative Writing Award

An award of \$75 is given annually to a CWE student for excellence in creative writing.

The Barbara Aronson Social Justice Award

On the recommendation of the Social Justice Award Committee, a \$1000 award is given annually to one or more students at the Division of Worker Education for: (a) Social Justice Internship, to a junior or senior who will undertake a year-long internship in an organization promoting social justice issues and who documents his/her experience in an essay; and/or (b) Study (or Research) Abroad, to a junior or senior who will travel abroad, with

preference given to travel in Third World countries, to study or conduct research on issues of human rights, labor or sustainable development.

The Heyman Alumni Association Scholarship

Several \$1000 scholarships are awarded for academic achievement each year to undergraduates who have earned at least 24 credits at the Division of Worker Education.

The Samuel Wallach '29 Prize

A \$1000 prize is awarded annually to a graduating senior at the Division of Worker Education who plans a career in public school teaching or labor education and who exemplifies the values associated with Mr. Wallach's long life as a teacher and labor union leader: a commitment to teacher organizations that serve the needs of children as well as teachers, and a commitment to teaching with the aim of achieving social justice.

The Frances Patai Prize

On the recommendation of the Advisory Committee to the Frances S. Patai Fund on the Nazi Holocaust, a \$1000 prize is given for the best undergraduate research paper on the role of women in the anti-Facist struggles of the 1930s.

FACULTY

Carlos Aguasaco, Lecturer

B.A., National Univ. of Colombia; M.A., CCNY

Marlene Clark, Associate Professor

B.A., Ramapo College; Ph.D., CUNY

David Eastzer, Assistant Professor

B.S., Cornell Univ.; M.S., CCNY; Ph.D., Univ. of North Carolina (Chapel Hill)

Vicki Garavuso, Associate Professor

B.A., Lehman College; M.S., Bank Street College of Education M.Ed.; Ed. D., Teachers College, Columbia Univ.

Mary E. Lutz, Lecturer

B.S., Columbia Univ.; M.S., Hunter College; D.S.W., Columbia Univ.

Elizabeth A. Matthews, Lecturer

B.A., NYU; M.A., Columbia Univ.; M.Phil., CUNY, Ph.D.

Kathlene McDonald, Assistant Professor

B.A., Colgate Univ.; MA, SUNY (Binghamton); Ph.D., Univ. of Maryland

Irina C. Silber, Assistant Professor

B.A., George Washington Univ.; M.A., New York Univ., M.Phil., Ph.D.

Martin V. Woessner, Assistant Professor

B.A., Univ. of San Francisco; Ph.D., CUNY

International Studies Program

(DIVISION OF SOCIAL SCIENCE)

Professor Marina Wikramanayake Fernando, Director • Program Office: NA 6/141 • Tel: 212-650-5842

GENERAL INFORMATION

The City College offers the following undergraduate degree in International Studies:

B.A.

PROGRAMS AND OBJECTIVES

The International Studies program is an interdisciplinary program in which students may specialize in one of the following areas:

- International Relations
- Comparative Public Policy
- Culture and Communication
- Development

Students may also select International Studies as one major in a double major.

International Studies is an appropriate major for those seeking an internationally oriented career in either the public or private sector. A B.A. in International Studies can qualify students for entry-level positions in branches of the U.S. government, multinational corporations and Non-Governmental Organizations (NGOs), although an appropriate master's degree is recommended. International agencies in the private sector recruit students who have acquired both a broad liberal arts education and specialized skills during their undergraduate years. As the globalization of the market has accelerated, the demand for such graduates has also increased. Employment possibilities also exist in private and international organizations concerned with social issues such as the protection of human rights or the development of Third World countries, as well as with institutions involved in research and philanthropy.

Opportunities for study abroad are available to students in the program.

Internships

As upperclassmen, students are eligible to participate in internships in diplomatic missions to the United Nations, international businesses, research institutes, non-governmental organizations and other arenas of international issues. Interns normally spend up to ten hours per week in their on-the-job activities, meet with fellow interns at the College, and regularly consult a faculty supervisor. Interns learn about the policies of an international agency, as well as contribute to its operations.

Secondary School Teaching

Students wishing to teach Global Studies in secondary schools must be certified in the area of Social Studies. General social science distributional requirements for such certification are listed under the Department of Secondary Education listings in this *Bulletin*. Students should consult with their departmental advisor about which courses must be included within the International Studies major.

REQUIREMENTS FOR MAJORS

International Studies

20100: International Studies: A Global Perspective 3

English

21002: Writing for the Social Sciences 3

One of the following three courses: 3

International Studies

30500: Social Foundations of International Studies (3 cr.)

Political Science

20200: Comparative Political Economy (3 cr.)

25200: Approaches to International Relations (3 cr.)

One of the following quantitative skills courses: 4

Economics

29000: Principles of Statistics (4 cr.)

Psychology

21500: Applied Statistics (4 cr.)

Sociology

23200: Methods and Techniques of Sociological Research (4 cr.)

International Studies

25100: Internship in International Studies 3

32100: Senior Seminar in International Studies 3

One of the following two: 3

32200: Senior Essay in International Studies (3 cr.)

32400: Public Policy Portfolio (3 cr.)

Advanced electives: 15
[Students choose one from the list of four concentrations in the introductory text above and then select five courses from at least three different departments within that concentration.]

Advanced language courses 6

Total Credits 43

Senior Honors Option:

The Honors Senior Seminar (30100) and Honors Senior Thesis (30200) are the capstone courses of the International Studies Program for students who wish to graduate with Honors. They may be substituted for the Senior Seminar and Senior Thesis courses.

Overseas Study:

Students (with prior approval of the Program Director) may earn up to fifteen credits toward their major through overseas study and may also

be exempted from the requirement of a third year of foreign language.

ADDITIONAL REQUIREMENTS

In addition to major requirements, all International Studies majors must maintain a GPA of 2.5 and must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) or Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)
2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

ELECTIVE COURSES

All majors are required to choose five advanced courses (15 credits) in their concentration, organized around a particular international or global subject or area of the world. These 15 credits must consist of courses in at least three different disciplines within that concentration. The electives listed below are offered in the different disciplines in the College of Liberal Arts and Sciences from which the student may select five that are appropriate to the concentration. These concentrations are Development (D), Public Policy (PP), International Relations (IR), and Culture and Communication (CC). Their acronyms appear in parenthesis alongside a course considered suitable for the Concentration. Students must obtain the Program Director's approval for electives in the concentration. [Some of these electives may not be available in a given year while new courses may be added as they become available.]

Anthropology

- 20100: A Cross-Cultural Perspective (CC/D/PP)
 20200: Language and Dialect in Cross-Cultural Perspective (CC/D)
 22800: Anthropology of Urban Areas (CC/IR/D/PP)
 23600: Sex, Marriage and Family (CC/D)
 24000: Peoples of Africa (CC/IR/D)
 24300: Peoples of Latin America (CC/IR/D)
 24600: Peoples of the Middle East (CC/IR/D)
 25500: Anthropology of Health and Healing (CC/D)
 28500: Heredity, Race, Intelligence (CC/IR/D/PP)
 29000: Dynamics of Human Ecology (CC/IR/D)
 29500: Bio-Cultural Anthropology (CC)
 35500: Race and Racism (CC/IR/D)

Asian Studies

- 20500: Contemporary China (IR/CC/D)
 31105: Modern Asia and the Middle East (IR/D)
 31116: Japanese Film (CC)
 31106: Emerging Markets in East Asia (IR/D)
 31107: Asian Theater Traditions (CC)
 31301: East Asian Science and Technology (CC/IR/D)
 31303: Chinese Medicine (CC/D)
 31310: Buddhist China and Tibet (CC/IR)
 31316: China-US Relations (IR)
 31406: History of Chinese Thought (CC/IR)
 31408: Introduction to Asia and the Middle East (IR/CC/D)
 31606: Korean Civilization, Past and Present (CC/IR)
 31610: Japanese Popular Culture (CC)
 31616: Kabuki Japanese Theater (CC)
 31816: Asian Religions (CC/D)
 31825: Chinese Film (CC)
 31826: Chinese Film and Literature (CC)
 31910: Nation and Ethnicity in Asia (CC/IR/D)
 33100: Chinese Literature Prior to 1919 (CC)
 33200: Modern Chinese Literature (CC/IR)

Black Studies

- 11105: Black Feminist Thought (CC)
 12300: African Politics (IR/D)
 12800: The UN and New Nations (IR/D)

- 31115: Africa Since Independence (IR/CC/D)
 31210: Caribbean Politics (IR/D)
 31412: Decolonization in Africa (IR/D)

Classics

- 32100: Classical Mythology (CC)

Economics

- 23000: International Trade Theory (IR)

English

- 31208: Caribbean Spirits, Colonial Ghosts (CC/D)
 31617: Sexuality, Nationhood and the Novel (CC)
 31706: Literature and Postcolonialism (IR/CC/D)
 31776: Transatlantic Anglo-American Culture (CC)
 31811: Latin American and Caribbean Women Writers (CC)
 31848: Revolutionary Imagination (CC/IR)
 31918: Language, Society and Literature (CC)
 37006: Comparative Africana Fiction (CC)
 37502: Nineteenth Century Women Writers (CC)
 37503: Twentieth Century Women Writers (CC)
 38007: Introduction to Comparative Literature (CC)
 41414: Feminist Literature and Film (CC)
 41529: Post-colonial Literature (CC/IR/D)
 41531: Law and Literature (CC/D)

History

- 25100: Traditional Chinese Civilization (CC/IR)
 25300: Modern China (CC/IR/D)
 25400: Traditional Civilization of Japan (CC/IR)
 25500: Modern Japan (CC/IR)
 26400: Modern India (CC/IR/D)
 28100: Latin America to 1825 (IR/CC/D)
 28200: Modern/Contemporary Latin America (IR/CC/D)
 31111: European Union Since 1945 (IR)
 31116: The French Revolution (IR/CC)
 31210: Conservatism and Fascism of the Far Right (IR)
 31310: Power and Consciousness in South Africa (IR/CC/D)
 31313: Africa Since Independence (IR/CC/D)
 31323: Architecture and Identity in India (CC/D)

- 31325: Power and Resistance in Latin America (IR/CC/D)
 31333: Decolonization: Africa and the Caribbean (IR/CC/D)
 31435: The Great War (IR)
 31500: The History of Sexuality (CC/D)
 31522: Einstein and His World (CC)
 31535: Psychiatry and Madness in Society (CC/D)
 31613: Women and Medicine (CC/D)
 31615: France and Francophone Africa (IR/CC/D)
 31620: The Cultural Revolution: 1966-1976 (IR/CC)
 31623: Modern Europe (IR/CC)
 31625: Cities of Early Modern Europe (CC/IR)
 31628: Law and Society in Early Modern Europe (CC/IR)
 31635: The Modern European City (CC/IR)
 31703: Japanese Society Since World War II (CC/IR)
 31704: Chinese Students and Education (CC/IR/D)
 31711: Asian Diaspora in Latin America (CC/IR/D)
 31715: Science and Technology in East Asia (CC/IR/D)
 31716: Readings in Traditional Chinese Texts (CC/IR)
 31725: Peoples' Republic of China (IR/CC/D)
 31726: Gender and Family in East Asia (CC/D)
 31730: Science and Technology in the Twentieth Century (CC/IR/D/PP)
 31808: Women and Gender Relations in Latin America (CC/D)
 31903: Modern Middle East (IR/CC/D)
 31905: Women and Gender in the Middle East (CC/IR/D)
 31907: Arab-Israeli Conflict (IR/CC)
 31908: Religions of India (CC/D)
 31913: Pakistan: Islam and the Army (IR/CC/D)
 31955: Modernism in India (IR/CC/D)
 32016: Nuclear Weapons Program in Asia (IR)
 32100: Ancient Near East and Greece (IR/CC)
 32800: Europe: 1815-1914 (IR)
 32900: Twentieth Century Europe (IR/CC)
 33000: Europe Since 1945 (IR/CC)
 33300: New Nations, Slave and Free (IR/CC/D)
 34100: Africa and the Modern World (IR/CC/D)
 34900: The Third Reich (IR/CC)
- 35100: The Age of the Enlightenment (CC/IR)
 35700: History of Socialism (IR/CC/D)
 37700: Comparative Slavery (CC/IR/D)
 38200: Revolutionary Movements in Twentieth Century Latin America (IR/CC/D)
 38400: History of Philosophy and Science (CC/IR/D)
 41200: The Industrial Revolution (IR/CC/D)
- International Studies**
 31100-32000: Selected Topics in International Studies (CC/IR/D/PP)
 31207: Making of US Foreign Policy (IR)
 31218: Immigration and the European Union (CC/IR/D/PP)
 31406: Model United Nations (IR/D)
 31510: Culture, Class and Gender in Morocco (CC/D)*
 31511: The Global Role of the European Union (IR/CC)*
 31516: The African Union (IR/D)
 31618: The 911 Commission Report (IR)
- * Denotes course linked to study abroad.*
- Italian**
 45000: Culture and Civilization (CC)
- Jewish Studies**
 10411: Psychology of Religion (CC)
 28100: The Holocaust (CC/IR)
 31113: The Hollywood Jew (CC)
 31116: The Jew in European Film (CC)
 31118: Introduction to Jewish Music (CC)
 31313: Angels and Demons in Modern Literature (CC)
 31316: The Jewish Messiahs (CC)
 31402: Contemporary Israel and Palestine in Cinema (CC/IR)
 31502: Jews in Film and Fiction (CC)
 31700: Jewish Law and Ethics (CC/IR)
 31705: Jews of Latin America (CC)
 31500: Jewish Women in Literature (CC)
 32006: History of the Afterlife (CC)
- Latin American and Latino Studies**
 29100: Culture and Health (CC/D/PP)
 31120: Aztecs, Incas and Mayas (CC)
 31310: Health and Reproductive Rights (CC/D/PP)
- Media and Communications Arts**
 20200: Research and Writing in Media Studies (IR/CC)
 22100: History and Theory of Film I (CC)
- 22200: History and Theory of Film II (CC)
 32002: Cultural Reporting (CC)
 34203: International Reporting (IR/CC)
 40100: Ethics and Values in Communication (CC/IR)
 40300: Journalism, Law, Ethics and Public Interest (IR/CC/D/PP)
- Music**
 24100: Antiquity to Renaissance (CC)
 24200: Baroque and Early Classical Music (CC)
 24500: Jazz History I (CC)
 34100: Classical and Romantic Era (CC)
 34200: Romanticism to the Present (CC)
 34500: Jazz History II (CC)
- Philosophy**
 30500: History of Philosophy I (IR/CC)
 30600: History of Philosophy II (IR/CC)
 30800: Ethics (IR/CC/PP)
 30900: Social and Political Philosophy (IR/CC/PP)
 31101: Philosophy of Class and Gender (CC/D/PP)
 31112: Good and Evil in Western Thought (IR/CC)
 31113: Theory of Action (IR/CC)
 31114: Cities and Urban Life (CC/IR/D/PP)
 31404: Philosophy and Film (CC)
 31602: Mind, Soul, Self and Knowledge (CC)
 31708: War, Peace and Terrorism (IR)
 32200: Philosophy of Science (CC/IR/D/PP)
 32300: Philosophy of Mind (CC)
 32400: Philosophy of Language (CC)
 32500: Aesthetics (CC)
 32700: Philosophy of Religion (CC)
 32900: Philosophy of Civilization and History (CC/IR)
 33700: Decision Theory (IR/D/PP)
 33900: Kierkegaard, Nietzsche and Freud (CC)
 34402: Chinese Philosophy (CC/IR/D)
 34402: Asian Philosophy (CC/IR/D)
 34500: American Philosophy (CC/IR)
 34700: Contemporary Philosophy (CC/IR/PP)
 34905: Biomedical Ethics (CC/D/PP)
 34906: Environmental Ethics (IR/CC/D/PP)
 35002: Nietzsche (CC)
 35003: Hegel (IR/CC)

Political Science

- 12400: Political Ideas and Issues (IR/D/PP)
 20200: International Political Economy (IR /D/PP)
 21002: Politics and Leadership (IR/CC/D/PP)
 21700: Media and Politics (IR/CC/D/PP)
 22300: U.S. Foreign Policy (IR/D/PP)
 22500: Politics of Urban Political Development (IR/CC/D/PP)
 22900: Women and Politics (CC/IR/D/PP)
 23000: Contemporary Comparative Politics (IR/D/PP)
 23100: Political Systems of Western Europe (IR)
 23500: Introduction to the Politics of Developing Nations (IR/CC/D)
 23600: Latin American Political Systems (IR/D)
 23700: Political Systems in Asia (IR/D)
 23900: Development of Political Systems in Africa (IR/D)
 24500: Caribbean Politics (IR/D)
 25000: Contemporary International Politics (IR/D)
 25200: Theories of International Relations (IR)
 25300: International Law (IR/D/PP)
 25400: International Organizations (IR/CC/D/PP)
 25500: Model United Nations (IR)
 25600: Contemporary International Conflict (IR/CC/D)
 27400: Modern Political Thought to 1848 (IR)
 27500: Contemporary Political Thought (IR/D/PP)
 31505: Media's Influence on Policy Agenda (IR/CC/PP)
 31722: Urban Geography (IR/CC/D/PP)
 31908: World Geography (IR/CC/D)
 31919: Japanese Politics (IR/CC)
 32400: Politics of Protest (IR/CC/D/PP)
 35500: Environmental Politics (IR/CC/D/PP)
 37600: Marxism (IR)

Psychology

- 24700: Social Psychology (CC/D/PP)
 31209: Social Identity (CC/PP)
 31711: Immigration and Acculturation (CC/D/PP)
 31722: Cultural Psychology (CC)
 31810: Psychology of Violence (CC/IR/D/PP)
 31823: Psychology of Women and Violence (CC/D/PP)

- 33300: Enculturation, Immigration and Acculturation (CC/D/PP)

Sociology

- 23700: Sociological Theory (CC/PP)
 25100: Urban Sociology (CC/IR/D/PP)
 26000: Social Change (CC/D/PP)
 27400: Urban Policy, Social and Political (CC/IR/D/PP)
 29000: Immigration (CC/D/PP)
 31409: Societies of Modern Africa (CC/IR/D)
 31610: Race and Ethnicity in International Perspective (CC/D/PP)
 31627: Class, Race and Power (CC/IR/D)
 31919: Law and Society (CC/IR/PP)
 38207: Sex and Social Change (CC/PP)

Spanish

- 31115: Women Writers of Spain (CC)
 31505: Representing Spain Through Cinema (CC)
 33000: Contemporary Spain and Cinema (CC)
 35100: Spanish Literature I (CC)
 35200: Spanish Literature II (CC)
 35300: Spanish American Literature (CC/D)
 37000: History of the Spanish Language (CC)
 42100: Medieval Spanish Literature (CC)
 43200: Generation of 1898 (CC/IR/D)
 44100: Literature of Social Protest in Spanish America (CC/IR/D)
 44404: Spanish American Contemporary Novel (CC)
 44600: Literature of the Spanish Caribbean (CC/D)
 45100: Spanish Civilization (CC)
 45201: Spanish American Civilization I (CC)
 45202: Spanish American Civilization II (CC)
 46301: Spanish in Contact Worldwide (CC/D)

Women's Studies

- 31212: Seminar in Feminist Theory (CC/IR/D/PP)
 31313: Women in Science (CC/PP)

ADVISEMENT**Program Director**

Professor Marina Fernando

PROGRAM RESOURCES

All IS majors receive individual advising from the Program Director each semester prior to registration and as opportunities develop for participation in study abroad, national seminars, fellowships and scholarships.

International Studies Majors are eligible for fellowships administered by the Program to support study abroad.

The Rosenberg/Humphrey Program, which offers specific courses in public policy, provides financial support and internship opportunities in New York and Washington, D.C. to deserving students, including IS majors.

The Model United Nations Program is popular among IS majors who constitute the majority of its participants; students also participate in other Model United Nations simulations.

The Students Association of International Studies (SAIS), run by students in the Program (but open to non-majors as well), organizes guest lectures, international crisis simulations, cultural fairs, publishes an electronic newsletter, and offers opportunities for leadership among students. When time permits, IS majors are provided training in cross-cultural mediation; this is a valuable skill which prepares them for the challenges they will encounter in their careers.

NA 6/293 is also a lounge for IS majors where they may meet or leave messages for their friends or study.

AWARDS, MEDALS AND PRIZES

The Ward Medal for Excellence and Distinguished Service

The Nizar Ahmed Prize for Excellence in International Relations

The Thomas Karis Prize for Research in International Studies

The June Nash Prize for Excellence in Cultural Studies

COURSE DESCRIPTIONS

INTRODUCTORY SURVEY COURSE

INTL 20100: International Studies: A Global Perspective

Global problems, including the danger of war, imbalances in the international political economy, and the importance of Africa, Asia, and Latin America are examined. Competing world views are evaluated in light of key concepts, e.g., state power, race, ethnicity, class, imperialism and revolution, and are developed through case studies. The future of world order as well as alternative strategies for global transformation are considered. Prereq.: World Civilizations and two courses in social science. Normally taken in the sophomore year. (W) 3 hrs./wk.; 3 cr.

INTERMEDIATE COURSES

PSC 20200: Comparative Political Economy

An examination of the relationship between political and economic systems in selected industrialized and developing countries. Introduction to theories of political economy as they apply at the domestic and international levels. Preparation for advanced courses dealing with applications of such theories in particular problem or area settings. Prereq.: International Studies 20100 or Political Science 12200. (W) 3 hr./wk.; 3 cr.

INTL 30500: Social Foundations of International Studies

The focus of this course is the cultural interaction among diverse groups in the world. Intercultural relations are examined through key themes such as religion and value systems, racial and ethnic relations, cultural identity, women's experience in different cultural settings, intercultural communication and forms of contemporary artistic expression. Students seeking a concentration in Culture and Communication, Comparative Civilizations, Area Studies and Education may substitute this course for the core course 20200: Comparative Political Economy. Prereq.: International Studies 20100. (W) 3 hrs./wk.; 3 cr.

ADVANCED COURSES

INTL 25100-25200: Internship in International Studies

Service as an intern engaged in research and other independent work in governmental or non-governmental organizations concerned with international affairs. Students will write an analytical term paper on a topic related to their internship. A second semester internship may be taken as an

elective. Students may also work as interns during the summer for 3 or 6 credits with faculty supervision. Prereq.: approval of the instructor. HTBA; 3 cr.

INTL 30100: Honors Senior Seminar

Review and analysis of secondary literature to prepare students for thesis writing. Prereq.: GPA of 3.5 and approval of instructor. 3hr./wk.; 3 cr.

INTL 30200: Honors Senior Thesis

Preparation and writing of Honors Senior Thesis. Prereq.: Honors Senior Seminar. 3 hr./wk.; 3 cr.

INTL 32100: Senior Seminar in International Studies

This seminar has two purposes. First, it is the capstone of the International Studies major. It brings to bear on one or more major international or global problems the approaches and insights of the several disciplines that comprise the major. Second, students will also begin the preparation of their senior thesis under the supervision of the instructor and, in some cases, a faculty mentor with particular expertise in the student's area of inquiry. Prereq.: senior standing, completion of English 21002 and quantitative skills courses; approval of the instructor and the Program Director. (W) 3 hr./wk.; 3 cr.

INTL 32200: Senior Essay in International Studies

An essay dealing with an international or global problem or issue that demonstrates breadth of background, skill in research and critical evaluation of relevant literature. Normally the work on the essay will extend over two semesters, beginning in the fall semester of the senior year with International Studies 32100. Prereq.: senior standing, completion of writing course and English proficiency requirements, and approval of the Program Director. (W) Independent work; 3 cr.

INTL 32400: Public Policy Portfolio

Prereq.: Senior Seminar in International Studies. 3 hr./wk.; 3 cr.

FACULTY

The faculty of the program includes those professors who teach the program's courses and those whose departmental courses may be credited to the major.

EXECUTIVE COMMITTEE

Professor Marina Fernando (Sociology)

Professor Vincent Boudreau (Political Science)

Professor Chudi Uwazurike (Sociology)

Professor Maritsa Poros (Sociology)

Professor James Biles (Sociology)

Jewish Studies Program

(DIVISION OF HUMANITIES AND THE ARTS)

Professor Roy Mittelman, Director • Program Office: NA 5/202 • Tel: 212-650-7522

GENERAL INFORMATION

The City College offers the following undergraduate degree in Area Studies:

B.A.

PROGRAMS AND OBJECTIVES

Jewish Studies offers a wide range of courses that examine the literature of the Jews, their history, philosophy, mysticism, sociology, and nationalism. The Program in Jewish Studies is developing a series of courses to explore the links of American Jews to other ethnic minorities and speak to the vitality of Jewish culture from antiquity to the present. In cooperation with other departments in Humanities and the Arts, Jewish Studies courses, seminars and lectures will speak to the role of minority cultures in shaping and reacting to national identity. A major concern of Jewish Studies is the study of ethics in society, art and literature. In particular, Jewish Studies will address the philosophical, political and religious questions posed by racism and genocide in present and past centuries.

For the past few years, Jewish Studies has offered a number of new classes in the 30000 series, cross listing them with the Departments of English, History and Comparative Literature. These courses are not reflected in the present catalogue, but they have included such offerings as American Jewish Writers, the Bible, the Bible and its Stories, Biblical Myth in the Modern Novel, the History and Psychology of Religion, Kabbalah, the Arab-Israeli Conflict, the Modern Middle East, Confessional Urban Literature, Ethnic and Religious Minorities, Theory and Practice of

Genocide in the Twentieth Century, and History of the Afterlife.

The Program coordinates a study abroad program for undergraduates and graduates at Tel Aviv University and Ben Gurion University. Financial assistance is available to qualified students.

REQUIREMENTS FOR MAJORS

Students are urged to acquire an elementary knowledge of Hebrew. It is not a requirement of the program but study of the language makes it possible to do independent scholarly research. Although there are presently no course offerings in the study of the Yiddish language, tutorials can be arranged for those interested.

Students majoring in Jewish Studies must complete the following:

Required Courses

| | |
|---|---|
| Jewish Studies: | |
| 10000: Introduction to Jewish Life and Religion | 3 |
| 12100: Elementary Hebrew | 3 |

Elective Courses

All courses to be chosen in consultation with the program advisor

24

Total Credits

30

Recent faculty in Jewish Studies have included Elie Wiesel, Rabbi Irving Greenberg, H. Z. Szubin, Rabbi Meyer Fund, and Paul Ritterband. Distinguished Jewish writers like Harold Brodkey, Cynthia Ozick, Grace Paley, Jakov Lind, Joseph Heller and Barbara Solomon have also taught in Humanities and the Arts Division on the City College campus.

ADDITIONAL REQUIREMENTS

In addition to major requirements, all Area Studies majors must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) or Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)
2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

REQUIREMENTS FOR MINORS

Students who choose to minor in Jewish Studies must complete the following:

Required Courses

| | |
|---|---|
| Jewish Studies | |
| 10000: Introduction to Jewish Life and Religion | 3 |

Elective Courses

12

Students must select four electives that the Director approves as Jewish Studies courses.

Total Credits

15

ADVISEMENT

Students wishing to major in Jewish Studies should consult Professor Roy Mittelman; NA 5/202; 212-650-7522

COURSE DESCRIPTIONS

10000: Introduction to Jewish Life and Religion

The traditional life and religion of the Jews and the ways that they have changed during the modern period. The ideals of Jewish religion; the nature of man, creation, revelation and redemption. The pattern of life in the premodern and modern worlds in relation to changes in the values held by Jews. 3 hr./wk.; 3 cr.

11100: Jewish History: An Introduction

The Exodus, Sinai Covenants, and the Biblical world; exile and restoration; the destruction of the Temple; the rabbinical social order; the medieval synthesis and the medieval ghetto; the impact of emancipation and modernization; the Holocaust and the nation of Israel. 3 hr./wk.; 3 cr.

15500: Hasidism: Selected Texts

The origins of Hasidism; its masters, known and unknown; their lives, their thoughts, their mysteries. 3 hr./wk.; 3 cr.

21100: Contemporary Israel

Society and culture in the State of Israel. Contemporary social accomplishments and problems; the conflict of national liberation and normalization; the integration of ethnic Jewish groups; creation of a mixed economy; the coexistence of religion and secularity; the relation of the State of Israel to Jews elsewhere. 3 hr./wk.; 3 cr.

24100: The Jew in Literature

The Jew as a symbolic figure and real person in the imaginative writings of the West. Particular attention will be given to contemporary American Jewish writers. Prereq.: World Humanities 10100. (W) 3 hr./wk.; 3 cr.

25100: Studies in Judaism and Christianity

The origins of Christianity and its separation from Judaism; comparative beliefs and practices; the Messiah in Judaism and Christianity; theologies and strategies of mutual relationships; medieval exclusiveness and tolerance; modern attempts at reformulating relationships; Christian teachings; anti-Semitism and the Holocaust; ecumenism and dialogue. 3 hr./wk.; 3 cr.

27100: Human Development in Classical Jewish Sources

Emergence of the physical-societal matrix of humanity; life, birth control and abortion, interpersonal communication, sexuality, parent-child relationships, friendships, rites of passage, old age, death. 3 hr./wk.; 3 cr.

27300: The Jewish Woman

The role of Jewish women in traditional and contemporary societies. The position of women within the Halacha; marriage and divorce laws; laws of family purity; wifehood and motherhood and the life cycle. The role of women in synagogue ritual, Jewish history and literature. 3 hr./wk.; 3 cr.

28100: The Holocaust

Nazism's rise to power; the process of destruction; human and psychological aspects of the destruction process; Jewish life under the Nazis; the problem of resistance; Jewish and world response; moral, literary and religious reflections of the Holocaust. 3 hr./wk.; 3 cr.

32100: The Modernization of Judaism

The shift from traditional Judaism; the rise of modern Orthodox, Conservative and Reform Judaism; the triumph of modernization in values, theology and practice; Reconstructionism, the impact of the Twentieth Century, and the critique of modernism; postmodern religious trends. (W) 3 hr./wk.; 3 cr.

30100-30300: Honors I-III

Approval of Dean and program required. Apply not later than December 10 in the Fall term or May 1 in the Spring term. (W) Variable cr., usually 3 cr./sem.

31000: Independent Study

Research on topics not covered by regular Departmental offerings, by individual arrangement with the instructor and with program permission. 1-4 cr.

31100-32000: Selected Topics in Jewish Studies

From semester to semester the Department offers elective courses not listed in the bulletin. Topics to be covered and names of instructors will be announced during the preceding semester. (W)

Elective Courses in Other Departments

The following courses are regularly offered through various departments throughout the College that are approved Jewish Studies elective courses. For a full description, see the appropriate Departmental listing in this *Bulletin* or on the web at www.ccnycuny.edu.

English

38030: The Bible as Literature I
38040: The Bible as Literature II

Foreign Languages and Literature

12100: Elementary Hebrew I
12200: Elementary Hebrew II

History

34800: The Theory and Practice of Genocide in the 20th Century
34900: The Third Reich
35000: Conservatism and the New Right in Europe since the French Revolution
37700: Comparative Slavery
41900: Jewish History: Late, Medieval and Modern

Philosophy

32700: Philosophy of Religion

Political Science

35700: International Relations in the Middle East
37700: Judeo-Christian Political Thought

FACULTY

The faculty of the program includes those professors who teach the program's courses and those whose departmental courses may be credited to the major.

PROFESSOR EMERITUS

Nathan Suskind

Latin American and Latino Studies Program

(DIVISION OF SOCIAL SCIENCE)

Professor Sherrie Bayer, Acting Director • Program Office: NA 6/108 • Tel: 212-650-6763

GENERAL INFORMATION

The City College offers the following undergraduate degree in Area Studies:

B.A.

PROGRAMS AND OBJECTIVES

Students examine the culture, economics, politics, history, society and other crucial life experiences of the peoples of Latin America and their diaspora in the United States. Students also receive the necessary skills to obtain employment or enter graduate schools to pursue advanced degrees in anthropology, economics, history, political science, sociology, ethnic studies, international studies, law and international law, Latin American studies, social work, bilingual education, health and other disciplines.

To permit students to complement their education in other majors with a knowledge of Latin America and the Latino communities of the U.S., the program also offers a minor in Latin American and Latino Studies. The following list of courses should be viewed as a helpful guide but not the only courses offered each semester that are relevant for Latin American and Latino Studies. Students majoring or minoring in LALS should consult with the Program Director and the Schedule of Classes each semester.

REQUIREMENTS FOR MAJORS

Students must complete the following:

Required Courses

| | |
|--|---|
| 10200: Latin American and Caribbean Civilizations | 3 |
| 31000: Independent Study in Latin America and Latino Studies | 4 |

Electives

At least eight additional courses chosen in consultation and with the approval of the program advisor

Total Credits 31

While students may choose to have a disciplinary concentration within LALS, no more than four courses in any particular discipline (e.g., Anthropology, History, etc.) may be credited toward that concentration.

ADDITIONAL REQUIREMENTS

In addition to major requirements, all Area Studies majors must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) *or* Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)
2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

REQUIREMENTS FOR MINORS

Students wishing to complement their learning in other majors with a knowledge of Latin America and the Latino community in the U.S. may minor in LALS.

| | |
|--|-----------|
| One introductory Latin American History/civilization/heritage course | 3 |
| Four electives | 12 |
| Total Credits for the Minor | 15 |

ELECTIVES

Anthropology

- 24200: Peoples of the Caribbean (3 cr.)
24300: Peoples of Latin America (3 cr.)

Art

- 21043: Ancient Art of Mesoamerica, the Andes, and the Caribbean (3 cr.)
30130: Modern Art in Latin America (3 cr.)
31032: Contemporary Art in Latin America (3 cr.)

Black Studies

- 10200: African Heritage and the Caribbean-Brazilian Experience (3 cr.)
21300: Brazilian and Afro-Latin American Area Studies (3 cr.)

English

- 36300: Latino Literature in the U.S. (3 cr.)

History

- 28100: Colonial Latin America (3 cr.)
28200: Modern and Contemporary Latin America (3 cr.)
38100: Modern Brazil (3 cr.)
38200: Latin America: A Comparative Study of Twentieth Century Revolutionary Movements (3 cr.)

Latin American and Hispanic Caribbean Studies

- 10100: The Heritage of the Spanish Antilles (3 cr.)
10200: Latin American and Hispanic Caribbean Civilizations (3 cr.)
12200: Puerto Rican Heritage: 1898 to Present (3 cr.)
12300: Dominican Heritage (3 cr.)

- 12600: Hispanics in the United States: Migration and Adjustment (3 cr.) (W)
 13100: The Hispanic Child in the Urban Environment (3 cr.) (W)
 13200: The Contemporary Hispanic Family (3 cr.) (W)
 22600: Antillean Literature (3 cr.)
 23800: Dominican Republic: Trujillo to Present (3 cr.)
 27100: Social Welfare in the Hispanic Community (3 cr.)
 29100: Culture and Health: The Hispanic and Other Minorities (3 cr.) (W)
 29200: Health Care Planning and the Hispanic Experience (3 cr.) (W)

Music

- 27104: Latin Popular Music (3 cr.)
 27402: Latin American and Caribbean Folk Music (3 cr.)

Political Science

- 23600: Latin American Political Systems (3 cr.)
 24500: Caribbean Politics (3 cr.)
 35700: International Relations in Selected Areas: Latin America (3 cr.)
 35500: Environmental Politics: Comparative and Global Perspectives (3 cr.)

Spanish and Portuguese

- 28300: Masterworks of Latin American Literature (3 cr.)
 31000: Independent Studies in Spanish American Literature (1-4 cr.)
 33100: Representations of Latin America Through its Cinema (3cr.)
 35300: Studies in Spanish American Literature (3 cr.)
 35400: Dominican Literature and Culture (3 cr.)
 43600: Spanish American Colonial Literature (3 cr.)
 43800: Spanish American Literature of the 19th Century (3 cr.)
 44100: The Literatures of Social Protest in Spanish America (3 cr.)
 44200: The Spanish American Essay (3 cr.)
 44400: Studies in Contemporary Spanish American Literature (3 cr.)
 44402: Contemporary Spanish American Poetry and Theater (3cr.)
 44403: Contemporary Spanish American Short Story (3 cr.)
 44404: The Spanish American Contemporary Novel (3cr.)

- 44600: Literature of the Spanish Caribbean (3 cr.)
 45200: Topics in Spanish American Civilization (3 cr.)
 45400: Latino Culture and Literature in the U.S.

COURSE DESCRIPTIONS

INTRODUCTORY ELECTIVES

10100: The Heritage of the Spanish Antilles

The historical, cultural and ethnic forces that have shaped the character of the Hispanic people of the Caribbean. The variety of societies and cultures of the Hispanic Caribbean in their historical and contemporary setting up to and including the migration of Caribbean people to urban North America. 3 hr./wk.; 3 cr.

10200: Latin American and Caribbean Civilizations

A survey of Latin America's economic, social, political, and cultural development from the Pre-Columbian era to the present. The course will focus on selected topics and themes including: colonization and resistance to colonization; the formation of social structures and labor systems; patterns of dependent development; reform, revolution, and counter-revolution. 3 hr./wk.; 3 cr.

12200: Puerto Rican Heritage: 1898 to Present

A survey of the cultural history of Puerto Rico. Special attention will be given to cultural conflicts and assimilative influences, as well as the existing relations between Puerto Rico and the United States. 3 hr./wk.; 3 cr.

12300: Dominican Heritage

A survey of the cultural development of the Dominican Republic from pre-Columbian times to the present. Special consideration will be given to socio-economic and political developments and the relationship that exists between the Dominican Republic and the United States. 3 hr./wk.; 3 cr.

ADVANCED ELECTIVES

12600: Hispanics in the United States: Migration and Adjustment

The socioeconomic and political origins of migration and the impact that American society has had on mainland Hispanic communities in areas of housing, employment, education, family structure, social mobility, and community development. 3 hr./wk.; 3 cr.

13100: The Hispanic Child in the Urban Environment

A survey of the sociological, psychological and educational needs of Hispanic children in the New York City public schools. Emphasis will be given to the study of language problems, family structure, race relations and community life. (W) 3 hr./wk.; 3 cr.

13200: The Contemporary Hispanic Family

A study of change in Hispanic family structure from the early colonial period to the present day. Stress will be placed on moral values, religious beliefs, interpersonal relations, and family organization. 3 hr./wk.; 3 cr.

22600: Antillean Literature

Comparative study of literature in the Spanish Antilles. Special emphasis on contemporary works. Class conducted in Spanish. 3 hr./wk.; 3 cr.

23800: Dominican Heritage: From Trujillo to the Present

An in-depth study of the sociocultural and historical realities of the Dominican Republic from 1930 to the present. The course will also cover the Dominican migration and the growth of the Dominican community in the United States. 3 hr./wk.; 3 cr.

27100: Social Welfare in the Hispanic Community

A study of the social welfare system as it affects Hispanics and other minorities. Changing concepts of social welfare in the United States, Spain and Latin America from Juan Luis Vives to the present. (W) 3 hr./wk.; 3 cr.

29100: Culture and Health: Hispanics and Other Minorities

Different cultural values and beliefs will be examined as they relate to illness, treatment of the sick, readjustment, rehabilitation, health maintenance, and prevention. Emphasis on case studies of culture clash. Incorporating or rejecting cultural beliefs in planning health education and change. (W) 3 hr./wk.; 3 cr.

29200: Health Care Planning and the Hispanic Experience

The economic, social, political and ethical issues involved in planning health programs. Comparison of health care programs as they affect Hispanics and other minorities. (W) 3 hr./wk.; 3 cr.

30100-30400: Honors

Advanced independent work for outstanding majors in their upper junior and senior years. Honors will be granted to graduating seniors on the basis of research and a comprehensive written examination.

Admission to the Honors course requires (a) a 3.2 average in courses taken in the Latin American and Hispanic Caribbean Studies Program since the freshman year and (b) approval of the Honors Supervisor. Application for admission must be made no later than December 10 in the Fall term and May 1 in the Spring term. Variable cr.

31000: Independent Studies

Independent research under the supervision of LALS faculty. Open to students in their senior year only, or with permission of LALS advisor. Hrs. to be arranged; 1-4 cr.

31100-32000: Selected Topics

Advanced study in selected topics related to Latin American and Hispanic Caribbean Studies. Prereq.: to be established by the instructors. 3 hr./wk.; 3 cr.

FACULTY

The faculty of the program includes those professors who teach the program's courses and those whose departmental courses may be credited to the major.

PROFESSOR EMERITUS

Federico Aquino-Bermudez

Department of Mathematics

(DIVISION OF SCIENCE)

Professor Ethan Akin, Chair • Department Office: NA 8/133 • Tel: 212-650-5346

GENERAL INFORMATION

The City College offers the following undergraduate and combined degrees in Mathematics:

B.A.

B.S.

B.A./M.A. (Combined Degree)

PROGRAMS AND OBJECTIVES

The Mathematics Department offers programs of study that enable students to prepare for graduate study in pure and applied mathematics, and careers in industry and education. Majors may choose to specialize in one of the following areas:

- Pure Mathematics
- Applied Mathematics
- Secondary School Education

Students enrolled in major programs in other departments can obtain a Minor in Mathematics by completing the requirements listed below.

HONORS

Students planning to attend graduate school in mathematics are urged to apply for admission to the department Honors Program, which may lead to a degree with honors. Candidates should see the departmental Honors Advisor no later than the beginning of their junior year to plan a program of study.

REQUIREMENTS FOR MAJORS

All Mathematics majors must make a 10-minute oral presentation of a mathematical topic and receive a passing grade based on a faculty evaluation.

Pure Mathematics (B.A. or B.S.)

In addition to completing the calculus sequence (20100, 20200 and 20300),

students must complete a minimum of eight courses of mathematics including the following:

Required Courses

Mathematics:

| | |
|-----------------------------------|---|
| 30800: Bridge to Advanced Math | 3 |
| 32300: Advanced Calculus I | 4 |
| 32404: Advanced Calculus II | 4 |
| 34600: Elements of Linear Algebra | 3 |

One of the following:

| | |
|---|---|
| 34700: Elements of Modern Algebra (4 cr.) | 4 |
| 44900: Introduction to Modern Algebra (4 cr.) | 4 |

Elective Courses

Students must choose three additional courses to complete the eight course minimum requirement from among the following: 9-12

Mathematics:

| | |
|--|--|
| 32800: Methods of Numerical Analysis (3 cr.) | |
| 34500: Theory of Numbers (3 cr.) | |
| 36000: Introduction to Modern Geometry (3 cr.) | |
| 36500: Elements of Combinatorics (4 cr.) | |
| 37500: Elements of Probability Theory (3 cr.) | |
| 37600: Mathematical Statistics (4 cr.) | |
| 39100: Methods of Differential Equations (3 cr.) | |
| 43200: Theory of Functions of a Complex Variable I (4 cr.) | |
| 43400: Theory of Functions of a Real Variable I (4 cr.) | |
| 43500: Partial Differential Equations I (4 cr.) | |
| 44300: Set Theory (4 cr.) | |
| 44400: Mathematical Logic (4 cr.) | |
| 46100: Differential Geometry (4 cr.) | |
| 46300: Topology I (4 cr.) | |
| 47700: Stochastic Processes I (4 cr.) | |
| 47800: Advanced Mathematical Statistics (4 cr.) | |
| 51100: Selected Topics in Pure Mathematics (4 cr.) | |

51200: Selected Topics in Classical Analysis (4 cr.)

51300: Selected Topics in Probability and Statistics (4 cr.)

Total Credits for Concentration 27-30

Additional Requirements

Students are also required to fulfill a minor concentration of two advanced courses with mathematical content from an allied discipline (e.g., Physical Sciences, Computer Science, Philosophy, Economics or Engineering) to be approved by the Assistant Chair.

Applied Mathematics (B.S.)

In addition to the Calculus sequence 20100, 20200, 20300, students must complete eight required courses plus one of the specialization options.

Required courses

Mathematics:

| | |
|---|---|
| 34600: Elements of Linear Algebra | 3 |
| 36500: Elements of Combinatorics | 4 |
| 36600: Introduction to Applied Mathematical Computation | 2 |
| 37500: Elements of Probability Theory | 3 |
| 37600: Mathematical Statistics | 4 |
| 37700: Applied Statistics and Probability | 2 |
| 39100: Methods of Differential Equations | 3 |
| 46700: Mathematical Modeling | 3 |

Option 1: Statistics

Mathematics:

| | |
|---|---|
| 47800: Advanced Mathematical Statistics | 4 |
|---|---|

Option 2: Financial Mathematics

Mathematics:

| | |
|--|---|
| 38100: Discrete Time Models in Financial Mathematics | 3 |
| 38200: Continuous Time Models in Financial Mathematics | 3 |

Total credits for Concentration 28-30

Secondary School Education (B.A. or B.S.)

In addition to completing the calculus sequence (20100, 20200 and 20300), students must complete the major requirements listed below. All Secondary Mathematics majors must take and pass the New York Content Specialty test before graduation. Pedagogical requirements for NYS certification are listed in the School of Education section of this *Bulletin*.

Required Courses

Mathematics

| | |
|--|-----|
| 30800: Bridge to Advanced Mathematics | 3 |
| 32300: Advanced Calculus I | 4 |
| 34500: Theory of Numbers | 3 |
| 34600: Elements of Linear Algebra | 3 |
| 36000: Introduction to Modern Geometry | 3 |
| 37500: Elements of Probability Theory | 3 |
| One of the following two: | 4 |
| 34700: Elements of Modern Algebra (4 cr.) | |
| 44900: Introduction to Modern Algebra(4 cr.) | |
| Two of the following: | 6-8 |
| 32404: Advanced Calculus II (4 cr.) | |
| 32800: Methods of Numerical Analysis (3 cr.) | |
| 34200: History of Mathematics (3 cr.) | |
| 36500: Elements of Combinatorics (4 cr.) | |
| 37600: Mathematical Statistics (4 cr.) | |
| 38100: Discrete Models of Financial Mathematics (3 cr.) | |
| 38200: Continuous Time Models in Financial Mathematics (3 cr.) | |

Total credits for Concentration 29-31

ADDITIONAL REQUIREMENTS

In addition to major requirements, B.A. in Mathematics majors must complete the following:
For the B.A. degree:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) *or* Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum

requirement (for students who entered before Fall 2007)

2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

In addition to major requirements, all B.S. in Mathematics majors must complete the following:

1. General Education Requirement including FIQWS, Calculus, Perspective and In-depth requirements (for students who entered after Fall 2008) *or* Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2008)
2. English 21003
3. Foreign Language Requirement
4. CPE Examination
5. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

B.A./M.A. PROGRAM

See advisor for requirements.

REQUIREMENTS FOR THE MINOR

Students enrolled in major programs in other departments can also obtain a minor in Mathematics by completing the following requirements:
Required courses

- I. A calculus sequence through Math 20300
- II. A total of twelve credits at the City College in 30000-level courses (excluding 30500), which includes one of the following:
 - 34600: Elements of Linear Algebra (3 cr.)
 - 39200: Linear Algebra and Vector Analysis for Engineers (3 cr.)

Electives for Non-Majors

Students wishing to take courses beyond 20300 are advised to consult with the Assistant Chair on the selection of appropriate courses.

ADVISEMENT**Assistant Chair, Majors Advisor**

Professor Joseph Bak
NA 8/133; 212-650-5175

Mr. Chun Sae Park

NA 8/133; 212-650-5105

Graduate Advisor

Professor Sean Cleary
NA 6/274; 212-650-5122

Honors Advisor

Professor Niel Shell
NA 6/294C; 212-650-5116

Math Computer Laboratories Supervisor and Placement Advisor

Mr. Mark Turner
NA 6/272; 212-650-5229

TUTORING

The Mathematics Help Desk (MR 418S) offers free tutoring in courses from the elementary level through calculus and differential equations.

EXEMPTION CREDIT

Students can earn exemption credit in any Mathematics course by taking an exemption examination arranged by the Assistant Chair's office. Exemption from the course is awarded for a grade of 70 or above; credit is granted for a grade of 80 or above. Students who have registered for a course or who have previously failed an exemption examination in a course may not take an exemption examination for that course. The Mathematics Department awards credit for the College Board Advanced Placement Examinations according to the following:

AP Calculus (AB) score 4 or 5; credit for Math 20100 or 20500

AP Calculus (BC) score 4 or 5; credit for Math 20100 and 20200 or 20500

AP Calculus (BC) score 3; credit for Math 20100 or 20500

AP Statistics; score of 3 or higher; credit for Math 17300

DEPARTMENTAL ACTIVITIES

The Mathematics Club is open to mathematics majors as well as other student mathematical enthusiasts. The club plans and organizes lectures, discussions and social functions.

The Mathematics Colloquium meets regularly for talks by invited guests as well as Department faculty.

Various seminars meet regularly and discuss selected topics in mathematics.

AWARDS AND SCHOLARSHIPS

The Mathematics Department awards several medals, prizes and scholarships to outstanding students.

The Belden Medal

To the student or students who complete the Advanced Calculus sequence with distinction.

The Israel E. Drabkin Memorial Award

To a promising mathematics student with broad cultural interests.

The Bennington P. Gill Memorial Award

To the most promising graduating senior committed to graduate study in Mathematics.

The Emil L. Post Memorial Award

To the graduating senior or seniors judged most promising in Mathematics.

The Dr. Barnett and Jean Hollander Rich Mathematics Scholarships

Awarded annually to talented and needy undergraduates who have demonstrated superior ability in mathematics and who are preparing for careers in mathematics or math related fields.

The Harry Schwartz Fellowship

To a Mathematics Major who has shown promise in Mathematics.

In addition to the medals and prizes listed above, the Mathematics Department annually awards prizes to the students turning in the best final examinations in calculus or re-

lated courses over the preceding two semesters.

COURSE DESCRIPTIONS

INTRODUCTORY COURSES

There are two calculus sequences: Math 20100, 20200, and 20300; and Math 20500 and 20900. Entry to the above sequences is determined by the placement examination or completion of the course prerequisites.

Math 20500 and 20900 may be taken by students who do not intend to study more advanced mathematics (e.g. Biology, Economics, and Architecture majors and students in the Program for Premedical Studies). Students who seek a B.S. degree should check the requirements of their major to determine which calculus sequence is appropriate.

Math 20300 is a prerequisite for all advanced courses. After Math 20500, students may take 20200 with the permission of the Assistant Chair. Without prior approval by the Assistant Chair no credit is allowed for an introductory course if a more advanced course has previously been completed.

15000: Mathematics for the Contemporary World

Bombarded by statistics, assailed by advertisers and advocates of all persuasions, the average person needs mathematics to make sense of the world. This course aims to give students the tools needed to critically examine the quantitative issues of our times. Students will learn the basics of logical reasoning, the use of graphs and algebra to create quantitative models, and the role of statistics and probability in analyzing data. We will apply these ideas to assess the quantitative claims raised in contemporary case studies commonly discussed in the media. 3 hr./wk.; 3 cr.

17300: Introduction to Probability and Statistics

Descriptive statistics and frequency histograms; measures of location and dispersion; elementary probability; permutations and combinations; multiplication rule and conditional probability; Bayes' Theorem; independent events; random variables, expected values; applications to binomial, hypergeometric, uniform and normal distributions; the Central Limit Theorem; testing statistical hypotheses; correlation; linear regression and least squares. Prereq.: placement by the Department. Credit will be given for only one of the following courses: Math 17300, Eco 29500, Psy 21500, Soc 23100. 4 hr./wk.; 4 cr.

17700: Introduction to Biostatistics

The course is designed to provide an introduction to statistics for the biomedical researcher. Topics include: descriptive statistics, fundamentals of hypothesis testing, estimation, confidence intervals, Z-tests, t-tests, chi-squared tests, analysis of variance, linear regression, nonparametric tests, survival analysis and odds ratio. Biomedical applications and software implementation are emphasized for each topic. Prereq.: Placement by the Department. 3 lect., 1 lab. hr./wk.; 3 cr.

18000: Quantitative Reasoning

Investigation of the basis for elementary operations in concrete situations, diagrams, and symbolic representation. Understanding of, and problem-solving in, the following areas: numerical operations, ratios and percents, linear and exponential growth in situations, formulas, and graphs; rate of change; geometry of measurement; units, dimension, and scaling. Prereq.: placement by the Department. 4 hr./wk.; 3 cr.

18500: Basic Ideas in Mathematics

Problem solving, sets, operations with sets, functions, numerical systems with different bases, topics in number theory, probability and geometry. Includes writing exercises and collaborative work. This course is for potential education majors only. Prereq.: a grade of C or higher in Math 18000 or placement by the department. 4 hr./wk.; 3 cr.

19000: College Algebra and Trigonometry

Introduction to functions, rational expressions and their applications, rational exponents, conic sections, Gaussian elimination and determinants, nonlinear systems of equations, introductions to trigonometric functions. Prereq.: placement at college entry or by subsequent examination. 4 hr./wk.; 2 cr.

19500: Precalculus

Intervals, inequalities, operations on functions, inverse functions, graphing polynomial functions, intervals, inequalities, operations on functions, inverse functions, graphing polynomial functions, exponential and logarithmic functions, trigonometric functions and formulas. Prereq.: a grade of C or higher in Math 19000 or placement by the department. 4 hr./wk.; 3 cr.

20100: Calculus I

Limits, derivatives, rules of differentiation, trigonometric functions and their derivatives, differentials, graph sketching, maximum and minimum problems, related rates, conic sections, introduction to vectors. Prereq.: grade of C or higher in Math 19500 or placement by the Department. Credit will be given for only one of the

following courses: Math 20100 (part of sequence 20100, 20200, 20300) or 20500. 4 hr./wk.; 3 cr.

20200: Calculus II

Introduction to integration and areas; application to solids of revolution and work; definition of exponential and logarithmic functions; integration of trigonometric, exponential and logarithmic functions, analytical and numerical methods of integration, improper and infinite integrals, polar coordinates; parametric representation of curves. Prereq.: grade of C or higher in Math 20100 or placement by the Department. After completion of Math 20900, only 3 credits will be given for Math 20200. (Part of sequence 20100, 20200, 20300.) 4 hr./wk.; 3 cr.

20300: Calculus III

Vectors, infinite series, Taylor's theorem, solid analytic geometry, partial derivatives, multiple integrals with applications. Interpretations and calculations using *Matlab* software. Prereq.: Grade of C or higher in Math 20200 or placement by the Department. 4 lect., 1 lab hr./wk.; 4 cr.

20500: Elements of Calculus

Limits, derivatives, rules of differentiation, differentials, graph sketching, maximum and minimum problems, related rates, exponential and logarithmic functions, differential equations, anti-derivatives, area, volume, applications to economics. Prereq.: grade of C or higher in Math 19500 or placement by the Department. Credit will be given for only one of the following courses: Math 20100 or 20500. (Recommended for Architecture and Economics majors.) 4 hr./wk.; 4 cr.

20900: Elements of Calculus and Statistics

Introduction to differential equations including numerical methods; qualitative analysis of solutions; phase plane analysis for systems; biological applications; analysis of univariate and bivariate data; regression and correlation; random variables; the normal, Poisson and binomial distributions; statistical inference. A spreadsheet program such as *Excel* is used throughout the course. Prereq.: Math 20500 or placement by the Department. (Part of sequence 20500, 20900 for Biology majors.) 4 hr./wk.; 4 cr.

ADVANCED COURSES

30800: Bridge to Advanced Mathematics

This course explores the logical and foundational structures of mathematics, with an emphasis on understanding and writing proofs. Topics include set theory, logic, mathematical induction, relations and orders, functions, Cantor's theory of

countability, and development of the real number system. 3 hr./wk.; 3 cr.

32300: Advanced Calculus I

Sequences, properties of continuous functions, derivatives and differentials, functions defined by series, integrability and integrals, convergence of function sequences. Prereq.: Math 30800 or departmental permission. 4 hr./wk.; 4 cr.

32404: Advanced Calculus II

Sequences, continuity, compactness, completeness, differentiation and integration in \mathbb{R}^n , implicit and inverse function theorems, line and surface integrals, theorems of Green, Gauss and Stokes. Prereq.: Math 32300 and 34600. (Part of sequence 32300, 32404.) 4 hr./wk.; 4 cr.

32800: Methods of Numerical Analysis

Solution of equations by iteration techniques; Lagrange and Newton interpolation, Neville's method, divided differences, cubic splines; numerical integration, Romberg integration; systems of linear equations and pivoting techniques; Runge-Kutta methods for initial value problems. Prereq.: Math 34600, or 39200, and knowledge of *Matlab* or other high level programming language. Pre- or Coreq.: Math 39100. 3 hr./wk.; 3 cr.

34200: History of Mathematics

Historical development of mathematical ideas and methods in geometry, theory of numbers, algebra, and analysis. Prereq.: Math 30800. (W) 3 hr./wk.; 3 cr.

34500: Theory of Numbers

Divisibility, primes, fundamental theorem of arithmetic, congruences, number theory from an algebraic viewpoint, quadratic reciprocity, number theoretic functions, diophantine equations. Prereq.: Math 30800 or departmental permission. 3 hr./wk.; 3 cr.

34600: Elements of Linear Algebra

Vector spaces, basis and dimension, matrices, linear transformations, determinants, solution of systems of linear equations, eigenvalues, and eigenvectors. Prereq.: Math 20300; coreq.: Math 20300 and departmental permission. (After completion of Math 39200 only 2 credits will be given for Math 34600.) 3 hr./wk.; 3 cr.

34700: Elements of Modern Algebra

Sets, mappings, rings, isomorphisms, integral domains, properties of integers, fields, rational numbers, complex numbers, polynomials, groups. Prereq.: Math 30800 and 34600. With departmental permission, partial credit may be given for Math 44900 after completion of Math 34700. Recommended for prospective teachers and others who want a basic course in abstract algebra. 4 hr./wk.; 4 cr.

36000: Introduction to Modern Geometry

Logical deficiencies in Euclidean geometry, Euclid's parallel postulate, introduction to non-Euclidean geometry, the logical consistency of the non-Euclidean geometries, Hilbert's Axioms. Prereq.: Math 30800. 3 hr./wk.; 3 cr.

36500: Elements of Combinatorics

The three problems of combinatorics (existence, counting, optimization), basic counting rules, graph theory, generating functions, principles of inclusion and exclusion, pigeonhole principle, selected additional topics. Prereq.: Math 20300. 4 hr./wk.; 4 cr.

36600: Introduction to Applied Mathematical Computation

Calculus, linear algebra, elements and applications of probability theory are examined through use of *Matlab*. Topics selected from symbolic and numerical problems in analysis; matrices, linear mappings, eigenvalues and applications; queueing theory; random numbers and simulations; graphics. Prereq.: Math 34600 or 39200. 3 hr./wk.; 3 cr.

37500: Elements of Probability Theory

Permutations and combinations, conditional probability, independent events, random variables, probability distributions and densities, expectation, moments, moment generating functions, functions of random variables, Central Limit Theorem, sampling, confidence intervals. Prereq.: Math 20300. 3 hr./wk.; 3 cr.

37600: Mathematical Statistics

The gamma, chi-square, T, F, and bivariate normal distributions; Central Limit Theorem; confidence intervals and tests of hypothesis; the Neyman-Pearson Theorem; likelihood ratio test; estimation; sufficiency, unbiasedness, completeness; the Rao-Blackwell Theorem; the Rao-Cramer inequality; the method of maximum likelihood; the chi-square test; introduction to the analysis of variance and regression. Prereq.: Math 37500. 4 hr./wk.; 4 cr.

37700: Applied Statistics and Probability

Introduction to *SPSS*; Introduction to *Matlab*; modeling and construction of random variables; study of Z, chi-square, t, and F distributions; study of order statistics; determination of p-values; understanding of hypothesis testing and confidence intervals; organization of data; various descriptive statistics such as measures of variability and location; categorical variables; sampling distributions with *SPSS*; statistical inference, linear regression models; regression analysis; analysis of variance; the jackknife methodology of computer based estimation, discriminant

analysis, factor analysis, cluster analysis.. Prereq.: Math 37500. 3 hr./wk.; 3 cr.

38100: Discrete Models of Financial Mathematics

Definitions of options and exotic options on stocks, interests rates and indices; binomial trees; volatility and methods to estimate volatility; continuous models and Black-Scholes; hedging; bond models and interest rate options; spreadsheet methods and computational methods including difference methods and Monte Carlo simulations. Prereq.: Math 20200. 3 hr./wk.; 3 cr.

38200: Continuous Time Models in Financial Mathematics

Review of discrete time models and binomial trees. Cox, Ross, Rubinstein approach to the Black-Scholes model; Black-Scholes equation and option pricing formulae; Brownian motion and stochastic differential equations; Ito's calculus and Ito's lemma; stopping times; the heat equation; option pricing and the heat equation; numerical solution of parabolic partial differential equations; interest rate models; simulation and financial models. Prereq.: Math 38100 or departmental permission. 3 hr./wk.; 3 cr.

39100: Methods of Differential Equations

First order equations; higher order linear equations with constant coefficients, undetermined coefficients, variation of parameters, applications; Euler's equation, series solutions, special functions; linear systems; elementary partial differential equations and separation of variables; Fourier series. Prereq.: Math 20300. 3 hr./wk.; 3 cr.

39200: Linear Algebra and Vector Analysis for Engineers

Matrix theory, linear equations, Gauss elimination, determinants, eigenvalue problems and first order systems of ordinary differential equations, vector field theory, theorems of Green, Stokes, and Gauss. Prereq.: Math 20300. No specialization credit will be given for both Math 32404 and 39200. (After completion of Math 34600 only 2 credits will be given for Math 39200.) 3 hr./wk.; 3 cr.

39300: Introduction to Applied Fourier Analysis

Fourier series, the Fourier transform, discrete fourier analysis, wavelet analysis, multiresolution analysis, computer applications using *Matlab*. Prereq.: Math 34600 or 39200. 3 hr./wk.; 3 cr.

39500: Complex Variables for Scientists and Engineers

Algebra and geometry of complex numbers; elementary transcendental and algebraic functions and their conformal mappings; Cauchy-Riemann equations, contour

integrals, Cauchy integral formula, analyticity and power series, the residue theorem and applications. Prereq.: Math 39100. After completion of Math 43200, only 2 credits will be given for Math 39500. 3 hr./wk.; 3 cr.

43200: Theory of Functions of a Complex Variable I

Cauchy-Riemann equations, conformal mapping, elementary, entire, meromorphic, multiple-valued functions, Cauchy integral theorems, series expansion. Prereq.: Math 32500 or 32404. 4 hr./wk.; 4 cr.

43400: Theory of Functions of a Real Variable I

Lebesgue measure and integration on the real line, differentiation of real functions and the relation with integration, classical Lp spaces. Prereq.: Math 32500 or 32404. 4 hr./wk.; 4 cr.

43500: Partial Differential Equations I

First order equations, shock waves; classification and canonical forms of higher order equations, characteristics, the Cauchy problem for the wave equation: Huygens' principle; the heat equation; Laplace's equation; the Dirichlet and Neuman problems; harmonic functions; eigenvalue expansions; Green's functions. Prereq.: (Math 32500 or 32404) and Math 39100 or permission of the instructor. 4 hr./wk.; 4 cr.

44300: Set Theory

Axioms of Zermelo-Fraenkel set theory; relations, functions, equivalences and orderings; cardinal numbers and cardinal arithmetic; well-ordered sets; ordinal numbers, transfinite induction and recursion; the Axiom of Choice and the Continuum Hypothesis. Prereq.: Math 32300. 4 hr./wk.; 4 cr.

44400: Mathematical Logic

The propositional calculus, the sentential calculus, normal forms, first order theories, consistency, categoricity, decidability, Godel's incompleteness theorem, the Loewenheim-Skolem theorem. Prereq.: Math 32300 and (Math 34700 or 44900). 4 hr./wk.; 4 cr.

44900: Introduction to Modern Algebra

Groups, rings, fields. Prereq.: Math 32300 and 34600. With departmental permission, partial credit may be given for Math 44900 after completion of Math 34700. 4 hr./wk.; 4 cr.

46100: Differential Geometry

The theory of curves and surfaces in three-dimensional space: frames, fundamental forms, geodesics; curvature of surfaces; surface area; surfaces with boundary, the Gauss-Bonnet Theorem; introduction to

Riemannian metrics. Prereq.: Math 32500 or 32404. 4 hr./wk.; 4 cr.

46300: Topology I

A course in general topology. Sets of points on the real line and in general abstract spaces, relations between sets of points and between a set and the space containing it, operations with sets, open sets, countability, compactness, connectedness, maps, continuity, metric spaces, general topological spaces. Prereq.: Math 32500 or 32404. 4 hr./wk.; 4 cr.

46700: Mathematical Modeling

Problems from industry, mathematical models, process of mathematical abstraction, problem-solving techniques, application of solutions. Prereq.: Math 34600, 36600, 37500, 39100. 3 hr./wk.; 3 cr.

47700: Stochastic Processes I

Special topics in probability such as stochastic processes, Markov chains. Prereq.: Math 32300, 34600, and 37500. 4 hr./wk.; 4 cr.

47800: Advanced Mathematical Statistics

The multivariate normal distribution, multiple and partial correlation, regression and least squares, the analysis of variance. Prereq.: Math 32300, 34600 and 37600. 4 hr./wk.; 4 cr.

51100: Selected Topics in Pure Mathematics

Topics to be chosen from the areas of algebra, analysis, topology, geometry, and logic. Prereq.: to be determined by the instructor. 3 hr./wk.; 4 cr.

51200: Selected Topics in Classical Analysis

Topics to be chosen from applied mathematics and related fields. Typical subjects are: asymptotic methods, wave propagation, mathematical biology. Prereq.: Math 34600, 39100, and 32500, and other requirements to be determined by the instructor. 3 hr./wk.; 4 cr.

51300: Selected Topics in Probability, Statistics, and Operations Research

Topics to be chosen from the areas of probability, statistics, game theory, combinatorial analysis, etc. Prereq.: to be determined by the instructor. 3 hr./wk.; 4 cr.

HONORS AND SPECIAL COURSES

30100-30400: Honors I-IV

Approval of Department Honors Advisor required. Credit flexible but usually 3 credits per term.

31000: Independent Study

A program of independent study under the direction of a member of the Department with the approval of the Assistant Chair. Credit may be from 1-4 credits, as determined before registration by the instructor with the approval of the Assistant Chair.

31100-32000: Selected Topics in Mathematics

Topics not covered in the usual department offerings. Topics vary from semester to semester, depending on student and instructor interest. Prerequisites as determined by the instructor. Credits and hours will be determined by the instructor and the department, with a maximum of 4 credits per course.

GRADUATE COURSES OPEN TO UNDERGRADUATES

Qualified students may take, with departmental approval, any course available in the master's program in Mathematics or the first year of the doctoral program in Mathematics. These courses are described in the appropriate catalogs.

FACULTY**Ethan Akin, Professor and Chair**

B.S., CCNY; Ph.D., Princeton Univ.

Matthew Auth, Lecturer

B.A., Brandeis Univ.; Ph.D., Univ. of Massachusetts

Joseph Bak, Associate Professor

B.A., Yeshiva Univ., M.A., Ph.D.

Peter Brinkmann, Assistant Professor

M.Sc., Univ. of Tennessee; Ph.D., Univ. of Utah

Mark Brown, Professor

B.S., CCNY, M.S.; Ph.D., Stanford Univ.

Gautam Chinta, Assistant Professor

B.S., Yale Univ.; Ph.D., Columbia Univ.

Sean Cleary, Professor

A.B., Cornell Univ.; Ph.D., Univ. of California (Los Angeles)

Edward Grossman, Professor

A.B., New York Univ., Ph.D.

W. Patrick Hooper, Assistant Professor

B.S., Univ. of Maryland (College Park), M.A.; Ph.D., SUNY (Stony Brook)

Jay Jorgenson, Professor

B.S., Univ. of Minnesota; M.S., Stanford Univ., Ph.D.

Ralph D. Kopperman, Professor

A.B., Columbia Univ.; Ph.D., M.I.T.

Andrea Marchése, Lecturer

B.A., Pace University; M.A., SUNY (Stony Brook), M.S., Ph.D.

Michael Marcus, Professor

B.S., Princeton Univ.; M.S., M.I.T., Ph.D.

Stanley Ocken, Professor

A.B., Columbia Univ.; M.A. Princeton Univ., Ph.D.

Chun Sae Park, Lecturer

B.S., CCNY, M.A.

Thea Pignataro, Associate Professor

B.S., Polytechnic Inst. of New York; M.A., Princeton Univ., Ph.D.

Rochelle Ring, Associate Professor

B.S., CCNY; M.S., New York Univ., Ph.D.

Bianca Santoro, Assistant Professor

B.S., Pontificia Universidade Católica do Rio de Janeiro, M.S.; Ph.D., M.I.T.

Niel Shell, Professor

B.S., Polytechnic Inst. of New York, M.S., Ph.D.

Vladimir Shpilrain, Professor

M.A., Moscow State Univ., Ph.D.

PROFESSORS EMERITI**Harry W. Appelgate**

Sherburne F. Barber

Jacob Barshay

Isaac Chavel

Harvey Cohn

Morton Davis

Michael Engber

Jacob Eli Goodman

Alberto Guzman

Raymond Hoobler

Karel Hrbacek

John Landolfi

Jonah Mann

John Miller

Bernard Sohmer

William Sit

Fred Supnick

Norman Wagner

Department of Media and Communication Arts

(DIVISION OF HUMANITIES AND THE ARTS)

Professor Andrea Weiss, Chair • Department Office: SH 472 • Tel: 212-650-7167

GENERAL INFORMATION

The City College offers the following undergraduate degrees in Media and Communication Arts:

B.A. in Communications

B.F.A. in Film and Video

PROGRAMS AND OBJECTIVES

Established in 1984, the Department of Media and Communication Arts combines history, theory, and critical analysis of the media with hands-on practical experience. This liberal-arts based, professionally-oriented department offers a broad education in media studies and writing and research in media studies with concentrations in the following:

Advertising and Public Relations (B.A.)

Film and Video Production (B.F.A.)

Journalism (Minor)

ADVERTISING AND PUBLIC RELATIONS

The Advertising/Public Relations program offers a competitive professional communications education. Students must apply to be accepted to this major. In addition to providing a rigorous curriculum which explores current theories in integrated marketing, advertising, corporate communications, public relations, and communications management, the Ad/PR Program is dedicated to delivering the sort of practical knowledge and hands-on experiences which students can only get by studying in New York City, the communications capital of the world.

Students are introduced to the techniques of writing and producing campaigns that market an idea, service, product or institution to specific

audiences and stakeholders. Emphasis is on market research and measurement, strategic planning, and ethical execution of advertising and public relations campaigns through print, broadcast, internet and social media.

While students have hands-on experience in creating their own advertising and public relations campaigns, research, writing, critical analysis skills and presentation skills are strongly emphasized in all classes.

In the senior workshop, students create an integrated communication campaign for an actual client and graduate with a professional portfolio of their work in advertising and public relations.

The Department strongly encourages its majors to apply for one or two internships, particularly in the senior year. Developed specifically for Media and Communication Arts majors, the internship program places students in a wide variety of well-known and respected agencies, firms and corporations. Students can receive up to six credits for their internship experiences.

The Department hosts student member chapters of the American Advertising Federation (AAF) and Public Relations Society of America (PRSSA). We receive scholarships and fellowships annually from professional organizations.

Graduates frequently pursue entry-level positions in advertising and public relations agencies as junior account executives, publicity assistants, media buyers, and in institutions and corporations as public relations representatives, special events coordinators or market research assistants to name a few. Others pursue graduate study

in writing, design, marketing and business management.

Advertising/Public Relations Admission Requirements

Admission to the B.A. in Communications requires students to be admitted to CCNY, or to be in the process of being admitted to CCNY. Students are accepted to the major in both Fall and Spring semesters. Approximately 50 students are accepted each semester.

Students may apply for the major during their sophomore year. Students must meet the following requirements to be a competitive for the Ad/PR program.

Complete MCA 10100: Introduction to Media Studies with a grade of B- or better.

Students may also take MCA 10100 the semester before they plan to enter the major. Students must demonstrate a track record of success during the first 6 weeks of the semester, if they plan to apply to the program for admission in the following semester.

Students must have a minimum GPA of 2.5. It is essential to have basic mastery of English grammar and syntax, and the ability to organize ideas clearly and logically. Writing is an essential part of this major.

Students must have completed at least 45 credits by the time they enter the major.

Students must write a 250-word statement about their interest in the Ad/PR major and/or profession.

Transfer Students

Transfer students must meet the same criteria as above.

Transfer students who have been accepted to CCNY should meet with an Ad/PR academic advisor before

the Fall II semester (the third semester in the 4 semester cycle.)

- a film or video production that is no longer than 10 minutes
- a fiction screenplay no longer than 30 pages
- a 25-50 page research paper in an area of critical studies

These options allow the student to create a thesis project that reflects his or her personal interest and strengths whether it is in production, as a screenwriter, or in the area of critical studies. The B.F.A. program reserves the right to determine the final number of thesis projects in each category.

Equipment & Facilities

Undergraduate students in the B.F.A. Film and Video program use Bolex, Arri-S 16mm film cameras and Mini-DV video cameras. Location and studio lighting equipment are available as well as sound recording and audio equipment. Editing facilities consists of non-linear digital editing labs with Final Cut Pro editing software and Macintosh computer systems. In addition, the department has film and video projection theatres, two production studios, a "black box" theatre space, and a resource center.

JOURNALISM

Students learn the essentials of reporting and writing in the areas of print, radio and web-based production. The concentration is geared toward students interested in an interdisciplinary approach. Using the research and reporting techniques of journalism, students are encouraged to use New York City as a laboratory, exploring the City's people, communities, government, art and culture. In addition to its full-time teaching staff, the program attracts leading journalists as lecturers and teachers.

The minor provides instruction in the principles and practices of journalism, emphasizing the development of strong writing skills, with emphasis on the intellectual and ethical issues they will face in the profession. Through the six courses (four of which are required and two of which are

electives) students learn how to write and produce features, hard news stories, and profiles that can be part of their portfolios in each medium. As part of the curriculum, students also work at WHCR ("The Voice of Harlem"), the College's community radio station, where they learn both production and radio journalism.

Students are encouraged to do one or two journalism internships before they graduate, taking advantage of the numerous opportunities that exist living and studying in the media capital of the world. Upon graduating, students are prepared to pursue entry-level jobs in journalism in all forms of media or graduate level studies in either journalism or other disciplines.

REQUIREMENTS FOR ALL MAJORS

The following requirements apply to all students entering the College in the Fall 2009 semester or thereafter. Currently enrolled students are subject to the requirements in effect when they declared their major. Students reentering the college or transferring from other institutions with credits in the major should consult the appropriate Program Director for applicability of those courses to the current requirements.

Requirements for the B.A. in Advertising and Public Relations

Program Director: Prof. Lynn Appelbaum

All majors in the B.A. in Advertising and Public Relations must maintain a minimum overall G.P.A. 2.5 and a minimum 2.5 G.P.A. in the Ad/PR specialization to remain in the major.

Required Courses

Note: MCA 10100 (3 cr.) is the prerequisite to all B.A. courses.

| | |
|---|---|
| Media and Communication Arts: | |
| 20900: Introduction to Public Relations | 3 |
| 21000: Introduction to Advertising | 3 |
| 35000: Corporate Communications | 3 |
| 36200: Public Relations Writing | 4 |
| 36300: Advertising Copywriting | 4 |
| 37500: Advertising Management I | 3 |
| 37600: Advertising Management II | 3 |

| | |
|--|---|
| 40100: Ethics and Values in Communications | 3 |
|--|---|

One of the following two: 4

| | |
|---|--|
| 46800: Advertising & Public Relations Workshop I (4 cr.) | |
| 47800: Advertising & Public Relations Workshop II (4 cr.) | |

Electives: 3

Media and Communication Arts:

| | |
|--|--|
| 21100: Advertising and Public Relations Production (3 cr.) | |
| 23300: Introduction to Journalism (3 cr.) | |
| 36000: Marketing Research (3 cr.) | |
| 29900: Internship I (1-6 cr.) | |
| 39900: Internship II (1-6 cr.) | |

Total Credits for the B.A. 36

Requirements for the B.F.A. Degree
Program Director: Prof. Herman Lew

Required Courses

Media and Communication Arts:

Note: MCA 10100, MCA 10500 and MCA 12100 (total 9 cr.) are prerequisites to all B.F.A. courses.

| | |
|--|---|
| 20000: Introduction to Film Production | 3 |
| 20500: Editing | 3 |
| 21500: Sound Production & Design | 3 |
| 22100: History & Theory of Film I | 3 |
| 22200: History & Theory of Film II | 3 |
| 23200: Documentary Workshop I | 4 |
| 30100: Critical Approaches to Independent Cinema | 3 |
| 32100: Motion Picture Production Workshop I | 4 |
| 32300: Screenwriting Workshop I | 3 |
| 32500: Directing for Film & Video | 3 |
| 42400: Senior Writing Workshop | 3 |
| 42600: Digital Post Production | 3 |
| One of the following two: | 4 |
| 42200: Motion Picture Production Workshop II | |
| 43200: Documentary Workshop II | |

One of the following four: 3

| | |
|--|--|
| 40200: Critical Approaches to Film Directors | |
| 40300: The Documentary in Film & Television | |
| 40400: Studies in Film History & Aesthetics | |
| 29900-39900: Internship | |

Total Credits for the B.F.A. 51

ADDITIONAL REQUIREMENTS

In addition to major requirements, all MCA majors must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) or Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)
2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

Requirements for the Minor in Journalism

Required Courses

| | |
|--------------------------------------|-----------|
| Media and Communication Arts: | |
| 10100: Introduction to Media Studies | 3 |
| 23300: Introduction to Journalism | 3 |
| 33300: Reporting and Writing | 3 |
| 34100: Radio Journalism | 3 |
| Two electives from departmental list | 6 |
| Total Credits | 18 |

ELECTIVES FOR NON-MAJORS

B.A. courses in the Department are open to non-majors with the approval of the program directors, provided prerequisites have been met. Students should see the appropriate program director for information.

| | |
|---|--|
| 10100: Introduction to Media Studies | |
| 10500: Introduction to Media Production | |
| 12100: Introduction to Film Studies | |
| 23300: Introduction to Journalism | |

INTERNSHIPS

Students who are declared Media and Communication Arts majors or journalism minors may apply for internship credit if they meet the following qualifications: a total G.P.A. of 2.5 or above; completion of a minimum of

15 credits toward the major with a G.P.A. in the major of 2.5; completion of a minimum of 70 academic credits. Life experience or previous internship credit is not acceptable.

Students can earn one, two, or three credits per internship and may take two internships during their undergraduate training. The number of credits per internship is determined by the Internship Director.

Internships usually require students to work on-site 8-20 hours per week for 15 weeks.

All internships must be approved by the Internship Director in advance.

Internships are available through the MCA Department and the College's Career Services Center located in the North Academic Center. Students must apply through the Department and be approved before starting an internship. The number of credits earned is decided by the Director. Applications are available in SH 472A, the office of the Internship Director.

ADVISEMENT

Upon enrolling as a major, each student is assigned a faculty advisor. For new majors and those who do not have an assigned advisor, see the appropriate Program Director.

Advertising and Public Relations

Professor Lynn Appelbaum, B.A.
Program Director
SH 472A; 212-650-6561

Film and Video Production

Professor Herman Lew, B.F.A. Program Director
SH 473; 212-650-6558

Journalism

SH 472; 212-650-7167

Facilities and Equipment

Located in historic Shepard Hall, the Department of Media and Communication Arts provides a wide variety of equipment and facilities for film and video production, advertising and public relations, and journalism. Students enrolled in the appropriate courses have access to equipment and facilities that will support their education in the department as well

as prepare them for industry standards when they graduate.

WHCR-FM (90.3)

The College's low-power FM radio station, reaching all of upper Manhattan, serves the Harlem community especially and functions as a laboratory for Communications majors.

The Richard S. Cohen Resource Center

The Richard S. Cohen Resource Center is a comfortable setting for individual viewing of film and video, and reading and studying magazines, journals and newspapers.

The holdings include a few hundred VHS and DVD format films, a selection of film, advertising, PR and new media journals, political commentary magazines and the major metropolitan newspapers.

Computer Labs

Three labs with networked computers for word processing, data research, telecommunications, and simple desktop publishing and advanced graphics design programs.

The Picker Center

The Picker Center brings to the Department of Media and Communication Arts distinguished scholars, artists, and media professionals. The Center sponsors events that promote a knowledge of the roles that the media arts play in contemporary society. No less important, the events serve to put students in contact with practitioners from the media professions. These encounters range from visits to small classes to gatherings open to the entire community. In the past, for example, Academy Award winning director Jonathan Demme offered a master class to directing students while producer Maggie Renzi and director John Sayles previewed a feature film for the college community. The Picker family now includes several generations of distinguished film professionals. For many years, their philanthropy supported the department's B.F.A. program which trained such filmmakers as Julie Dash (*Daughters of the Dust*) and Joseph Vasquez (*Hangin' with the Homeboys*).

AWARDS AND SCHOLARSHIPS

Communications Alumni Award

For excellence in Media and Communication Arts.

L.L. Richard Guylay Class of 1934 Prize

For a member of the editorial staff who has demonstrated outstanding commitment to *The Campus* paper throughout the year.

Irving Rosenthal Award

For an outstanding journalism student.

Joseph Vasquez Memorial Award

For excellence in graduate film or media arts.

Phyllis Berlowe Scholarship Award

For outstanding junior or senior majoring in Public Relations/Advertising specialties.

Art Stevens CCNY/PRSA-NY Scholarship Award

For an outstanding junior or senior majoring in Ad/Pr specialties.

Helen Ostrowski Scholarship Award

For a junior or senior majoring in Ad/Pr.

COURSE DESCRIPTIONS

COURSES FOR ALL MCA MAJORS

10100: Introduction to Media Studies

This survey course will introduce students to technological, historical, economic and social perspectives on the communications field. Particular emphasis will be placed on research, critical analysis, effective writing and dynamic presentation skills essential for success in the highly competitive communication industries. Open to all students in good academic standing. (Required for all Advertising/PR and Film/Video majors) 3 hr./wk.; 3 cr.

31100-32000: Selected Topics

Advanced study in selected topics in the areas of film and video, advertising and public relations and journalism with emphasis upon aspects not treated in regular courses. Hours and credits to be arranged.

ADVERTISING AND PUBLIC RELATIONS

20900: Introduction to Public Relations

This course introduces students to the fundamental concepts and theories behind

persuasive communications and the application to public relations. Public opinion, audience research, media relations and tools for effective communications using the Internet and traditional methods are also explored. Students develop and present a public relations proposal, incorporating research, objectives, strategy and tactics and evaluation techniques as a culmination to the course. Prereq.: MCA 10100. Open only to Ad/PR majors or by permission of the instructor. 3 hr./wk.; 3 cr.

21000: Introduction to Advertising

This class provides an introduction to the advertising industry. Students analyze campaigns from a marketing viewpoint and evaluate placement and effectiveness of visual and written advertisements. Advertising strategies and campaign development are introduced. Prereq.: MCA 10100. Open only to Ad/PR majors or by permission of the instructor. 3 hr./wk.; 3 cr.

21100: Advertising and Public Relations Production

In this course, students learn the art and science of preparing typography, graphic design, illustration and photography for printed documents used in the advertising and public relations professions. This is an essential skill for entry-level positions in this communications specialization. Students work on personal computers to learn the basic applications of electronic layout and design as a means of creating a cohesive visual message for an organization or business through documents and advertisements. Coreq.: MCA 21000. 3 hr./wk.; 3 cr.

35000: Corporate Communications

This class familiarizes students with planning and implementing communications strategies for corporations and institutions. Through case studies, students examine communications issues for internal and external audiences, and learn how to conduct research, set objectives and effectively communicate through a variety of tactics. Topics include creating brand value through public relations, integrated marketing communications, media relations, and crisis communications. Prereq.: Eng 11000, MCA 20900. 3 hrs./wk.; 3 cr.

36000: Marketing Research

This course examines how to identify the necessary information to satisfy customers' needs and interests and make the marketing plan work. Students examine the role of marketing research in the advertising or public relations firm, different research designs, data collection procedures, sampling issues, data analysis techniques and how to write a research report. Prereq.: MCA 20900 and 21000. 3 hr./wk.; 3 cr.

36200: Public Relations Writing

Students learn how to create persuasive messages and effectively communicate them to audiences through a variety of written and spoken tactics. Communicating with the media through press releases, media kits, press conferences, features, backgrounders, photo captions, video news releases and PSA's are explored. In addition, students learn the fundamentals of good business writing for memos, letters, direct mail, brochures, proposals and oral presentations. Internet and web public relations are covered. Prereq.: MCA 20900 or permission of the instructor. (W) 4 hr./wk.; 4 cr.

36300: Advertising Copywriting

In this course, students learn how to generate ideas that help solve marketing problems and to execute those ideas through copywriting. The class will write, edit and evaluate advertising copy, including print, radio, television, direct mail and promotional materials. Students work individually and in teams on assignments that involve both word and image. Prereq.: MCA 21000 and 37500. (W) 4 hrs./wk.; 4 cr.

36400: Advertising and Public Relations Portfolio Production

A continuation of MCA 21100. Students learn advanced skills and uses of graphic software programs to create business and promotional presentations. The focus of this course is to provide students with the skills necessary to create an entry-level portfolio according to industry standards. Students produce graphic presentations of graphs charts, brochures, ad campaigns, proposals and other forms of printed communications. Prereq.: MCA 21100. 3 hr./wk.; 3 cr.

37500: Advertising Management I

An introduction to the basic management principles of the advertising business. Readings and discussions on the economic, social and legal aspects of the industry with an emphasis on advertising's role in a marketing plan, consumer behavior, market segmentation, and position strategy. Prereq.: MCA 21000. 3 hr./wk.; 3 cr.

37600: Advertising Management II

Application of advertising management principles to specific problems and case studies. Focus is on developing advertising strategies, budgets and media plans. Attention will be given to national and international marketing environments. Prereq.: MCA 37500. 3 hr./wk.; 3 cr.

40100: Ethics and Values in Communication

A senior seminar in the moral issues of communications, professional ethics. Materials are presented through films, literature, and readings in philosophy and

social commentary, directed discussions. Prereq.: MCA 20900 and 21000 or permission of the instructor. 3 hr./wk.; 3 cr.

46800: Advertising and Public Relations Workshop I

This senior course is the capstone for the advertising/public relations program. Students work individually and in teams to complete a campaign for a client from research through execution. Professional presentation skills are emphasized throughout. The course culminates in a project portfolio. Students must receive approval of the instructor. Prereq.: MCA 35000, 36200, 36300 and 37600. 4 hr./wk.; 4 cr.

47800: Advertising and Public Relations Workshop II

For senior Media and Communication Arts majors specializing in advertising and public relations only. This is a concept, writing, and design intensive workshop that culminates in a completed professional portfolio. Under the supervision of a faculty member, students work individually and in teams to complete a variety of assignments that will include several advertising and public relations campaigns. Students integrate concept and copy with the graphic component which is completed in the department's computer graphics lab. Prereq.: MCA 35000, 36200, 36300 and 37600 and approval of the instructor. 4 hr./wk.; 4 cr.

FILM AND VIDEO

Note: MCA 10100, MCA 10500 and MCA 12100 (total 9 cr.) are prerequisites to all B.F.A. courses.

10500: Introduction to Media Production

This course introduces the fundamental elements of video production and is the "gateway" into the B.F.A. program. Projects produced in this course are used to evaluate a student's candidacy into the program. Using digital video cameras, students learn basic organizational, writing, camera, and editing skills through short group and individual exercises and projects. Visual storytelling and narrative structure in fictional and non-fictional forms are emphasized. Prereq.: Eng. 11000 or FIQWS. 3 hr./wk.; 3 cr.

12100: Introduction to Film Studies

This course examines the artistic and social power of film as a medium of audiovisual communication. The course emphasizes the analysis of narrative feature films, but also examines non-fiction and experimental forms. The course offers a systematic view of how cinema tells stories, organizes information, patterns, light and sound, and creates unique aesthetic and social experiences. Aspects treated by the course

include sound, editing, cinematography, film style, narrative and non-narrative forms, the organization of film production, and the relations of film to broader artistic, social, and historical contexts. Attention is given to the ways film is now related to television, video, and new computer technologies. Prereq.: Eng. 11000 or FIQWS. 4 hr./wk.; 3 cr.

20000: Introduction to Film Production

This course introduces the student to the fundamentals of film production and builds on previously learned production skills in MCA 10500. Students learn how to use a 16mm film camera, the light meter and gain practical experience with B&W film stock and exposure control. Coreq.: MCA 20500. 3 hr./wk.; 3 cr.

20500: Editing

This course examines the theoretical aspects and the practical techniques of editing picture and sound. Narrative structure, storytelling strategies, and problem solving are explored. Using "Final Cut Express" software, students will learn basic computer editing, media management, and organizational skills needed in post-production. Coreq.: MCA 20000. 3 hr./wk.; 3 cr.

21500: Sound Production & Design

This course introduces the technology, equipment and skills necessary for the acquisition of sound in film and video productions. In addition, the course will explore the theory and role of sound design in both fiction and non-fiction productions. Particular attention will be given to sound production and design as it relates to the films and videos that the student will make in the program. Prereq.: MCA 20000, 205000; coreq.: MCA 23200. 3 hr./wk.; 3 cr.

22100: History and Theory of Film I

A chronological survey of the history and theory of cinema from its origins to World War II. Topics include the work of major directors, aesthetic theories, movements, technical innovations, methods of production and distribution, the influences on cinema from the other arts and contemporary ideologies. Prereq.: MCA 12100, Eng 21000 or MCA 20200. 4 hr./wk.; 3 cr.

22200: History and Theory of Film II

A chronological survey of the history and theory of cinema from World War II to present. Topics include the work of major directors, aesthetic theories, movements, technical innovations, methods of production and distribution, the influences on cinema from the other arts and contemporary ideologies. Prereq.: MCA 12100, 22100. 4 hr./wk.; 3 cr.

23200: Documentary Workshop I

This course is an introduction to documentary filmmaking and covers the various stages of non-fiction storytelling including research, script development/treatment, pre-production planning, production and post-production editing. The course will also examine work that falls outside of the traditional documentary form, including work that incorporates significant non-fictional components. Students develop, shoot and edit short documentary exercises and learn basic interview techniques, lighting, and sound recording techniques. Prereq.: MCA 10500, 12100, 20000, 20500; coreq.: MCA 21500. 4 hr./wk.; 4 cr.

30100: Critical Approaches to Independent Cinema

This course covers the history, theory, and practice of American independent film, particularly as it has evolved since 1975. This course investigates how the film and filmmaker contribute to a redefinition of American society that incorporates a broader spectrum of voices and experiences. Attention is paid to earlier artists such as Maya Deren and John Cassavettes as well as to such contemporary trends as digital technologies, mixing genres, and the globalization of production and distribution. Prereq.: MCA 22100, 22200. 4 hr./wk.; 3 cr.

32100: Motion Picture Production Workshop I

Building on the student's basic knowledge of film, exposure, cameras, and cinematic language, this production course emphasizes visual storytelling and control of the motion picture frame. Visual strategies, technical, and aesthetic application of lighting in support of the narrative are emphasized. In addition, basic organizational elements needed in pre-production for students to produce, direct, and shoot their films are developed. Prereq.: MCA 20000, 20500, 21500, 23200; coreq.: MCA 42400, 32500. 4 hr./wk.; 4 cr.

32300: Screenwriting Workshop

This course examines the fundamental principles and forms of narrative storytelling and their expression through the screenplay format. Emphasis is placed on the elements that create drama and conflict, and particular attention will be given to visual storytelling. The course will also examine the similarities and differences between the short and long narrative forms and compare various storytelling models and strategies. Extensive outside writing assignments and rewrites are required for this course. Prereq.: MCA 20000, 20500, 21500, 23200; coreq.: MCA 23200. 3 hr./wk.; 3 cr.

32500: Directing for Film and Video

This course explores the aesthetics, basic principles and skills needed to direct film and video productions. Through various exercises and analysis, students learn how to work with actors and the use of different techniques and strategies to elicit performances. Pre-production responsibilities, scene analysis, blocking, and shot breakdowns are also covered. Prereq.: 20000, 20500, 21500, 23200; coreq.: MCA 32100, 42400. 3 hr./wk.; 3 cr.

40200: Critical Approaches to Film Directors

Studies of major filmmakers from American & world cinema such as Griffith, Eisenstein, Ford, Kurosawa, Buñuel, Fellini, Altman, Sembene, and Varda. Emphasis is given to detailed analysis of films within their cultural, historical, and industrial contexts. Prereq.: MCA 22100, 22200, 30100 or permission of instructor. 4 hr./wk.; 3 cr.

40300: The Documentary in Film & Television

An investigation of the theory and practice of documentary in its diverse forms as film, television, video, and digital media. Screenings of historically important works are analyzed in light of different theories about documentary practice. Prereq.: MCA 22100, 22200, 30100 or permission of instructor. 4 hr./wk.; 3 cr.

40400: Studies in Film History and Aesthetics

Studies of specialized topics in film history and aesthetics. Topics change from year to year. Previous topics have included *Film Noir*, *Women & Film*, *New Asian Cinemas*, and *Cinemas of the African Diaspora*. Prereq.: MCA 22100, 22000, 30100 or permission of instructor. 4 hr./wk.; 3 cr.

42200: Motion Picture Production Workshop II

This course is one of the two production courses that students may choose to shoot their thesis project in. Building on all previous production courses in the program, it is a course for students who wish to further their mastery of filmmaking in 16mm film or digital video. Students will refine and apply their knowledge of visual storytelling, pre-production, lighting, and sync-sound production through class exercises and group projects. Projects produced in this course are edited in MCA 32600. Prereq.: MCA 32100, 32300, 32500, 42400; coreq.: MCA 42600. 4 hr./wk.; 4 cr.

42400: Senior Writing Workshop

Building on the knowledge and skills learned in Screenwriting I and Documentary Workshop I, students refine their writing skills in fiction and documentary. This course offers the opportunity for students to write a screenplay or a

documentary proposal that will qualify as a thesis writing project. Extensive outside writing assignments and rewrites are required for this course. Prereq.: MCA 32300; coreq.: MCA 32100 and 32500. 3 hr./wk.; 3 cr.

42600: Digital Post Production

This course covers advanced topics in digital editing, motion graphics, filters and sound design using Final Cut Pro editing software. In addition to class exercises, students edit material produced in their MCA 42200 or 43200 courses. Prereq.: MCA 20000, 20500, 21500, 23200, 32100, 32300; pre or coreq.: MCA 42200 or 43200. 3 hr./wk.; 3 cr.

43200: Documentary Workshop II

This course is one of the two production courses that students may choose to shoot their thesis project in. Building on all previous production courses in the program, it is a course for students who wish to further their mastery of documentary filmmaking and the non-fiction form. Students develop, shoot, and edit documentaries that are more in-depth and complex, and explore alternative aesthetic approaches to non-fiction storytelling. Projects produced in this course are edited in MCA 42600. Prereq.: MCA 32100, 32300, 42400; coreq.: MCA 42600. 4 hr./wk.; 4 cr.

JOURNALISM**23300: Introduction to Journalism**

This course introduces students to the basics of reporting and writing for the print and web-based media. A hands-on course, students learn the rigors of journalism through covering stories. Guest speakers from newsrooms across the city regularly address the class. Prereq.: Eng 11000; coreq.: MCA 10100 or permission from the instructor. 3 hr./wk.; 3 cr.

33300: Reporting and Writing

Instruction and practice in the basic techniques of reporting, including, interviewing and public affairs research, and writing news for mass audiences. It includes discussions on libel, freedom of information, fairness, and balance. Assignments involve real people and events. Prereq.: MCA 23300 or permission of the instructor. 3 hr./wk.; 3 cr.

34100: Radio Journalism

This is a basic course in radio reporting and production. Students learn to write for the ear and incorporate the creative uses of sound in telling a news story. Production techniques are an integral part of the course. Students receive actual on-air experience in the news department of WHCR, the college's community radio station. Prereq.: MCA 23300 or permission of the instructor. 3 hr./wk.; 3 cr.

INTERNSHIP EDUCATION**29900: Internship in Communications I**

Introductory supervised experience. Assignment in entry-level position of employment. Prereq.: Permission of the Department and acceptance into Internship Program. 1-6 cr.

39900: Internship in Communications II

A more advanced supervised assignment. Prereq.: Permission of the Department and successful completion of 29900. 1-6 cr.

49900: Internship in Communications III

Advanced supervised assignment. Prereq.: Permission of the Department and successful completion of 29900 and 39900. 1-6 cr.

INDEPENDENT STUDY**31001-31003: Independent Study**

Open to advanced students only, with permission of the Department. 1-3 cr.

39501-31003: Group Independent Study

A cooperative project, assigned to more than one student. Open to advanced students only, with permission of the instructor. 1-3 cr.

FACULTY**Lynn Appelbaum, Associate Professor**

B.M., Ithaca College; M.A., Indiana Univ.

Jerry Carlson, Associate Professor

B.A., Williams College; M.A., Univ. of Chicago, Ph.D.

Campbell Daghli, Associate Professor

B.A., Univ. of Colorado; B.F.A., Yale School of Drama

David Davidson, Professor

B.A., Univ. of Illinois; M.F.A., New York Univ.

Eugene Donati, Assistant Professor

B.A., University of Pittsburg, M.P.A., The American University, M.Sc.F, Univ. of Toronto

Lynne Scott Jackson, Lecturer

B.A., Howard Univ.

Edward Keller, Associate Professor

B.A., Columbia Univ., M.B.A.

Andrzej Krakowski, Professor

M.F.A. (Equip.), Polish State Film School, American Film Institute.

Herman Lew, Associate Professor

B.A., California State Univ. (Los Angeles); M.F.A., New York Univ.

Babak Rassi, Associate Professor

B.A., George Mason Univ., M.F.A.,
Florida State Univ.

Nancy Tag, Assistant Professor

B.A., Univ. of Pennsylvania; M.F.A.,
New School Univ.

Antonio Tibaldi, Assistant Professor

B.A., Univ. of Florence; M.F.A., Florida
State Univ.

Andrea Weiss, Professor and Chair

B.A., State Univ. of New York at
Binghamton; Ph.D. (American
History), Rutgers Univ.

PROFESSOR EMERITUS

Dennis DeNitto



Department of Music

(DIVISION OF HUMANITIES AND THE ARTS)

Professor Stephen Jablonsky, Chair • Department Office: SH 72 • Tel: 212-650-5411

GENERAL INFORMATION

The City College offers the following undergraduate degrees in Music:

B.A.

B.F.A.

DEPARTMENTAL MISSION

The mission of the Music Department is to offer high quality undergraduate major programs concentrating on music history, theory, and composition leading to the Bachelor of Arts degree (B.A.); and professional training in classical and jazz performance, music education, and music & audio production technology, leading to the Bachelor of Fine Arts degree (B.F.A.). As need be, these specialization programs may be customized according to the post-collegiate objectives of individual students. To that end free electives are recommended not only as a supplement to the specialization program but also as an opportunity to pursue other interests and to broaden intellectual and cultural perspectives.

REQUIREMENTS FOR THE B.A. DEGREE

B.A. students must complete or be exempted from Music 10100, 13100, and 16100 before taking theory, musicianship, or music history classes. Once having taken or received exemption from these three courses, students may file a music major declaration with the Registrar. The declaration form is available from the department secretary.

Writing about Music (Music 21000) is the co- or prerequisite for Music History I-IV. This course does not count towards the major but does

satisfy the General Education requirement of a second level writing course. For students without proper vocal training, Class Instruction in Voice I (Music 16500) is highly recommended.

All B.A. music majors are encouraged to take private instruction on an instrument. Piano skills are especially important for all musicians. For those who have not yet taken piano lessons, Class Instruction in Piano I (Music 16400) is highly recommended.

All music majors are expected to have a working knowledge of a music notation software program such as Finale or Sibelius by the end of Music 13200 (Theory I). Department tutoring is available for beginners.

Required Music Courses:

| | |
|-------------------------|----|
| Theory I – III | 9 |
| Musicianship Lab I – IV | 8 |
| Music History | 9 |
| Ensemble/Performance | 2 |
| Chorus | 2 |
| Elective | 12 |

Total Credits 42

REQUIREMENTS FOR THE B.F.A. DEGREE

B.F.A. students must complete or be exempt from Music 10100, 13100, and 16100 before being admitted to any of the programs listed below.

For Classical Instrumentalists

Required Music Courses:

| | |
|--|----|
| Ensembles (6 semesters) | 6 |
| Private Instruction (6 semesters) | 12 |
| Class Instruction in Piano I – II (required only of non-pianists) | 2 |
| Theory I – III | 9 |
| Musicianship Lab I – IV | 8 |
| Music History (3 semesters) | 9 |
| Instrumentation and Arranging | 3 |
| Music electives | 15 |

Total credits 64

For Classical Vocalists

Students in this program must take or be exempt from Voice Class I and II before taking Private Instruction.

Required Music Courses:

| | |
|-----------------------------------|----|
| Chorus (4 semesters) | 4 |
| Vocal Ensemble (4 semesters) | 4 |
| Private Instruction (6 semesters) | 12 |
| Class Instruction in Voice I – II | 2 |
| Class Instruction in Piano I – II | 2 |
| Theory I – III | 9 |
| Musicianship Lab I – IV | 8 |
| Music History (3 semesters) | 9 |
| Music electives | 14 |

Total credits 64

For Jazz Instrumentalists

Students in this program must take or be exempt from Theory I and Musicianship I before taking Jazz Harmony & Improvisation or Music 49000.

Required Music Courses:

| | |
|---|----|
| Private Instruction (6 semesters) | 12 |
| Large Jazz Ensemble (4 semesters) | 4 |
| Small Jazz Ensemble (4 semesters) | 4 |
| Jazz Harmony and Improvisation I – IV | 16 |
| Jazz Piano I – II | 2 |
| Jazz Repertory and Performance Practice I – IV | 12 |
| Jazz History I – II | 6 |
| Music electives | 8 |

Total Credits 64

For Jazz Vocalists

Students in this program must take or exempt Theory I and Musicianship I before taking Jazz Harmony & Improvisation. They must also pass or exempt Voice Class I and II before taking Private Instruction.

Required Music Courses:

| | |
|--|---|
| Private Instruction (4 semesters) | 8 |
| Jazz Vocal Workshop (3 semesters) | 6 |
| Jazz Harmony and Improvisation I – II | 8 |

| | |
|---|-----------|
| Jazz Harmony III | 2 |
| Class Instruction in Voice I – II | 2 |
| Jazz Piano I – II | 2 |
| Musicianship Lab II – III | 4 |
| Musicianship for Jazz Vocalists I – II | 2 |
| Jazz Vocal Repertory and Performance Practices I – IV | 4 |
| Jazz Vocal Improvisation I – II | 4 |
| Jazz History I – II | 6 |
| Chorus (2 semesters) | 2 |
| Jazz Vocal Ensemble (3 semesters) | 3 |
| Music electives | 11 |
| Total Credits | 64 |

For Music & Audio Technology Students (Sonic Arts)

At the end of the Fall semester, eighteen candidates for this program are chosen from among those students who have taken or been exempted from the prerequisites: Music 10100, 13100, 16100, and 21700.

Required Music Courses:

| | |
|---|----|
| Introduction to MIDI & Audio Technologies I – II | 6 |
| Synthesis & Sound Design I – II | 6 |
| Digital Audio I – II | 6 |
| Microphone Applications I – II | 6 |
| Multi-Track Production Techniques I – II | 6 |
| Audio for Moving Images Theory I – IV* | 12 |
| Musicianship Lab I – IV* | 8 |
| Instrumentation and Arranging | 3 |
| Class Instruction in Piano I – II | 2 |
| Music History or Jazz History (one of which must be chosen from the Music History Sequence) | 6 |

* Students may substitute the equivalent number of credits of Ensembles, Large Performing Groups, or approved electives for which they qualify, instead of taking Theory IV and/or Musicianship IV, with permission of the Department.

Advanced Recording, Mixing & Mastering (3 cr.), though not required, is highly recommended for all fourth-year students in the program.

Total Credits 64

Additional Requirements

In addition to major requirements, all Music majors must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) or Old Core Requirement, including English 11000, English

21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)

2. Foreign Language Requirement

3. CPE Examination

4. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

EXEMPTION CREDIT

Students who feel they are eligible to be exempt from required or elective courses may elect to take placement exams, which are given during registration each semester. All students (majors and non-majors) with strong backgrounds in any area are urged to take the exemption exams in order to be placed in more advanced courses that will be appropriately challenging. Interested students should call the Music Office to obtain the dates of the next placement exam.

ELECTIVES FOR NON-MAJORS

All courses except Private Instruction are open to students who meet the prerequisites. Students with an interest in a particular aspect of music may elect courses from among the following:

Basic Music

| | |
|---------------------------------|---|
| Introduction to Music | 3 |
| Elementary Musicianship | 2 |
| Beginning Keyboard Techniques I | 1 |
| Beginning Piano | 1 |

Vocal Classes

| | |
|------------------------------|---|
| Class Instruction in Voice I | 1 |
| Chorus | 1 |

Music History

| | |
|---|---|
| Introduction to Jazz | 3 |
| Antiquity through the Renaissance | 3 |
| The Baroque through the Early Classic Era | 3 |
| The Classic-Romantic Era | 3 |
| Late Romanticism through the Present | 3 |

Instrumental Ensembles

The following ensembles are open to non-majors by audition only:

| | |
|---------------------|---|
| Chamber Music | 1 |
| Large Jazz Ensemble | 1 |
| Latin Band | 1 |

ADVISEMENT

A pamphlet is available in the Music Office (SH 72) detailing the B.A. and B.F.A. curricula. All students should meet with a department advisor at registration each semester.

Students who have questions regarding special areas of study should contact the appropriate advisors:

B.A. Program

Prof. A. Deane
SH 78D; 212-650-7657

B.F.A. Program

Prof. S. Reeves
SH 72B; 212-650-7651

Concert Coordinator

Prof. A. Deane
SH 78D; 212-650-7657

Graduate Program

Prof. C. Jenkins
SH 80A; 212-650-7666

History and Literature

Prof. C. Jenkins
SH 80A; 212-650-7666

Jazz Studies

Prof. D. Carillo
SH 76C; 212-650-7661

Music Education

Prof. J. Steele
SH 80D; 212-650-7662

Music and Audio Technology

Prof. P. Kozel
SH 82D; 212-650-8217

Popular Music Studies

Prof. J. Pielsak
SH 78A; 212-650-7665

Private Instruction

Prof. S. Reeves
SH 72B; 212-650-7651

Theory and Musicianship

Prof. J. Pielsak
SH 78A; 212-650-7665

Non-Majors

Students interested in taking any of the electives for non-majors, other than MUSIC 10100, 14500 and 16500

but not wishing to major in the field, must inquire at the Music Office (SH 72) before registering.

FACILITIES

In 1993 the Music Department relocated to totally renovated quarters in historic Shepard Hall. In addition to new offices, studios, rehearsal rooms and an electronic piano lab, the state-of-the-art facilities include the following specialized locations:

Recital Hall

A beautifully appointed, natural acoustic concert hall (SH 95) is the site of performances by soloists and small ensembles. Seating one hundred and fourteen, it features audio recording and playback capabilities, and film and video projection systems. Its warm ambiance makes it the ideal location for important lectures and symposia.

Practice Rooms

Individual and group practice rooms are available to students registered in music major courses. Apply at the beginning of each semester in the Music Office (SH 72).

The Music Library

The Music Library (SH 160) has a collection of over 18,000 recordings, 18,200 scores, and 13,200 books about music, as well as 60 current periodicals subscriptions. All areas of music, including European and American art music, non-Western music, folk, jazz, and popular music, are represented. In addition to Internet work stations and playback facilities for recordings and videos, students have access to 10 Mac stations for computer-aided instruction.

The Sonic Arts Center

A cutting-edge facility consisting of four Production Studios, a Sound Lab, a Control Room/Classroom, and an Isolation Room. The Sonic Arts Center is the site for courses and student projects in sound design and synthesis, digital audio, audio for film and video, music production, and acoustic recording techniques.

Aaron Davis Hall

Located on the South Campus is the well-known Aaron Davis Hall of the Davis Center for the Performing Arts. Its stunning architecture houses an innovative three-theatre performing arts complex that presents public performances and exhibitions by students as well as professional artists, and serves as the cultural hub of upper Manhattan.

DEPARTMENT ACTIVITIES

Performing Groups

Chorus, jazz and Latin ensembles, and chamber and vocal ensembles are open to all qualified students. Consult the director of each group for information about application and audition procedures.

Concert Series

Faculty members, students and visiting performers present concerts in Aaron Davis Hall or in the Recital Hall (SH 95). Performances are also given at the CUNY Graduate Center. A schedule of events is published every semester and is available from the Music Office.

CUNY Jazz Festival

The CUNY Jazz Festival is held every spring at Aaron Davis Hall. Presented in cooperation with Jazz at Lincoln Center, it is a showcase for the best student bands from CUNY and selected area high schools. Each year a world-class artist is invited to perform with the student ensembles as well as their own group. Recent guest artists have included Wycliffe Gordon, Victor Goines, Luciana Souza, and Adam Rogers, Dave Leibman, and the Village Vanguard Orchestra.

Visiting Artist Series

- **Fred Hersch Master Class:** Each semester a traditional master class is conducted by the gifted teacher and renowned pianist Fred Hersch, a unique artist who *Downbeat* magazine referred to as "one of the small handful of brilliant musicians of his generation."
- **Master Class Series:** Each semester two master classes are given by a variety of invited jazz artists such

as Dave Liebman, Maria Schneider, Jim McNeely, The Stockholm Jazz Orchestra, Dick Oatts, Norma Winstone, Dave Gilmore, Tim Ries, Jon Gordon, Charles Pillow, Pete McGuinness, Scott Wendholt, and John Stowell.

- **Musicians' Accord** visits the campus twice each semester to read the works of student composers.
- **Village Vanguard Orchestra:** The music department is the rehearsal home of the world-famous Village Vanguard Orchestra. At these open rehearsals students have the opportunity to ask questions, watch "the books," and listen to music that is at the core of big band repertoire, including charts by Thad Jones, Jim McNeely, Bob Brookmeyer and Slide Hampton. Students also get to observe their teachers at work since seven of the band members are CCNY private instructors. Formerly known as The Thad Jones/Mel Lewis Orchestra, The Village Vanguard Orchestra has been performing every Monday night at the Village Vanguard since 1965.
- **Friends of Music:** Friends of Music is an organization, open to all students, whose purpose is to promote and stimulate the performance of live music, and coordinate student tutoring.
- **Student Representatives:** Once a year, the Music majors elect representatives to participate, with full voting rights, on the Executive Committee.

AWARDS

The Acoustic Recording Award

Provides an opportunity for selected B.F.A. performance majors to record a CD with third and fourth year students in the Music and Audio Technology program.

The ASCAP-Chappell/City College Gershwin Award

For composing, arranging, or presenting music for the theater.

The Jerome Ash Scholarship

To a deserving Sonic Arts student.

The Lisl Barnett Award

To a talented pianist.

The Mark Brunswick Award

To undergraduate and graduate students, for excellence in music composition.

The Israel Edward Drabkin Award

To a promising sophomore or junior music major.

The Ervin Drake Awards

To the outstanding songwriters in Theory II.

The Friar Foundation Award

For an entering student on the basis of the audition for the B.F.A. program.

The Ivan Gillis Memorial Scholarship

To a promising music major, for private instruction in his or her primary performing medium.

The Max E. Greenberg Scholarship

For the private study of an instrument or voice.

The Ben Jablonsky Scholarship

To a sophomore or junior who demonstrates promise in the composition or arranging of popular music or jazz.

The Fritz Jahoda Award

To a talented pianist

The Rosalind Joel Scholarship

To a talented entering student.

The Seymour Peck Scholarships and Creative Awards

To help a student complete a creative project.

The Presser Foundation Scholarship

To an outstanding music major about to enter the senior year.

The Pro Musica Awards

To senior music majors, for distinguished service to the cause of music at the College.

The Beverly and Donald Reeves Award

To an outstanding B.F.A. jazz performer.

The Edward Rensin Memorial Award

To a senior music major, for outstanding service in music.

The Russano/Hanning Scholarship

To an outstanding student of music history.

The Stanley Sachs Scholarship

To an outstanding entering freshman.

The Billie Stoller Scholarship

To an outstanding scholar and musician.

The Sidney Zolot Award For Excellence in Music

To a senior music major who has demonstrated excellence as a performer, composer or scholar.

COURSE DESCRIPTIONS**INTRODUCTORY COURSES****10100: Introduction to Music**

Concepts underlying the understanding and enjoyment of music. Examples from around the world highlight matters of form and content. Attendance at concerts, both on and off campus, as well as guided classroom listening aid in the development of listening and communication skills. Pre- or coreq.: FIQWS or English 11000. 3 hr./wk.; 3 cr.

10101: Introduction to Music

An alternate version of Music 10100 for Honors students. Concepts underlying the understanding and enjoyment of music. Examples from around the world highlight matters of form and content. Attendance at concerts, both on and off campus, as well as guided classroom listening aid in the development of listening and communication skills. Pre- or coreq.: FIQWS or English 11000. 3 hr./wk.; 3 cr.

14500: Introduction to Jazz

An introduction to the important figures and diverse styles of jazz. Emphasis will be on listening to jazz and its unique characteristics including identifying various instruments and their roles in jazz ensembles. Attendance at concerts both on and off campus as well as guided classroom listening will aid in the development of listening and communication skills. The influence of folk and popular music from all related cultures will be discussed as well as social issues that affected the music's growth and popularity. Does not serve as a prerequisite for courses in the Music major. Pre- or coreq.: FIQWS or Engl. 11000 or equivalent. 3 hr./wk.; 3 cr.

PREPARATORY COURSES**13100: Elementary Musicianship**

Ear-training, sight-singing; rudimentary theory, rhythm, basic writing skills. Use of

programmed materials. For potential Music majors and students continuing in music theory. Not for elective concentration for Music majors. Prereq: permission of the department. 3 hr./wk.; 2 cr.

15200: Fundamentals of Music for Elementary School Teachers

Acquiring basic music skills. Singing, piano, recorder, principles of notation and tonality, conducting, ear training, simple harmony. Not for elective concentration for Music majors. 3 hr./wk.; 2 cr.

15400: Beginning Piano

Basic music notation, styles and trends explored while learning to play the piano. No previous musical training necessary. Those who wish to become Music majors should take Music 13100 and 16100. 2 hr./wk.; 1 cr.

16100: Beginning Keyboard Techniques

Basic piano skills for potential music majors. Cannot be included in elective concentration credits of Music major. For potential music majors. Prereq: permission of the department. 2 hr./wk.; 1 cr.

21000: Writing About Music

Intended to help music majors and others interested in exploring the different strategies and styles pertaining to reading, thinking, and writing about music. This course satisfies the requirement of the second level writing course. Prereq.: FIQWS or English 11000 and Music 10100 and Music 13100. 3 hr./wk. plus conf.; 3 cr.

THEORY AND COMPOSITION COURSES**13200: Theory I - Introduction to Harmonic Analysis**

Materials of harmonic analysis in tonal music; triads, seventh chords, chord symbols and functional labels, non-harmonic tones, voice leading, diatonic and chromatic chord usages, cadences, melody construction, phrasing. Emphasis primarily on analysis and rudimentary composition skills. Prereq.: Music 13100 and 16100 and permission of the department.. 3 hr./wk.; 3 cr.

23100: Theory II - Diatonic Harmony and Counterpoint

Continuation of Music 13200, stressing writing. Usages of diatonic functional harmony; soprano-bass counterpoint, inner voices, composing and harmonizing melodies. Writing for voice and piano. Models from American folk songs, pop songs and excerpts from classical literature. Prereq.: Music 13200. 3 hr./wk.; 3 cr.

23200: Theory III - Chromatic Harmony and Counterpoint

Continuation of Music 23100; introducing chromatic harmony and key changes. 19th century harmonic usages. Harmonic structure and musical form. Models from classical literature, American standard songs and jazz. Prereq.: Music 23100. 3 hr./wk.; 3 cr.

33100: Theory IV - Late 19th and 20th Century Harmony

Continuation of Music 23200; increasing emphasis upon structural and functional analysis of and composition in late Romantic and 20th century styles, including American standard songs and jazz. Prereq.: Music 23200. 3 hr./wk.; 3 cr.

33300: Twentieth Century Techniques

Analysis, composition, readings from major theorists of the 20th century. Breakdown of tonality, atonality, 12-tone composition, recent innovations. Prereq.: Music 33100 or 33200; pre- or coreq.: Music 34200. 3 hr./wk.; 3 cr.

36200: Instrumentation and Arranging

A study of the range, tone quality, transposition, and expressive qualities of orchestral instruments. Introduces the rudiments of arranging. Score reading and writing. Prereq.: Music 23200 or Music 35800. 3 hr./wk.; 3 cr.

43000: Composition

Intensive work in composition of complete pieces, in imitative or free style, according to student's abilities and interests. May be taken twice. Prereq.: permission of the Department. 3 hr./wk.; 3 cr.

43200: Tonal Counterpoint Analysis

Analysis of appropriate models and intensive work in composition of canon, choral prelude, invention, fugue, etc. Prereq.: Music 23200 and permission of the department. 3 hr./wk.; 3 cr.

43300: Advanced Analysis

Studies of complete works of the 18th, 19th, and 20th centuries, with consideration of both micro- and macrocosmic relationships. Readings from the works of influential theorists. Prereq.: Music 33100. (W) 3 hr./wk.; 3 cr.

46200: Orchestration

A continuation of Instrumentation and Arranging. Emphasis on orchestrating for large ensemble. Prereq.: Music 36200 and permission of the Department. 3 hr./wk.; 3 cr.

MUSICIANSHIP COURSES**Musicianship Sequence****16200: Musicianship Lab I**

Sight-singing, rhythm, ear training, and keyboard skills. Prereq.: Music 13100 and

16100 and permission of the Department. 3 hr./wk.; 2 cr.

16300: Musicianship for the Jazz Musician

A preparatory course in jazz practices and ear training. Topics include: how to practice jazz, the psychology of music, jazz notation, transpositions, lead sheet preparation, ear-training as well as a brief overview of jazz theory. Students should bring their instruments on selected days. Prereq.: Music 13200 or permission of the instructor. 2 hr./wk.; 1 cr.

26100: Musicianship Lab II

Continuation of sight-singing and rhythm. Added emphasis on dictation and keyboard. Prereq.: Music 16200 or equivalent. 3 hr./wk.; 2 cr.

26200: Musicianship Lab III

Continuation of Musicianship Lab II. Keyboard includes playing and singing American standards. Prereq.: Music 26100 or equivalent. 3 hr./wk.; 2 cr.

36100: Musicianship Lab IV

Continuation of Musicianship Lab III. Keyboard includes score reading. Elementary conducting. Prereq.: Music 26200 or equivalent. 3 hr./wk.; 2 cr.

36102: Musicianship for Jazz**Vocalists I**

Designed to develop and reinforce jazz musicianship skills in the areas of sight singing, dictation, rhythm, and piano. Modes, scales, seventh chords, chord progressions, swing rhythm notation, piano voicings and accompaniment techniques will be covered. Prereq.: Music 26200, Music 35800, Music 27500, Music 32411. Coreq.: Music 45701, Music 45702, Music 42311. 2 hr./wk.; 1 cr.

36112: Musicianship for Jazz**Vocalists II**

Designed to develop and reinforce jazz musicianship skills in the areas of sight singing, dictation, rhythm, and piano. Modes, scales, seventh chords, chord progressions, swing rhythm notation, piano voicings and accompaniment techniques will be covered. Prereq.: Music 36102, Music 45701, Music 45702, Music 42311. Coreq.: Music 45802, Music 42411. 2 hr./wk.; 1 cr.

MUSIC HISTORY COURSES**24100: History I – Antiquity through the Renaissance**

Musical thought of the Middle Ages. Evolution of plainchant; origins and organization of polyphony, Ars Nova. Modes, musica ficta, trends toward homophony. Mass, motet, chanson, and madrigal in 15th and 16th centuries. Prereq.: Music

10100 and English 11000. Coreq.: Music 21000 or equivalent. (W) 3 hr./wk.; 3 cr.

24200: History II – The Baroque through the Early Classic Era

Monody and basso continuo. Emergence of opera, oratorio, cantata and Passion. The suite, concerto grosso and baroque sonata. Learned, galant and bourgeois styles. Beginnings of classical sonata, symphony, concerto, chamber music. Prereq.: Music 10100, Music 21000 or equivalent, and Music 13200. (W) 3 hr./wk.; 3 cr.

34100: History III – The Classic-Romantic Era

Changing instrumental and vocal styles in the late 18th century. Influences of literature, visual arts in the 19th century. Role of virtuosity. Chromaticism, modality. Opera, symphony, symphonic poem, chamber music and song. National music idioms. Exoticism. Prereq.: Music 10100, Music 21000 or equivalent, and Music 23100 or Music 35700. (W) 3 hr./wk.; 3 cr.

34200: History IV – Late Romanticism through the Present

Late 19th century. Harmonic changes in the early 20th century. Breakdown and reinterpretation of tonality. Impressionism, Expressionism, Eastern European and Asiatic influences. Twelve-tone system. Traditional and innovative forms. Aleatoric and electronic music. Prereq.: Music 21000 or equivalent, Music 23100 or 35700. (W) 3 hr./wk.; 3 cr.

Music History Electives

Music 27100 and 27400, can be used by B.A. and B.F.A. students as electives.

27100 Series: Topics in Popular Music

A group of courses dealing with the history and literature of popular music. Prereq.: Music 10100 or permission of the Department. (W) 3 hr./wk.; 3 cr.

27103: A Survey of Popular Music**27104: Latin Popular Music****27105: Gospel Music****27400 Series: Topics in Folk Music**

Music in a changing world. Important trends in rural and urban folk music. Prereq.: Music 10100 or permission of the department. (W) 3 hr./wk.; 3 cr.

27401: Survey of Afro-American Music**27402: Latin American and Caribbean Folk Music****27403: Survey of Anglo-American Music**

40000: Special Topics in Western Music

Intensive study in a particular genre, composer or historical period. Topics will vary and will be announced prior to registration. Prereq.: permission of the Department. (W) 3 hr./wk.; 3 cr.

44100: Studies in Western Music

Designed for advanced Music majors who wish to pursue specific topics in Western art music, such as composers and genres of various periods; offered on a rotating basis. 3 hr./wk.; 3 cr.

44101: Studies in Medieval and Renaissance Music

Prereq.: Music 24100. (W)

44102: Studies in Baroque Music

Prereq.: Music 24200 and 23100. (W)

44103: Studies in Classic Music

Prereq.: Music 34100 and 23200. (W)

44104: Studies in Romantic Music

Prereq.: Music 34200 and 33100. (W)

44105: Studies in Contemporary Music

Prereq.: Music 34200 and 33100 or 33300. (W)

JAZZ HARMONY, COMPOSITION, AND ARRANGING

33700: Fundamentals of Jazz Composition

Composition and analysis of standard song forms as well as other standard compositional practices and forms idiomatic to jazz. Prereq.: Music 45700 and permission of the instructor. 3 hr./wk.; 3 cr.

35200: Jazz Arranging I

Basic principles of chord voicing; voicing extended chords. Ranges, transpositions, and instrumental characteristics of the instruments of the standard jazz big band. Chord substitution. Arranging for the small jazz ensemble, from two to five horns with rhythm section. Arranging standard songs. Prereq.: Music 35800 and 27600. 3 hr./wk.; 3 cr.

35700: Jazz Harmony and Improvisation I: Principles of Extended Harmony

A practical study of basic principles of extended chord harmony. Voicings and voice leading of extended chords. Examination of basic diatonic and chromatic chord functions. Improvisation techniques based on tonal centers and harmonic targets. Identification and application of nonharmonic tones. Harmonic and melodic ear training. Transcription and analysis. Prereq: Music 13200, Music 16200. Coreq: Music 32300, Music 27500. 4 hr./wk.; 4 cr.

35800: Jazz Harmony and Improvisation II: Principles of Functional Harmony

Diatonic and chromatic idioms of tonal organization in standard jazz repertory and "Rhythm Changes." Basic principles of chord substitution and reharmonization. An examination of bebop harmonic and melodic vocabulary and chromatic approach vocabulary. Harmonic and melodic ear training. Transcription and analysis. Prereq: Music 35700, Music 27500. Coreq: Music 32400, Music 27600. 4 hr./wk.; 4 cr.

45200: Jazz Arranging II

Arranging for the standard jazz big band. Analysis of form and content of traditional swing and bebop band arrangements. Thickened line, basic chorale, and combination voicings. Line writing and sectional counterpoint. Dynamic shape of the arrangement; thematic exposition and motivic development; repetition and variation. Treatment of texture and climaxes; "shout chorus" and saxophone solo. Preparation of the score and parts. Contemporary and experimental techniques. Prereq.: Music 35200. 3 hr./wk.; 3 cr.

45700: Jazz Harmony and Improvisation III: Advanced Principles of Functional Harmony

Advanced chromatic idioms of tonal organization. An examination of the blues and blues content in related and unrelated forms. Diminished scale harmony and the diminished cycle of chord substitution. Applied chord scale theory and extended harmony. Harmonic and melodic ear training. Transcription and analysis. Prereq: Music 35800, Music 27600. Coreq: Music 42300. 4 hr./wk.; 4 cr.

45701: Jazz Harmony III

The same course as Music 45700 without the improvisation component. Prereq. for instrumental majors: Music 35800, Music 32400, Music 27600. Prereq. for jazz vocal majors: Music 35800, Music 26200, Music 32401, Music 27600. Coreq. for jazz instrumental majors: Music 42300. Coreq. for jazz vocal majors: Music 45702, Music 42311, Music 36102. 2 hr./wk.; 2 cr.

45702: Jazz Vocal Improvisation I

Builds and develops bebop vocabulary for jazz vocal improvisation with particular attention to the ii-V-I progression. Emphasis on transcription, analysis, and assimilation of vocal and instrumental solos in progressive levels of difficulty. Students will keep a journal of melodic ideas, which they will sing in twelve keys and place in a variety of harmonic contexts. Vocalese, scat syllables, articulation, phrasing, jazz vocal styles, and constructing a good solo will also be explored. Prereq.: Music 35800, Music 27600, Music 26100. Coreq.:

Music 45701, Music 42311, Music 36102. 2 hr./wk.; 2 cr.

45800: Jazz Harmony and Improvisation IV

Nonfunctional Harmony, Modalism and Bitonality Nonfunctional idioms and non-tonal harmonic organization. Bitonality and upper-structure triads. Modal jazz and free jazz. Thirds relations and "Coltrane changes." Advanced reharmonization using bass functions including pedal point, ostinato and linear techniques. Harmonic and melodic ear training. Transcription and analysis. Prereq: Music 45700. Coreq: Music 42400. 4 hr./wk.; 4 cr.

45801: Jazz Harmony IV

The same course as Music 45800 without the improvisation component. Prereq. for instrumental majors: Music 45700, Music 42300. Prereq. for jazz vocal majors: Music 45701, Music 45702, Music 36102. Coreq. for jazz instrumental majors: Music 42400. Coreq. for jazz vocal majors: Music 45802, Music 42411, Music 36112. 2 hr./wk.; 2 cr.

45802: Jazz Vocal Improvisation II

Builds and develops post-bop vocabulary for jazz vocal improvisation with attention to harmonic innovations dating from 1959. Emphasis on transcription, analysis, and assimilation of vocal and instrumental solos in progressive levels of difficulty. Students will keep a journal of melodic ideas, which they will sing in twelve keys and place in a variety of harmonic contexts. Vocalese, scat syllables, articulation, phrasing, jazz vocal styles, and constructing a good solo will also be explored. Prereq.: Music 45701, Music 45702, Music 36102 and Music 42311. Coreq.: Music 42411, Music 36112. 2 hr./wk.; 2 cr.

JAZZ PERFORMANCE TECHNIQUES

27500: Jazz Piano I

Elementary techniques for playing piano in jazz style. Chord identifications. Techniques for accompanying with or without melody, and with or without bass. Standards and jazz tunes. Extended chords. Prereq.: Music 13200 and 16200; coreq.: Music 35700 or permission of the Department. 2 hr./wk.; 1 cr.

27600: Jazz Piano II

Continuation of Music 27500. Blues. Altered dominant chords. Stride style. Harmonic complexities. Standards and jazz tunes. Prereq.: Music 27500; coreq.: Music 35800 or permission of the Department. 2 hr./wk.; 1 cr.

32300: Jazz Repertory and Performance Practices I

Basic exercises for developing skills in sight reading and rhythmic execution. Sight reading arrangements and charts. Ear training. Techniques for effective practicing and memorization. Playing in various keys and developing transposition skills. Interpreting meters and related jazz styles. Memorization of standard jazz repertoire. Techniques for combo performance and small ensemble performance. Prereq: Music 13200, Music 16200. Coreq: Music 35700, Music 27500. 4 hr./wk.; 3 cr.

32301: Jazz Repertory and Combo Performance 1

Learning standard jazz repertory in various styles through memorization of chosen repertoire and performance. Emphasis on developing skills for small group performance. Prereq.: permission of the Department. 2 hr./wk.; 1 cr.

32311: Jazz Vocal Repertory and Performance Practices I

Devoted to learning the most important tunes from the standard repertory, as well as common jazz performance practices. In reading through tunes attention will be paid to the composer, original melody, key, chord progression and form, as well as the techniques needed for second-chorus improvisation. Will include sight singing, transposition, lead-sheet preparation, intros, endings and soloing. Select recordings will be used in conjunction with lead sheets in order to provide models for interpretation as well as a stylistic and historical context. Prereq: Music 13200, Music 16200. Coreq.: Music 35700, Music 27500, Music 26100. 2 hr./wk.; 1 cr.

32400: Jazz Repertory and Performance Practices II

Intermediate exercises for developing skills in sight reading and rhythmic execution. Sight reading arrangements and charts. Ear training. Techniques for effective practicing and memorization. Playing in various keys and developing transposition skills. Interpreting meters and related jazz styles. Memorization of standard jazz repertoire. Techniques for combo performance and small ensemble performance. Prereq: Music 32300, Music 27500. Coreq: Music 35800, Music 27600. 4 hr./wk.; 3 cr.

32401: Jazz Repertory and Combo Performance II

Learning standard jazz repertory in various styles through memorization of chosen repertoire and performance. Emphasis on developing skills for small group performance. Prereq.: Music 32301 and permission of the Department. 2 hr./wk.; 1 cr.

32411: Jazz Vocal Repertory and Performance Practices II

Devoted to learning the most important tunes from the standard repertory, as well as common jazz performance practices. In reading through tunes attention will be paid to the composer, original melody, key, chord progression and form, as well as the techniques needed for second-chorus improvisation. Will include sight singing, transposition, lead-sheet preparation, intros, endings and soloing. Select recordings will be used in conjunction with lead sheets in order to provide models for interpretation as well as a stylistic and historical context. Prereq: Music 32311, Music 35700, Music 27500, Music 26100. Coreq.: Music 35800, Music 27600, Music 26200. 2 hr./wk.; 1 cr.

36000: Introduction to Contemporary Vocal Styles

Idioms from jazz, folk, pop and rock singing; musical theater, avant-garde techniques; recording studio techniques. May be taken up to eight times. Prereq.: permission of the Department. 3 hr./wk.; 2 cr.

36001: Jazz Vocal Workshop**36002: Pop Vocal Workshop****38001: Rhythm Section Seminar**

Performance seminar for advanced jazz rhythm section instrumentalists (bass, guitar, piano and drums). May be taken twice. Prereq.: Music 35800, 42400 and audition, or permission of the instructor. 2 hr./wk.; 1 cr.

38002: Jazz Guitar Styles

An examination of jazz guitar styles and techniques. Transcriptions of masters from all periods, such as Charlie Christian, Wes Montgomery, Jim Hall, Grant Green, Pat Metheny, Ralph Towner, John Abercrombie and others, will be played and analyzed. Performance will focus particularly on the guitar/bass/drums trio, the guitar/bass duo and solo guitar concepts. Some Classical guitar literature will be introduced and other finger-style techniques employing alternative tunings will be examined. A concert of material drawn from the semester's work will be performed by the students. Prereqs.: Permission of the instructor and the jazz program supervisor. 2 hr./wk.; 1 cr.

42300: Jazz Repertory and Performance Practices III

Advanced intermediate exercises for developing skills in sight reading and rhythmic execution. Sight reading arrangements and charts. Ear training. Techniques for effective practicing and memorization. Playing in various keys and developing transposition skills. Interpreting meters and related jazz styles. Memorization of standard jazz

repertoire. Techniques for combo performance and small ensemble performance. Prereq: Music 32400, Music 27600. Coreq: Music 45700. 4 hr./wk.; 3 cr.

42301: Jazz Repertory and Combo Performance III

Learning standard jazz repertory in various styles through memorization of chosen repertoire and performance. Emphasis on developing skills for small group performance situations. In addition to standard performance practices, experimental approaches will be introduced, including playing in odd and changing meters, transposing, and playing in alternative rhythmic approaches. Prereq.: Music 32401 and permission of the Department. 2 hr./wk.; 1 cr.

42311: Jazz Vocal Repertory and Performance Practices III

Devoted to learning the most important tunes from the standard repertory, as well as common jazz performance practices. In reading through tunes attention will be paid to the composer, original melody, key, chord progression and form, as well as the techniques needed for second-chorus improvisation. Will include sight singing, transposition, lead-sheet preparation, intros, endings and soloing. Select recordings will be used in conjunction with lead sheets in order to provide models for interpretation as well as a stylistic and historical context. Prereq: Music 32411, Music 35800, Music 27600, Music 26200. Coreq.: Music 45701, Music 36102. 2 hr./wk.; 1 cr.

42400: Jazz Repertory and Performance Practices IV

Advanced exercises for developing skills in sight reading and rhythmic execution. Sight reading arrangements and charts. Ear training. Techniques for effective practicing and memorization. Playing in various keys and developing transposition skills. Interpreting meters and related jazz styles. Memorization of standard jazz repertoire. Techniques for combo performance and small ensemble performance. Prereq: Music 42300. Coreq: Music 45800. 4 hr./wk.; 3 cr.

42401: Jazz Repertory and Combo Performance IV

Learning standard jazz repertory in various styles through memorization of chosen repertoire and performance. Emphasis on developing skills needed for small group performance situations. In addition to standard performance practices, experimental approaches will be introduced, including playing in odd and changing meters, transposing, and playing in alternative rhythmic approaches. Prereq.: Music 42301 and permission of the Department. 2 hr./wk.; 1 cr.

42411: Jazz Vocal Repertory and Performance Practices IV

Devoted to learning the most important tunes from the standard repertory, as well as common jazz performance practices. In reading through tunes attention will be paid to the composer, original melody, key, chord progression and form, as well as the techniques needed for second-chorus improvisation. Will include sight singing, transposition, lead-sheet preparation, intros, endings and soloing. Select recordings will be used in conjunction with lead sheets in order to provide models for interpretation as well as a stylistic and historical context. Prereq: Music 42311, Music 36102, Music 45701, Music 45702. Coreq.: Music 36112, Music 45802. 2 hr./wk.; 1 cr.

Jazz History**34400: Jazz History I from its Origins to 1950**

An examination of the roots of jazz and its stylistic evolution and major contributors up to 1950. Emphasis will be placed on detailed listening assignments, a 3500 word writing requirement and readings. Prereq.: Music 10100 and English 11000 or equivalent. Pre- or co-req.: Music 21000 or equivalent. (W) 3 hr./wk.; 3 cr.

34500: Jazz History II from 1950 to the Present

An examination of the trends in jazz and its major contributors since 1950. Emphasis will be placed on detailed listening assignments, a 3500 word writing requirement and readings. Prereq.: Music 10100 and English 11000 or equivalent. Pre- or co-req.: Music 21000 or equivalent. (W) 3 hr./wk.; 3 cr.

PERFORMANCE COURSES**16000: Large Performing Ensembles**

May be taken by B.A. students four times for credit, by B.F.A. students, eight times. Prereq.: audition. 3 hr./wk.; 1 cr.

16002: Chorus**16004: Large Jazz Ensemble****16005: Jazz Ensemble Workshop**

A workshop/ensemble designed to provide opportunities for students to improve the skills required to perform with various City College jazz ensembles. Emphasis will be placed on note reading, rhythms, section playing, intonation, tone production, expression of dynamic and articulation markings, and phrasing. Prereqs.: Permission of the instructor; coreqs.: Music 35700 or higher and Music 32300 or higher. May be repeated for credit. 2 hr./wk.; 1 cr.

26000: Ensemble Performance

Experience in performing in small groups. In addition to ensembles listed, other types of ensembles will be offered to suit the particular interests and abilities of students. Prereq.: permission of the Department and/or audition. May be taken eight times. 2 hr./wk.; 1 cr.

26001: Chamber Music**26002: Vocal Ensemble****26003: Percussion Ensemble****26004: Small Jazz Ensemble****26005: Latin Band****26008: Brass Ensemble****26009: Collegium Musicum****26010: Bass Ensemble****26011: Brazilian Jazz Ensemble****26012: Improvisational Music Ensemble****26013: Jazz and World Music Ensemble****26014: Jazz Repertory Ensemble****26015: Jazz Vocal Ensemble****Performance Techniques****16400: Class Instruction in Piano I**

Prereq.: 16100 or 15400. 2 hr./wk.; 1 cr.

16500: Class Instruction in Voice I

2 hr./wk.; 1 cr.

16600: Class Instruction in Strings I

Prereq.: 13100 or 15200. 2 hr./wk.; 1 cr.

16700: Class Instruction in Woodwinds

Prereq.: 13100 or 15200. 2 hr./wk.; 1 cr.

16800: Class Instruction in Percussion

Prereq.: 13100 or 15200. 2 hr./wk.; 1 cr.

26400: Class Instruction in Piano II

Prereq.: 16400 and permission of the department. 2 hr./wk.; 1 cr.

26500: Class Instruction in Voice II

Prereq.: 16500 and permission of the department. 2 hr./wk.; 1 cr.

26600: Class Instruction in Strings II

Prereq.: 16600. 2 hr./wk.; 1 cr.

26700: Class Instruction in Brass

Prereq.: 13100 or 15200 2 hr./wk.; 1 cr.

26800: Class Instruction in Guitar

2 hr./wk.; 1 cr.

36300: Conducting

Principles and techniques of instrumental and choral conducting. Includes some

experience in conducting college performing groups. Prereq.: Music 23200 or 35800. 3 hr./wk.; 3 cr.

46500: Advanced Conducting

A continuation of Music 36300 with more emphasis on score reading. Prereq.: Music 36300 and permission of the department. 3 hr./wk.; 3 cr.

48000: Individual Instruction

Eight one-hour lessons per semester. The Music Department will assign an instructor, or give permission to study with a teacher not connected with the College. All students must attend the seminars and take all examinations at the College. Designed for B.A. students; B.F.A. students take 49000. May be taken four times. Prereq.: Music 23100 and 24100, and audition. 1 hr. lesson/wk.; 1 cr.

49000: Private Instruction in Instrument or Voice

Eight one-hour lessons per semester, plus assigned practice. Designed for B.F.A. students; B.A. students take 48000. Coreq.: an Ensemble. May be taken up to eight times. 2 cr.

MUSIC AND AUDIO TECHNOLOGY (SONIC ARTS)**21700: Basic Audio Technology Concepts**

Introduction to the basic concepts and technologies of the audio industry. Acoustics (sound generation, frequency and pitch, the overtone series, waveforms, bells and decibels, etc.). Basic electricity (laws of charges, conductors and insulators, voltage/current/resistance, circuits, magnetic induction, etc.). Interfacing audio equipment (impedance standards, balanced and unbalanced interconnections, audio connectors, standard operating levels, etc.). Lecture course. No studio time required. Prereq or Coreq: Music 13100 and 16100 or permission of the department. 3 hr./wk.; 3 cr.

21800: Introduction to MIDI and Audio Technologies I

Components, functions, sections, signal flow, and operation of a mixing console. Digital tape recorder technologies and operation. Complete examination of the MIDI protocol. MIDI sequencing and System Exclusive editing with Logic Audio, Pro Tools, and Sound Diver. Basic operation of software and hardware synthesizers and samplers in a production environment. Students are assigned individual studio time. Prereq: Music 21700 and Prereq/Coreq Music 13200 and 16200 or permission of the department. 3 hr./wk.; 3 cr.

21900: Introduction to MIDI and Audio Technologies II

Introduction to dynamic processing (compressors, limiters, expanders, gates) filtering, and equalization. Introduction to the plug-in environment. MIDI and audio automation. Busing and subgrouping with software mixers. Synchronization with MIDI time code, SMPTE, word clock, MIDI Machine Control, etc. Students are assigned individual studio time. Prereq: Music 21800 or permission of the department. 3 hr./wk.; 3 cr.

32100: Synthesis and Sound Design I

Review of acoustics. Principles of voltage control systems. Subtractive synthesis, additive synthesis, matrix modulation, and sample playback synthesizers. Examination of both software and hardware synthesizers. Students create original sounds and music for synthesis and sound design projects throughout the semester. Students are assigned individual studio time. Prereq: Music 21800 or permission of the department. 3 hr./wk.; 3 cr.

32200: Synthesis and Sound Design II

Percussion oriented sample playback hardware and software. Amplitude and frequency modulation synthesis. Vector synthesis and wave sequencing. Granular synthesis. Resampling technology. Audio modulation software and plug ins. Students create original sounds and music for synthesis and sound design projects throughout the semester. Students are assigned individual studio time. Prereq: Music 32100. 3 hr./wk.; 3 cr.

32500: Digital Audio I

Basic concepts of audio analog-to-digital and digital-to-analog conversion. Quantization error, dithering, sample rate, word length, normalization. An extensive discussion of two-track and multi-track hard disk recording systems. Destructive and non destructive editing, playlists, files and regions, voice allocation vs. channels. Host based and native DSP. Audio editing in Peak, Pro Tools, and Logic Audio. Students are assigned individual studio time. Prereq: Music 21800 or permission of the department. Coreq: Music 21900. 3 hr./wk.; 3 cr.

32600: Digital Audio II

Working with samples using hardware and software samplers. Drum and percussion loops and loop manipulation. Time and pitch processing plug ins. Audio data compression formats for the web. Downloadable and streaming audio protocols for the web. Archiving and backup. The DVD specification. Students are assigned individual studio time. Prereq: Music 32500. 3 hr./wk.; 3 cr.

32700: Microphone Applications I

Microphone technology (construction, polarity patterns, frequency and transient response). Recording techniques for electric guitar, acoustic guitar, electric bass, and acoustic bass. Students work on recordings during class and during individual studio time. Prereq: Music 32600. Coreq: Music 32701. 3 hr./wk.; 3 cr.

32701: Multi-Track Production Techniques I

Ancillary class to Music 32700. Advanced concepts and application of dynamic processing. Patch bay construction and configurations. Recording session procedures and documentation. Setting up talkback and headphone mixes for a recording session. Prereq: Music 32600. Coreq: Music 32700. 3 hr./wk.; 3 cr.

32800: Microphone Applications II

Recording techniques for piano, drums, woodwinds, brass, strings, vocalists, and spoken word. Ensemble/band recordings. Students work on recordings during class and during individual studio time. Prereq: Music 32700. Coreq: 32801. 3 hr./wk.; 3 cr.

32801: Multi-Track Production Techniques II

Stereo microphone techniques. Advanced filtering and equalization applications. Basic sound reinforcement concepts and applications. Vocal and style based production techniques. Students are assigned individual studio time. Prereq: Music 32701. Coreq: 32800. 3 hr./wk.; 3 cr.

43500: Audio for Moving Images

Advanced synchronization of audio to moving images. Advanced synchronization of digital audio devices with existing transfer protocols. Introduction to analog and digital video, film, and animation technologies. Video and audio compression codexes. Introduction to video/audio editing software. FX, Foley, narration, dialog replacement, and music bed. QuickTime synchronization and DVD-R authoring. Students are assigned individual studio time. Prereq: Music 32700. 3 hr./wk.; 3 cr.

43600: Advanced Recording, Mixing, and Mastering

Stereo and 5.1/7.1 surround sound mixing concepts. Advanced time and pitch processing. Speaker and amplifier design and construction. Introduction to mastering concepts. Red Book audio specification. Surround codexes including Dolby Digital and DTS. Students will pursue large-scale independent projects in recording, mixing, and mastering to apply techniques learned in class. Students are assigned individual studio time. Make be taken twice. Prereq: Music 32800. 3 hr./wk.; 3 cr.

INDIVIDUAL STUDY**30100-30300: Honors I – III**

Approval of Dean and Department representative required. Apply no later than December 10 in the Fall term or May 1 in the Spring term. Credit variable, but usually 3 credits per term.

31001-31003: Independent Study

Individual scholarly or creative work under supervision of a full-time faculty mentor. Prereq: permission of the department. May be taken up to a total of 12 credits. 1-3 cr./sem.

31100-32000: Selected Topics in Music

A changing series of innovative and experimental courses on topics not generally covered in regular courses. Course announcements will be made the preceding semester. Hours and credits to be arranged.

FACULTY

Daniel Carillo, Assistant Professor
B.A., CCNY, M.A.

Alison Deane, Associate Professor
B.M., Manhattan School of Music, M.M.

David Del Tredici, Distinguished Professor

B.A., Univ. of California (Berkeley);
M.F.A., Princeton Univ.

Ray Gallon, Lecturer
B.F.A., CCNY, M.A.

Barbara R. Hanning, Professor
B.A., Barnard College; Ph.D., Yale Univ.

Michael Holober, Associate Professor
B.A., SUNY (Oneonta); M.M., SUNY (Binghamton)

Stephen Jablonsky, Associate Professor and Chair

B.A., The City College; M.A., New York Univ., Ph.D.

Chadwick Jenkins, Assistant Professor

B.A., Towson State University; M.M., Univ. of Maryland; M.Phil., Columbia Univ., Ph.D.

Paul Kozel, Associate Professor
B.Mus., Cleveland State Univ.; M.A., The City College

Orly Krasner, Lecturer

B.A. Univ. of Connecticut; M.A., Queens College/CUNY; Ph.D., CUNY

Shaun O'Donnell, Associate Professor

B.A., Queens College, M.A.; Ph.D., CUNY

John Patitucci, Professor

Jonathan Perl, Associate Professor
B.F.A., CUNY; B.A., SUNY Purchase

Jonathan Pieslak, Associate Professor

B.A., Davidson College; M.A., Univ. of Michigan (Music Theory), M.A. (Music Composition), Ph.D.

Suzanne Pittson, Assistant Professor

B.A., San Francisco State Univ., M.A.

Scott Reeves, Associate Professor

B.M., Indiana Univ., M.M.

Ira Spaulding, Assistant Professor

B.Mus., Westminster Choir College,
M.Mus., Eastern Kentucky Univ.

PROFESSORS EMERITI

David Bushler

Ronald L. Carter

Constantine Cassolas

John Graziano

Jack Shapiro

Roger Verdesi

ARTISTS-IN-RESIDENCE

The Vanguard Jazz Orchestra

Musicians' Accord

Neil Clarke

Steve Horelick

Arturo O'Farrill

Rich Perry

Ray Santos

Paul Special

Michael Whalen

Department of Philosophy

(DIVISION OF HUMANITIES AND THE ARTS)

Professor Lou Marinoff, Chair • Department Office: NA 5/144 • Tel: 212-650-7291

GENERAL INFORMATION

The City College offers the following undergraduate degree in Philosophy:

B.A.

PROGRAMS AND OBJECTIVES

The discipline of philosophy is concerned with understanding reality and human action via systematic analysis and argument. It surveys important and influential ideas of the past and present, examines their presuppositions, and provides the student with the instruments of a reflective and responsible life.

REQUIREMENTS FOR MAJORS

After completing their core requirements, students ought to have ample credits left over to distribute between a concentration program and free electives. Students should consult the Department Chair or a Department Advisor to identify a concentration program best suited to their academic interests (e.g. in the philosophy of natural and/or social science, logic and mathematics, ethical theory, law, etc.). Students should choose free electives not only as a supplement to their concentration program, but as an opportunity to pursue their intellectual interests and broaden their perspectives. Students may also jointly major in Philosophy and another discipline, such as English, History, Physics or Psychology.

Required Courses

Philosophy:

| | |
|--------------------------------------|---|
| One of the following two: | 3 |
| 20200: Introduction to Logic (3 cr.) | |
| 20100: Logical Reasoning (3 cr.) | |
| 30500: History of Philosophy I | 3 |
| 30600: History of Philosophy II | 3 |

Elective Courses

| | |
|---|----|
| Five additional courses in Philosophy* | 15 |
| Two related electives in other departments ** | 6 |

Total Credits 30

*The following courses are strongly recommended for sequence A students: Phil 30700: *Metaphysics and Epistemology*; Phil 30800: *Ethics*; Phil 30900: *Social and Political Philosophy*; Phil 32100: *Symbolic Logic*.

** Related courses may be taken in such areas as Art, Biology, Economics, English, History, Political Science, Psychology, and Sociology. Consult the Department Chair or a Department advisor in selecting such courses.

ADDITIONAL REQUIREMENTS

In addition to major requirements, all Philosophy majors must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) or Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)
2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

DUAL MAJOR

The Philosophy Department offers a range of courses on a regular basis specially suited to students wishing to major in both philosophy and law, psychology, English, history, education, and other disciplines. Please read the introductory section on dual majors and contact the Department for specific information on specific programs.

REQUIREMENTS FOR MINOR

The minor in philosophy is recommended for students who wish to improve those critical analytic skills developed by philosophy—and greatly valued by business and the professions—but who have insufficient credit hours available to major in philosophy.

After core requirements:

- a. a minimum of twelve elective credits in philosophy
- b. two related electives in other departments

Students should consult the department Chair or a department advisor for advice on courses best suited to their academic and future professional interests.

ADVISEMENT

The department Chair and all full-time members of the Department serve as department advisors. Their office hours are posted at the beginning of every semester.

DEPARTMENT ACTIVITIES

The Philosophy Department has a student-operated Philosophy Club, which meets regularly during club hours (Thursday 12:00–2:00 p.m.) during

the academic year. Information about Philosophy Club activities is listed on the Department Notice Board opposite NA 5/144. The Philosophy Department also runs its own colloquium series, with talks presented by members of the philosophy department and by visiting speakers.

Tutoring

The Philosophy Department tries to maintain a student-operated tutorial service. Students who feel that they need tutorial help should contact the Department Secretary for further information.

AWARDS

The department awards prizes (usually to graduating seniors) for excellence in various areas:

Brittain Prize: Moral Philosophy

Felix S. Cohen Prize: Philosophy of Law

Ketchum Prize: History of Philosophy

Sperling Award: Best Student

Ward Medal: General Excellence in Philosophy

For detailed information see, *the Guide to the City College Prizes, Awards, and Medals* in the office of the department Chair.

COURSE DESCRIPTIONS

CORE COURSES

30000: The Rational Animal: Dimensions of Understanding

A critical analysis of the nature and relationships between a variety of intellectual disciplines (such as the natural and social sciences, humanities and education) and of a number of contemporary, philosophical problems relating to mind, self and consciousness, and authority, rights and responsibilities. Prereq.: FIQWS or ENGL 110 and 15 credits of Perspectives courses not including 30000-level PHIL courses. 3 hr./wk.; 3 cr.

30001: The Rational Animal: Honors

Open only to Freshman Honor students. 3 hr./wk.; plus conf.; 3 cr.

INTRODUCTORY COURSES

10200: Introduction to Philosophy

An introduction to some of the central questions of philosophy, concerning our

knowledge of the external world, causation, God, mind and body, freedom, justice, and moral judgment, via analysis of classical and contemporary philosophers such as Plato, Aristotle, Descartes, Locke, Hume, Mill, Kant, Russell, Wittgenstein and Rawls. (W) 3 hr./wk.; 3 cr.

11100: Critical Thinking

An informal analysis of inference and evidence employed in everyday arguments, including study of the principles held to justify forms of argument in morality, politics, the law and aesthetics. The aim of the course is to develop critical skills in reasoning and the evaluation of arguments, and sensitivity to the distinction between substantive argument and persuasive rhetoric, through a detailed analysis of examples drawn from a wide variety of sources, including the media. Attention will be paid to some elementary but critical distinctions relating to meaning, definition, and implication. 3 hr./wk.; 3 cr.

11200-12000: Special Topics in Philosophy

Selected topics and experimental courses are offered on a variety of topics. No prerequisites. Variable cr.

20100: Logical Reasoning

This course provides students with an introduction to the elements of logical reasoning. Basic rules and methods of assessing validity and proving arguments as they occur in natural language are introduced (such as truth tables and rules of inference). The goal of the course is to enable students to translate and evaluate arguments in natural language using the basic tools of modern logic. The focus of this course enables it to serve as an excellent form of preparation for SATs, LSATs and other standardized tests, as well as an analytic resource for further academic studies. 3 hr./wk.; 3 cr.

20200: Introduction to Logic

This course introduces students to the basics of modern logic. Topics covered include truth-tables, the rules of inference for the propositional calculus, and introduction to quantification theory. It focuses both on rules for producing formal proofs, and for translating natural language arguments into logical notation. Primarily designed as a preparation for advanced logic (Philosophy 32100: Symbolic Logic), the course would also be very useful for anyone expecting to deal extensively with complex reasoning. 3 hr./wk.; 3 cr.

20600: Philosophy of Science Fiction

An analysis of some of the central questions of philosophy as they are represented in science fiction (and occasionally, science fact). Selections from science fiction works will range over topics such as space

and time, infinity and eternity, identity, knowledge of other minds; artificial intelligence; moral dilemmas and technology; the meaning of life. (W) 3 hr./wk.; 3 cr.

ELECTIVES

30100-30400: Honors I-IV

Approval of Dean and Department Honors Supervisor required. Apply no later than December 10 in the Fall term or May 1 in the Spring term. (W) variable credit, but usually 3 cr./sem.

30500: History of Philosophy I: Ancient

A survey of early Greek philosophy, centered on the figures of Socrates, Plato, and Aristotle. Some attention is paid to pre-Socratic philosophers (e.g. Heraclitus, Parmenides) and to at least one current of thought after Aristotle (e.g. Stoicism, Skepticism, neo-Platonism, or early Christian theology). (W) 3 hr./wk.; 3 cr.

30600: History of Philosophy II: Modern

The formulation of the subjects and methods of modern philosophy in the seventeenth and eighteenth centuries. Rationalism: Descartes, Spinoza, Leibniz. Empiricism: Locke, Berkeley, Hume. Transcendental idealism: Kant. Topics include the human mind, free will and determinism, knowledge of the external world and God. (W) 3 hr./wk.; 3 cr.

30700: Metaphysics and Epistemology

A survey of classic problems and contemporary theories of reality and knowledge. Includes topics such as appearance and reality; substance and accident; the relation between mind and body; causation; freedom and determinism; the relation between knowledge, belief, and certainty; skepticism, solipsism, relativism, and reliabilism. (W) 3 hr./wk.; 3 cr.

30800: Ethics

Analysis of the concepts employed in moral reasoning, such as good, right, duty, obligation, virtue, freedom and choice. Critical study of various theories of moral justification—such as utilitarianism, deontological ethics, virtue ethics—and of status of moral judgments—such as subjectivism, objectivism, relativism and skepticism. The relation between morality and religion, moral dilemmas, and some problems in practical ethics (abortion, famine, the environment, etc.). (W) 3 hr./wk.; 3 cr.

30900: Social and Political Philosophy

An analysis of the concepts and principles employed in reasoning about the social and political aspects of human life, such as social structure and function, equality and justice, property and rights, social and political obligation. A critical analysis

of theories of the state of society, such as liberalism, Marxism, communitarianism, conservatism, and anarchism. (W) 3 hr./wk.; 3 cr.

31000: Independent Study and Research

A planned program of reading in philosophy to meet special needs of individual students, under guidance of a member of the department. Limited to upper seniors able to take a course before graduation when needed for graduate preparation. For advanced or specialized work beyond available offerings already completed. Permission of instructor required before registration. (W) Variable credit, but usually 3 cr./sem.

31100-32000: Special Topics in Philosophy

Special and experimental courses offered on a variety of topics. Consult Department for offerings and prerequisites. variable credit, but usually 3 cr./sem.

32100: Symbolic Logic

This course extends the work of Philosophy 20200. The focus is on rigorously formulated systems of propositional and predicate logic, with emphasis on theorem-proving and the formalization of natural-language reasoning. Attention will be paid to the theory of relations, definite descriptions, the translation of elementary arithmetical concepts into logic and proofs of the deductive completeness of various systems of logic. Prereq: Phil 20200. 3 hr./wk.; 3 cr.

32200: Philosophy of Science

A critical survey of philosophical theories of scientific explanation and development. The course will focus on topics such as inductive and hypothetico-deductive accounts of scientific method; confirmation and falsification of scientific theories; the logic of scientific explanation; theories and models; the structure of scientific revolutions. (W) 3 hr./wk.; 3 cr.

32300: Philosophy of Mind

Examination of some classical and contemporary problems relating to our concepts and theories of mind, and of psychological phenomena such as intelligence, rationality, and emotion. Topics are likely to include theories of the relation between mind and brain (varieties of dualism and materialism); self-knowledge and knowledge of other minds; psychopathology; artificial intelligence; and personal identity. (W) 3 hr./wk.; 3 cr.

32400: Philosophy of Language

Examination of the relationship between thought, language and the world. The course will cover topics such as meaning, truth, reference, synonymy, necessity,

names and descriptions, logical form, and pragmatics. (W) 3 hr./wk.; 3 cr.

32500: Aesthetics: The Philosophy of Art

The philosophical study of art, and of our judgment of art, through classical readings and contemporary developments. Includes topics such as representation, taste, artist intention, and mechanization. Special attention is paid to the problem of trying to speak generally about art in the face of the differences among specific arts. (W) 3 hr./wk.; 3 cr.

32600: Philosophy of Law

A critical analysis of some central concepts employed in legal reasoning and judgment, such as justice, crime, evidence, responsibility, legal and civil rights, punishment, civil disobedience, and constitutional interpretation. Examination of major theories of law such as natural law theory, legal positivism and social realism, and of the relation between the law and morality. (W) 3 hr./wk.; 3 cr.

32700: Philosophy of Religion

Critical analysis of the question: What is religion? in light of the variety of religious beliefs and practices. Examination of different approaches to religion, including faith, rational argument, sensory experience, mystical and religious experience. Exploration of the relation between faith and reason, and between morality and religion. (W) 3 hr./wk.; 3 cr.

32800: Philosophy of Social Science

Critical analysis of the concept of the social as it is employed in classical and contemporary social scientific theories of social action, social structure, social collectivity and social explanation. Attention will be paid to topics such holism and individualism; social and psychological explanation; structural and functional explanation; rationality assumptions; understanding alien societies; theories and values in social science; and the autonomy of historical understanding. (W) 3 hr./wk.; 3 cr.

32900: Philosophy of History

A survey of some classical and contemporary problems in both speculative and analytical philosophy of history. The course focuses on topics such as general theories of history (Vico, Kant, Herder, Hegel, Marx, Toynbee); varieties of historical explanation; objectivity in history; concepts of causation in history; methodology; history as an autonomous discipline. (W) 3 hr./wk.; 3 cr.

33400: Philosophy of Artificial Intelligence

Addresses philosophical issues raised by computers and other machines capable of

performing tasks indicative of intelligence (e.g. multiplication, logical reasoning, playing chess, learning a language). The course will focus on topics such as the Turing test; strong and weak AI; concepts of representation, memory and understanding; the frame problem; symbolic versus connectionist approaches to cognitive processing. (W) 3 hr./wk.; 3 cr.

33500: Philosophy of Film

Addresses philosophical issues relating to film, such as the status of film as art object; the role of the audience in the constitution of the film object; realism and surrealism in film; and particular film genres such as comedy and cinema noire. (W) 3 hr./wk.; 3 cr.

33600: Philosophy of Space and Time

Addresses philosophical questions raised by our employment of the concepts of space and time in science and metaphysical thinking. The course will focus on topics such as individuation and spatio-temporal continuity; unities of space and time; substantial and relational theories of space; asymmetries of time; the theory of relativity; infinity and eternity. (W) 3 hr./wk.; 3 cr.

33700: Decision Theory

A non-mathematical introduction to game theory, decision theory, and rational choice theory, and philosophical issues relating to probability theory and utility theory. Includes examination of problems and paradoxes such as the Prisoner's Dilemma, Newcomb's problem and Cohen-Kelly queuing paradox. 3 hr./wk.; 3 cr.

33800: Philosophy of Wittgenstein

Critical explanation and analysis of the philosophy of Ludwig Wittgenstein, with special focus on his controversial and influential views on language, reality and forms of life, and their implications for disciplines such as linguistics, psychology, literary criticism and feminist theory. 3 hr./wk.; 3 cr.

33900: Kierkegaard, Nietzsche, Freud

A study of three authors who helped to define modernism after Hegel. The course focuses on: the philosophical critique of philosophy; the new quest for authentic individuality; reassessments of religion. (W) 3 hr./wk.; 3 cr

34000: Self and Identity

A study of major philosophical theories of self-knowledge and personal identity, and related literary, social and psychological theories. (W) 3 hr./wk.; 3 cr.

34100: Philosophy of Psychoanalysis

Critical analysis of central concepts of Freudian and post-Freudian psychopathology and psychotherapy. (W) 3 hr./wk.; 3 cr.

34400: World Philosophies

Addresses central concepts and principles of a variety of non-Western systems and traditions in philosophy. Courses offered are likely to include (but are not restricted to) African Philosophy; Chinese Philosophy; Indian Philosophy; Islamic Philosophy; Latin- American Philosophy. Different systems and traditions will be offered in different semesters. (W) 3 hr./wk.; 3 cr.

34500: American Philosophy

Addresses central themes of American Philosophy, through the work of authors such as Edwards, Emerson, James, Pierce, Dewey, Quine, Putnam, and Rorty. (W) 3 hr./wk.; 3 cr.

34600: Feminist Philosophy

Charts the historical evolution of the feminist approach to philosophy, and the contribution of feminists to topics in epistemology, philosophy of mind and moral, social and political philosophy. (W) 3 hr./wk.; 3 cr.

34700: Contemporary Philosophy

A study of major philosophical theories and theorists of the late nineteenth and twentieth century. The focus of this course may vary in different semesters, with emphasis placed upon either analytical, pragmatist or continental theories and theorists. (W) 3 hr./wk.; 3 cr.

34800: Continental European Philosophy

A study of major concepts and principles of philosophical movements originating in Continental Europe, such as Phenomenology; Existentialism; Hermeneutics; and Critical Theory. (W) 3 hr./wk.; 3 cr.

34900: Applied Ethics

Critical analysis of moral issues and dilemmas as they arise in various professions and everyday situations. Courses offered are likely to include (but are not restricted to): Business Ethics; Computer Ethics; Engineering Ethics; Environmental Ethics; Medical Ethics; Psychological Ethics. Different course topics will be offered in different semesters. (W) 3 hr./wk.; 3 cr.

35000: Major Philosopher(s)

Intensive study of the work of major philosophers (such as Plato, Hume, Kant, Hegel). Different philosophers featured in different semesters. (W) 3 hr./wk.; 3 cr.

35400: Seminar in Advanced Topics in Philosophy

Topics selected from a variety of different areas are made the focus of intensive critical examination. Topics offered each semester will be listed by the Philosophy Department. Prerequisites stated with course descriptions. Intended primarily

for philosophy majors. 2 sem. hr./wk. plus conference; 3 cr.

FACULTY**Jeffrey Blustein, Zitrin Professor of Bioethics**

A.B., University of Minnesota, Ph.D., Harvard University

Darren Bradley, Assistant Professor

B.Sc., London School of Economics; M.A., Univ. College (London); Ph.D., Stanford Univ.

John Greenwood, Professor

M.A., University of Edinburgh; Ph.D., Oxford Univ.

Michael E. Levin, Professor

B.A., Michigan State Univ.; Ph.D., Columbia Univ.

Lou Marinoff, Professor and Chair

B.Sc., Concordia Univ.; Ph.D., Univ. College, London

Nickolas Pappas, Professor

B.A., Kenyon College; Ph.D., Harvard Univ.

Christy Mag Uidhir, Assistant Professor

B.A., Texas Christian Univ.; M.A., Brown Univ.; Ph.D., Rutgers Univ.

David Weissman, Professor

B.A., Northwestern Univ.; M.A., Univ. of Chicago; Ph.D., Univ. of London

PROFESSORS EMERITI

Abraham Edel

K.D. Irani

Martin Tamny

Harry Tarter

H. S. Thayer

Phillip P. Wiener

Department of Physics

(DIVISION OF SCIENCE)

Professor V. Parameswaran Nair, Chair • Department Office: MR 419 • Tel: 212-650-6832

GENERAL INFORMATION

The City College offers the following undergraduate degree in Physics:

B.S.

PROGRAMS AND OBJECTIVES

The Department of Physics provides a comprehensive program designed to enable students to acquire a basic understanding of the laws of nature and their application, and to prepare them for a career either in physics or in one of the many science and technology oriented professions for which physics is a basic component. The various introductory courses are therefore designed to meet a variety of student needs, including general knowledge, preparation for professional work (engineering, materials science, photonics, premedical, biomedical physics, architecture, teaching, etc.) and preparation for advanced work in physics. A sequence of advanced courses is provided primarily for Physics majors but is also open to other interested students. The aim of these courses is to train students for technical employment in industry or government and for graduate work.

In addition to the Standard Physics Option the Department offers an Applied Physics Option, a Secondary Education Option and a Biomedical Physics Option. The Applied Physics Option has two tracks: Materials Science or Optics/Photonics.

The Department cooperates in the Program in Premedical Studies (PPS), a program of the Division of the College of Liberal Arts and Science. This allows the student to major in Physics while participating in PPS. The program features a curriculum which integrates

a variety of learning experiences specifically preparing participants to meet medical, dental and veterinary school admission requirements as well as those for physician's assistant and physical therapy advanced degree programs.

Honors

The Research Honors Program is one of several ways for undergraduate students to participate in faculty research projects. Such projects, if judged to be of sufficient quality and quantity, may lead to a degree with honors.

Physics Scholar Program

The Physics Department accepts students into the Physics Scholar Program. This program provides research opportunities and summer research employment. More information about this very successful and competitive program can be obtained directly from the Department.

Research

The large active research faculty provides undergraduate research opportunities in many fields of experimental and theoretical physics. Modern laboratories provide excellent training facilities in the areas of laser physics, low temperature physics, biophysics and semiconductor physics. Off-site research in atomic physics takes place at Lawrence Berkeley National Laboratory. Some students also participate in theoretical physics research, primarily in the areas of condensed matter physics and high energy. Academic credit can be earned for participation in such research projects.

Graduate Courses

Physics majors in their senior year sometimes enroll in beginning graduate courses.

Electives for Non-Majors

Engineering majors may take as electives Physics 32100, 32300, 42200, 45200, 45300, 55400, 55500, 56100, 58000 and 58100. Biology and pre-medical students may elect Physics 31500 and 42200. Mathematics and Chemistry majors may elect Physics 35100 and 35300. All physical science students with an interest in astronomy should consider Physics 45400. Chemists should consider Physics 55400.

Exemption Credit

Qualified students may take exemption examinations for all courses offered by the Department upon application to the Department. Exemption examinations are given at several specified times during the year. In general, a grade of B+ or better is required for exemption with credit and a grade of B- or better for exemption without credit. For some courses, it will be necessary to complete the laboratory component before full credit is given.

TUTORING

Each faculty member designates two office hours per week when she or he will be available to tutor students. In addition, all faculty members teaching multiple section introductory or intermediate courses are available for tutoring of students in all sections of the particular course(s) they are teaching. Detailed tutoring schedules are distributed early in each semester. For the introductory courses there is also a tutoring lab, open about 25 hours per week, staffed by qualified graduate and undergraduate students, where a student in these courses may seek assistance.

DEPARTMENT ACTIVITIES

Colloquia and Seminars

The Physics Department holds a weekly colloquium in a field of general or current interest in physics, usually given by a distinguished outside speaker. All Physics graduate students and Physics majors are invited to attend. In addition there are weekly seminars of a more specialized nature in such areas as high-energy physics, condensed matter physics and biophysics and frequent seminars in such areas as astrophysics and light scattering.

Planetarium

The Physics Department maintains a fully equipped planetarium. Programs and shows on an appropriate level are given for elementary schools, junior and senior high schools and the college community as well as other groups upon request. Programs and shows are available both in English and in Spanish.

Job Placement

The Physics Department maintains an up-to-date file of employment opportunities at all levels.

Computer Facilities

Computation facilities include a general purpose Science Computer Lab with 40 Dell workstations, projectors, printer and network equipment for classes and assigned course work, internet and e-mail access. Licensed software such as MS Office, Matlab, Mathematica, SPSS, SAS, Gaussian 98W and ArcView are available in all the workstations. Teaching and research laboratories have a variety of dedicated computer workstations, servers, cluster, software and applications for data acquisition, processing, simulation and scientific computation.

AWARDS

The Physics Department annually awards one or more Ward medals and the Sidney Millman Scholarship Award for academic excellence, and a Sonkin medal for the best achievement in experimental physics. Physics students may also compete, along with students in the other science departments,

for the annual Marshak award and Zemansky Introductory Physics Prize.

ADVISEMENT

Undergraduate Majors

Professor Joseph L. Birman
MR 424; 212-650-6871

Professor Fredrick W. Smith
MR 423A, 212-650-6963

Graduate Students

Professor Timothy Boyer
MR 331; 212-650-5585

All other students

Contact the Physics Office (MR-419; 212-650-6832), to be put in touch with an appropriate advisor.

REQUIREMENTS FOR MAJORS

All Physics majors must complete "Basic Courses for Physics Majors" and either the "Standard Physics Concentration" or one of the "Alternative Concentrations." These courses are in addition to the Science core curriculum requirements:

Basic Courses for Physics Majors

Physics:
35300: Electricity and Magnetism I 3
37100: Advanced Physics Laboratory I 2
45100: Thermodynamics and Statistical Physics 3

Total Credits for Basic Courses 8

Standard Physics Concentration

Required Courses
Physics:
35100: Mechanics 4
35400: Electricity and Magnetism II 3
45200: Optics 3
47100: Advanced Physics Laboratory II 2
55100: Quantum Physics I 4
55200: Quantum Physics II 4
55600: Current Topics in Physics 1
Physics Elective: Physics 31500, 42200, 45300, 55400 3

Mathematics:
39100: Methods of Differential Equations 3
39200: Linear Algebra and Vector Analysis 3
Total Credits for Standard Physics Concentration 38

Alternative Physics Concentration

(Materials Science and Optics/Photonics Concentrations)

Required Courses

Physics:
32300: Quantum Mechanics 3
35100: Mechanics 4
35400: Electricity and Magnetism II 3
Applied Physics Electives: 15

Materials Science concentration requires Physics 554000, 55500 and 56100.

Additional electives may be selected from Physics 42200, Chemistry 26100, 32500, Chem Engr 46700 and EE 44100.

Optics/Photonics concentration requires Physics 45200, 47100, 45300 and 58000. Additional electives may be selected from Physics 55400, 58100 and EE 59801

Mathematics:

39100: Methods of Differential Equations 3
39200: Linear Algebra and Vector Analysis 3

Total Credits for Applied Physics Concentration 39

Biomedical Physics Concentration

Required Courses

Physics:
42200: Biophysics 3
52200: Biomedical Physics 3
One of the following: 3-4
32300: Quantum Mechanics 3
55100: Quantum Physics I 4

Mathematics:

39100: Methods of Differential Equations 3
39200: Linear Algebra and Vector Analysis 3

Chemistry:

45900: Biochemistry I 4

Total Credits for Biomedical Physics Concentration 27-28

Secondary Education Concentration

Major requirements are listed below. Pedagogical requirements are listed in the Department of Education section of this Bulletin.

Required Courses

35100: Mechanics 4
35300: Electricity and Magnetism I 3
35400: Electricity and Magnetism II 3
37100: Advanced Physics Lab I 2
45100: Thermodynamics and Statistical Physics 3
45200: Optics 3
32100: Modern Physics 3

Electives to be chosen in consultation with the advisor 6
Total Credits for Secondary Ed. Concentration 27

Elective Courses

Students who intend to go on to graduate work in Physics should choose, in consultation with the departmental advisor, free electives from among the following:

Physics:

- 31500: Medical Physics (3 cr.)
- 42200: Biophysics (3 cr.)
- 45300: Physical Photonics I (Laser Optics) (3 cr.)
- 45400: Descriptive Astronomy (3 cr.)
- 52200: Biomedical Physics (3 cr.)
- 55300: Kinetic Theory and Statistical Mechanics (3 cr.)
- 55400: Solid State Physics (3 cr.)
- 55500: The Physics and Chemistry of Materials (3 cr.)

Any graduate course with designation V0100-V2600

Mathematics:

Selected 20000, 30000, or 40000 level courses

Additional Requirements

Students who intend to go on to complete some graduate work during the undergraduate years should see the concentration advisor (Prof. J. L. Birman or Prof. F.W. Smith) concerning possible substitutions for some of the above courses.

Note: all the non-introductory courses in physics required for Physics majors are given only once a year. For a student who has completed the required introductory courses (Physics 20700, 20800, Math 20100, 20200, 20300) the following sequence is therefore recommended for the remaining courses:

| | Physics | Math |
|--------|---------------------|-------|
| Spring | 32100 | 39100 |
| Fall | 35100, 35300, 37100 | |
| Spring | 35400, 47100, 55100 | 39200 |
| Fall | 45200, 55200, 55600 | |
| Spring | 45100, elective | |

Students who enter this sequence during their sophomore year may thus be free to take physics (or math) electives or graduate courses in their senior year. The latter is especially recommended by the Department. Students who cannot readily fit into

this sequence should consult the concentration advisor. All students intending to major in Physics should see the specialization advisor before entering their junior year. Students who do not intend to do graduate work should see Professors Birman or Smith for an individualized program.

In addition to major requirements, all Physics majors must complete the following:

1. General Education Requirement including FIQWS, Calculus, Perspective and In-depth requirements (for students who entered after Fall 2008) *or* Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2008)
2. English 21003
3. Foreign Language Requirement
4. CPE Examination
5. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

REQUIREMENTS FOR A MINOR IN PHYSICS

Students in other departments may minor in physics by taking a minimum of 9 credits in Physics beyond the introductory courses (20700, 20800 or 20300, 20400). These courses are in addition to the science core requirements. See an advisor in the Physics Department for guidance.

COURSE DESCRIPTIONS

CORE COURSES

All courses except Astronomy 10000 and 30500 carry a Physics (PHYS) designation, starting with PHYS 10000.

Astronomy 10000: Ideas of Astronomy

Explores the entire realm of the universe, its origins and history, and establishes our time and place and role in it. Our solar system, our galaxy, the expanding universe of many galaxies will be discussed

along with more recent discoveries such as quasars, pulsars and black holes. 3 lect., 1 rec. hr./wk., slides, films, planetarium shows; 3 cr.

Physics 10000: Ideas of Physics

A course with two themes: 1. How nature works the interplay of space, time, matter and energy; 2. Structures are born, live out their life cycles, and die. These include us, the stars, and perhaps the universe. This theme may be called the scientific story of genesis. 3 lect., 1 rec. hr./wk., demonstrations, slides, films; 3 cr.

Astronomy 30500: Methods in Astronomy

Designed to fulfill the 30000-level core science requirement, the course covers the fundamental physical laws that underlie the motions of heavenly bodies, including Newtonian mechanics and Einstein's theory of relativity, planetary, stellar and galactic evolution; the methods, techniques and instruments used by modern astronomy, including the Hubble Space Telescope and planetary space probes. 3 lect., 1 rec. hr./wk., slides, films, planetarium shows, field trips; 3 cr.

INTRODUCTORY COURSES

20300-20400: General Physics

For majors in the life sciences (biology, medicine, dentistry, psychology, physical therapy) and for liberal arts students. Fundamental ideas and laws of physics from mechanics to modern physics. Included are Newton's laws of motion, electricity and magnetism, heat, optics, relativity, quantum mechanics and nuclear physics. Emphasis is on the basic principles and general laws. Use of mathematics is restricted to elementary algebra and some trigonometry. Physics 20300 is prereq. for Physics 20400 (required for Premed., Preident., Bio-Med., and all Life Science students). 3 lect., 1 rec. hr./wk., 3 lab. hr. alt. wks.; 4 cr./sem.

20305-20405: Laboratory Sections for 20300 and 20400

Department permission required for registration, which is limited to students having passed lecture part via exemption exam or via equivalent course elsewhere. Not open to students who have previously taken or are planning to register for 20300 or 20400. 3 lab. hr. alt. wks.; 1 cr./sem.

20700-20800: General Physics

Vectors, equilibrium, rectilinear motion. Newton's laws, gravitation, motion in a plane, work and energy, impulse and momentum, rotation and angular momentum, simple harmonic motion, fluids, heat and thermodynamics, waves and acoustics, electrostatics, magnetism and electromagnetism, direct and alternating

current, geometrical and physical optics. Pre- or coreq.: Math 20200 for Physics 20700. Physics 20700 is prereq. for Physics 20800. Math 20300 is pre- or coreq. for Physics 20800. (Required for all students in the Physical Sciences, Engineering and Computer Science.) 3 lect., 2 rec. hr./wk., 2 lab/wrkshp. hrs (20700), 2 lab. hrs. alt. wks. (20800); 4 cr./sem.

21900: Physics for Architecture Students

A one-semester course for students of Architecture. Translational and rotational equilibrium. Newton's laws of motion and vibrations. Work, energy and power. Fluids and temperature. Heat and energy transfer. Prereq.: completion of all mathematics requirements through trigonometry or be eligible for Math 20500. 3 lect., 2 rec. hr./wk.; 4 cr.

30000: Elementary Physics

For students in the School of Education. Survey of physics emphasizing the meanings of physical laws, concepts of motion and energy, and physical properties of matter. Topics include concepts of velocity and acceleration; Newton's laws of motion, mass and weight, circular motion, gravitation, work, energy, momentum, electromagnetic properties of matter, and atomic theory (required for students in Elementary Education). 3 lect., 2 lab. or discussion hr./wk.; 3 cr.

32100: Modern Physics for Engineers

Introductory historical background, elementary quantum theory, application to one-electron atoms, atomic shell structure and periodic table; nuclear physics, relativity and statistical mechanics. Concepts, quantitative work and problem sets are emphasized. Prereq.: Physics 20800 or equivalent, Math 20300 or 20900 (elective for Engineering students). 3 lect. hr./wk.; 3 cr.

ELEMENTARY ELECTIVES

31500: Medical Physics

Physical aspects of the skeletal, circulatory, nervous, muscular, respiratory, and renal systems; diagnostic imaging including EKG, EEG, x-rays, CAT, MRI, lasers and fiber optical probes; radiation therapy and safety; nuclear medicine; artificial organs. Prereq.: Physics 20400 or 20800. 3 hr./wk.; 3 cr.

32300: Quantum Mechanics for Applied Physicists

Basic experiments, wave-particle duality, uncertainty; Wave functions and Schroedinger equation; 1-d problems: (a) bound states: square well, harmonic oscillator, Kronig-Penny model, (b) scattering from barriers, tunneling; QM formalism: Dirac notation, operators & eigenvalues, angular momentum; Hydrogen atom;

Perturbation theory; time independent – first order nondegenerate, level splitting; time dependent – Golden rule; Identical particles, spin & statistics; Quantum communication, Bell's theorem. Prereq.: Physics 20700 and 20800, Math 39100 and 39200 (required for Physics majors in the Applied Physics Option). 3 hr./wk.; 3 cr.

33100: Intelligent Life in the Universe

Problems concerning the existence of and contact with other intelligent life forms. The physical conditions necessary for development and evolution of such forms. The physical limitations on contact with them. 4 hr./wk.; 4 cr.

33200: Physics of Science Fiction

The physical basis for the many imaginative and speculative schemes encountered in science fiction: anti-matter, space warps, black holes, anti-gravity, time travel, multi-dimensional universes, parallel universes, quarks, robots, flying saucers, Star Trek, etc. Every lecture is accompanied by a color slide show. No prereq. 3 hr./wk.; 3 cr.

ADVANCED COURSES

35100: Mechanics

Newton's laws; Systems of particles; Small oscillations; Central forces and planetary motion; Rotations and rotating coordinate system; Introduction to rigid body motion; Lagrangian dynamics; Introduction to Hamiltonian dynamics. Prereq.: Physics 20800; pre- or cor-req.; Math 39100 (required for Physics majors). 4 hr./wk.; 4 cr.

35300: Electricity and Magnetism I

Review of vector calculus; Electrostatics in vacuum, work & energy, conductors; Laplace's equation and its solution; Electric fields in matter, currents, circuits and dielectrics; magnetostatics, vector potential. Prereq.: Physics 20800; pre- or coreq.: Math 39100 and Physics 35100 or equivalent (required for Physics majors). 3 hr./wk.; 3 cr.

35400: Electricity and Magnetism II

Magnetic fields in matter; Electrodynamics, induction, Makwell's equations; Electromagnetic waves in vacuum and in matter; Guided waves – transmission lines and waveguides; Electromagnetic potentials and radiation; Special relativity. Prereq.: Physics 35300; pre- or coreq.: Math 39100 and Math 39200 (required for Physics majors, except those in the Biomedical Option). 3 hr./wk.; 3 cr.

37100: Advanced Physics Laboratory I

Experiments in electricity, magnetism and electronics. Prereq.: Physics 20800; coreq.: Physics 35300 (required for Physics majors). 3 lab., 1 conf. hr./wk.; 2 cr.

42200: Biophysics

Introduction to the structure, properties, and function of proteins, nucleic acids, lipids and membranes. In depth study of the physical basis of selected systems including vision, nerve transmission, photosynthesis, enzyme mechanism, and cellular diffusion. Introduction to spectroscopic methods for monitoring reactions and determining structure including light absorption or scattering, fluorescence, NMR and X-ray diffraction. The course emphasizes reading and interpretation of the original literature. Prereq.: 1 yr. of Math, 1 yr. of Physics (elective for Physics Majors and Biomedical Engineering students). 3 hr./wk.; 3 cr.

45100: Thermodynamics and Statistical Physics

Temperature; equations of state; work, heat and the First Law; irreversibility, entropy and the Second Law; introduction to kinetic theory and statistical mechanics; low-temperature physics; the Third Law. Prereq.: Physics 35100 and 35300; coreq.: Math 39100 (required for all Physics majors). 3 hr./wk.; 3 cr.

45200: Optics

Dispersion, reflection and refraction, interference, diffraction, coherence, geometrical optics, interaction of light with matter. Prereq.: Physics 35400, or similar engineering courses; pre- or coreq.: Math 39200 (required for all Physics majors, except those in the Biomedical Option). 3 hr./wk.; 3 cr.

45300: Physical Photonics I/Laser Optics

Theory and applications of lasers and masers. Physical principles underlying the design of lasers, coherent optics, and non-linear optics. Pre- or coreq.: a course in modern physics (Physics 55100 or Physics 32100), a course in electricity and magnetism (Physics 35400 or EE 33200). Optics (Physics 45200) is desirable but not required (elective for Physics and Engineering majors). 3 hr./wk.; 3 cr.

45400: Descriptive Astronomy

Astronomy for science majors. Stellar astronomy, galactic astronomy, cosmology, and earth and planetary science. Recent discoveries and topics such as pulsars, black holes, radio astronomy, interstellar medium, radio galaxies, quasars, spiral density waves in disc galaxies, black body radiation, intelligent life beyond the earth. Lectures are supplemented by observations and planetarium shows. Prereq.: Physics 20800 (elective for Physics majors). 3 hr./wk.; 3 cr.

47100: Advanced Physics Laboratory II

Experiments in optics, quantum physics and atomic physics. Prereq.: Phys 35400;

pre or coreq.: Physics 55100 (required for Physics majors). 3 lab., 1 conf. hr./wk.; 2 cr.

52200: Biomedical Physics

Methods used in the study of biophysics and biomedical physics. Study of the physical basis of spectroscopic methods including light absorption or scattering, fluorescence, NMR and X-ray diffraction for the study of biomolecules. Biomedical imaging including sonogram, MRI, and tomography will be discussed. Prereq: 42200 or the consent of the instructor. 3 hr./wk.; 3cr.

55100: Quantum Physics I

Introductory material: 2-slit experiment, matter waves and addition of amplitudes – superposition principle; Uncertainty principle, properties of matter waves: Boundary conditions and energy level quantization and Schrödinger interpretation – wave equation, application to one dimensional problems, barrier penetration, Bloch states in solids and how bands form in solids; The universality of the Harmonic potential – Simple Harmonic oscillator and applications; One electron atoms, spin, transition rates; Identical particles and quantum statistics; Beyond the Schrödinger equation: Variational methods and WKB. Prereq.: Math 39100 and Math 39200. Pre- or coreq.: Physics 35100, Physics 35400 (required for Physics majors). 4 hr./wk.; 4 cr.

55200: Quantum Physics II

Review of Schrödinger equation, Uncertainty principle. Formalism: Observables, Operators etc.; Application to simple case: 2 level systems, electron in a magnetic field; Angular momentum – Bohr model revisited; Magnetic properties of solids; Time independent perturbation theory and applications; Time dependent perturbation theory: Lasers, Masers etc.; Adiabatic processes: Berry's phase, when does phase matter?; Quantum entanglement, Bell's theorem and recent experiments. Prereq.: Physics 55100 or equivalent Math 39100, and Math 39200 (required for Physics majors). 4 hr./wk.; 4 cr.

55400: Solid State Physics

(Same as Physics U4500) Crystal structure and symmetry; crystal diffraction; crystal binding; phonons and lattice vibrations; thermal properties of insulators; free electron theory of metals; energy bands; Fermi surfaces; semiconductors, selected topics in superconductivity, dielectric properties, ferro-electricity, magnetism. Prereq.: Physics 55100 or equivalent, e.g. Chem 33200 or Physics 32100 (elective for Physics and Engineering majors). 3 hr./wk.; 3 cr.

55500: The Physics and Chemistry of Materials

(Same as Physics U4600) Examples, characteristic properties, and applications of important classes of materials (semiconductors, ceramics, metals, polymers, dielectrics and ferroelectrics, super-conductors, magnetic materials); surfaces and interfaces of solids; selected topics in the synthesis, processing and characterization of materials. Prereq.: Phys 55400 or equivalent, e.g. EE 45400 or ChE 46400 (required of Physics majors in the Applied Physics/Material Science Option; and elective for other Physics majors and for Engineering majors). 3 hr./wk.; 3 cr.

55600: Current Topics in Physics

A seminar course on current topics in experimental and theoretical physics, with oral reports by students and faculty (required for Physics majors). 1 hr./wk.; 1 cr.

56100: Materials Science Laboratory

Introduction to some of the basic methods for sample preparation and characterization relevant to materials science. Topics include synthesis of semiconductor thin films and high temperature superconductors, contact preparation, measurements of transport properties as a function of temperature, Raman spectroscopy, electron spin resonance (ESR), X-ray diffraction, absorption measurements in UV-visible range. Prereq.: Physics 32300; coreq.: Physics 55400 or permission of the instructor. 4 lect. hr./wk. for the first three wks., then 7 lab. hr./wk.; 4 cr.

58000: Physical Photonics II

(Same as Physics U6800) Three-level and four-level solid state lasers: ion-doped laser crystals and glasses. Solid-state laser engineering: end-pumping techniques. Laser characterization: limiting slope efficiency. Femtosecond pulse generation: synchronous pumping, active mode-locking of tunable solid-state lasers. Regenerative amplification of ultrashort pulses. Photons in semiconductors: light-emitting diodes and semiconductor lasers. Semiconductor-laser-pumped solid-state lasers; microchip lasers. Photon detectors; noise in photodetectors. Polarization and crystal optics: reflection and refraction; optics of anisotropic media; optical activity and Faraday's effect; optics of liquid crystals; polarization devices. Electro-optics: Pockel's and Kerr effects; electro-optic modulators and switches; spatial modulators; photo-refractive materials. Nonlinear optics: frequency mixing and harmonic generation; optical solutions. Acousto-optics: interactions of light and sound; acousto-optic devices. Prereq.: Phys 45300. 3 hr./wk.; 3 cr.

58100: Physical Photonics III/Wave Transmission Optics

(Same as Physics U8100) Waves and Maxwell's equations. Field energetics, dispersion, complex power. Waves in dielectrics and in conductors. Reflection and refraction. Oblique incidence and total internal reflection. Transmission lines and conducting waveguides. Planar and circular dielectric wave-guides; integrated optics and optical fibers. Hybrid and linearly polarized modes. Graded index fibers. Mode coupling; wave launching. Fiber-optic communications: modulation, multiplexing, and coupling; active fibers: erbium-doped fiber lasers and amplifiers. Prereq.: Phys 35300 and 35400. 3 hr./wk.; 3 cr.

HONORS AND SPECIAL COURSES

30100-30300: Honors I-III

Approval of Dean and Department Honors Supervisor required. Apply not later than December 10 in Fall term or May 1 in the Spring term (elective for Physics majors). Variable cr., usually 3 cr./sem.

31000: Independent Study

The student will pursue a program of independent study under the direction of a member of the Department with the written approval of the faculty sponsor and the Department Chair. Credit may be from 1-4 credits, as determined in the semester before registration by the instructor with the approval of the Department Chair. Students must have completed at least nine credits with a GPA of 2.5 or higher. A maximum of nine credits of independent study may be credited toward the degree. Independent study is to be used to meet special student needs that are not covered in regular course offerings.

31100-32000: Selected Topics in Physics

Courses on contemporary topics to be offered according to the interest of faculty members and students. Consult Department for courses to be offered each academic year. 3 hr./wk.; 3 cr.

GRADUATE COURSES OPEN TO UNDERGRADUATES

Qualified students may take, with Departmental approval, any course available in the Master's Program in Physics or the first year of the Doctoral Programs in Physics. These courses are described in their appropriate catalogs.

FACULTY**Robert R. Alfano, Distinguished Professor**

B.S., Fairleigh Dickinson Univ., M.S.; Ph.D., New York Univ.

Joseph L. Birman, Distinguished Professor

B.S., The City College; M.S., Columbia Univ., Ph.D.; Doc-es-Sciences

Timothy Boyer, Professor

B.A., Yale Univ.; M.A., Harvard Univ., Ph.D.

Ngee-Pong Chang, Professor

B.S., Ohio Wesleyan Univ.; Ph.D., Columbia Univ.

Harold Falk, Professor

B.S., Iowa State Univ.; Ph.D., Univ. of Washington

Swapan K. Gayen, Professor

B.Sc.(Honors), Univ. of Dacca, M.Sc.; M.S., Univ. of Connecticut, Ph.D.

Joel Gersten, Professor

B.S., The City College; M.A., Columbia Univ., Ph.D.

Daniel M. Greenberger, Professor

B.S., M.I.T.; M.S., Univ. of Illinois, Ph.D.

Marilyn Gunner, Professor

B.A., SUNY (Binghamton); Ph.D., Univ. of Pennsylvania

Michio Kaku, Semat Professor

B.A., Harvard Univ.; Ph.D., Univ. of California (Berkeley)

Ronald Koder, Assistant Professor

B.S., Univ. of Missouri-Columbia, Ph.D., John Hopkins Univ.

Joel Koplik, Professor

B.S., Cooper Union; Ph.D., Univ. of California (Berkeley)

Matthias Lenzner, Associate Professor

M.S., Friedrich-Schiller-Univ.; Ph.D., Jena Germany

Michael S. Lubell, Professor

A.B., Columbia Univ.; M.S., Yale Univ., Ph.D.

Hernan Makse, Professor

Licenciatura (Physics), Univ. of Buenos Aires; Ph.D., Boston Univ.

Carlos Andres Meriles, Associate Professor

B.Sc., FaMAF, Universidad Nacional de Cordoba, Argentina, Ph.D.

V. Parameswaran Nair, Professor and Chair

B.S., Univ. of Kerala; M.Sc., Syracuse Univ., Ph.D.

Vladimir Petricevic, Professor

Dipl. EE., Univ. of Belgrade; M.S. Miami Univ.; Ph.D., CUNY

Alexios P. Polychronakos, Professor
Dip. E.E., National Technological Univ. of Athens; M.Sc., California Institute of Technology, Ph.D.

Alexander Punnoose, Associate Professor

B.S., Indian Institute of Technology; M.S., Indian Institute of Science, Ph.D.

Myriam P. Sarachik, Distinguished Professor

A.B., Barnard College; M.S., Columbia Univ., Ph.D.

David Schmeltzer, Professor

B.Sc., Hebrew Univ.; M.Sc., Technion, D.Sc.

Mark Shattuck, Associate Professor

B.A., Wake Forest Univ., M.S.; Ph.D., Duke Univ.

Frederick W. Smith, Professor

B.A., Lehigh Univ.; Ph.D., Brown Univ.

Jiufeng J. Tu, Associate Professor

A.B., Harvard Univ., A.M.; M.S., Cornell Univ., Ph.D.

Sergey A. Vitkalov, Associate Professor

M.S., Moscow Institute of Physics and Technology; Ph.D., Institute of Solid State Physics, Russian Academy of Sciences

PARTICIPATING FACULTY**Morton M. Denn, Albert Einstein Professor**

B.S.E. (Ch.E.), Princeton Univ.; Ph.D., Univ. of Minnesota

Richard N. Steinberg, Professor

B.S., SUNY Binghamton; M.S., Yale Univ., Ph.D.

PROFESSORS EMERITI

Adolf Abrahamson

Michael Arons

Robert Callender

Herman Z. Cummins

Erich Erlbach

Martin Kramer

Seymour J. Lindenbaum

Marvin Mittleman

Martin Tiersten

Department of Political Science

(DIVISION OF SOCIAL SCIENCE)

Professor John Krinsky, Chair • Department Office: NA 4/136 • Tel: 212-650-5236

GENERAL INFORMATION

The City College offers the following undergraduate degree in Political Science:

B.A.

PROGRAM OBJECTIVES AND CAREERS

The Political Science Department offers a wide variety of courses on politics, law and government. Courses explore political institutions of every kind: executive and legislative bodies; courts and legal systems; bureaucracies, political parties, interest groups and coalitions; mass media; structures of international cooperation and conflict; ethnic, religious and ideological movements. We try to understand where political power is, how it operates, whose interests it serves—who gets what, when, where, how. But we also ask, not only how political institutions work, but how they should work, what human values they serve, or violate; what is the ultimate meaning and purpose of political life.

The department prepares people for careers in politics and in government employment generally; in law; in mass communications; in health professions; in every aspect of private and public planning. But our central vocation is to give students the knowledge and awareness they will need to become free men and women, and active citizens.

REQUIREMENTS FOR MAJORS

Required Courses

| | |
|---|---|
| 10100: American Government and Politics | 3 |
| 12400: Political Ideas and Issues | 3 |

Elective Courses

Ten courses distributed among the following four areas: 30

United States Politics and Government* (minimum 6 cr.)

22000: The Judiciary

22100: The Congress

22200: The Presidency

Comparative Politics and Government * (minimum 3 cr.)

10400: World Politics**

23000: Contemporary Comparative Politics

International Relations* (minimum 3 cr.)

10400: World Politics**

25000: Contemporary International Relations

Political Theory and Philosophy* (minimum 3 cr.)

27300: Classical Political Thought

27400: Modern Political Thought up to 1848

27500: Contemporary Political Thought—1848 to the Present

Total Credits 36

*The first course taken in each subfield should normally be chosen from among the listed courses.

** Psc 10400 may be taken in place of either Psc 23000 or Psc 25000. It cannot take the place of both courses.

ADDITIONAL REQUIREMENTS

In addition to major requirements, all Political Science majors must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) or Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)

2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

HONORS PROGRAM

Students with a 3.2 average or better in Political Science are eligible, in their Junior year, to apply for the Honors Program in Political Science. For further information, consult the Director of the Honors program.

INTERNSHIPS

The Political Science Department offers an Internship in Public and International Affairs, as well as information regarding internships in the New York State Assembly and State Senate, unions, environmental groups, and other governmental and non-governmental institutions. For information on available internships consult a Department advisor.

The Department also cooperates with the Rosenberg-Humphrey Program in sponsoring summer internships in Washington, D.C. and the Colin Powell Center Fellows Program.

ADVISEMENT

The Political Science Department assigns a faculty advisor to each Political Science major. New majors desiring an advisor, or majors seeking a new advisor, should consult with the Chair so they can be assigned an advisor in their particular sub-field of interest.

DEPARTMENTAL ACTIVITIES

The Political Science Department sponsors a number of student organizations, such as the Government and Law Society and the International Relations Club.

AWARDS

Students are invited to apply for honors and awards given annually for outstanding work in political science. For detailed information, consult the Chair or member of the Awards Committee. Awards include:

The D'Agostino/Greenberg Scholarship in Law and Public Policy

The Bennett Essay Prize

The Henry Epstein Rule of Law Prize

The Hillman Bishop Award

The Ivo Duchacek Prize

The Kupferman Prize

The Murray A. Gordon Scholarship Award

The Samuel Hendel Award

The Stanley Feingold Prize

The Theodore Leskes Memorial Award

The Ward Medal

The Carl Dunat Prize

COURSE DESCRIPTIONS

CORE COURSES

10100: United States Politics and Government

An analysis of processes, values and problems of American government and democracy. Special emphasis is given to national political institutions and issues. 3 hr./wk.; 3 cr.

10101: American Government and Politics

For students enrolled in the Freshman Honors Program. This course covers more intensively and more comprehensively the subject matter of Political Science 10100. The student is expected to read several additional books, prepare papers, and participate actively in class discussions. 3 hr./wk.; 4 cr.

21002: Politics and Leadership

The dynamics and dilemmas of leadership and power. Various definitions of politics

and systems of government will be related to current political controversies. Use of case studies, novels, films, essays, and other materials to illustrate political processes and concepts. Satisfies requirements of discipline-based writing course. Prereq.: satisfactory completion of English 11000. 3 hr./wk.; 3 cr.

INTRODUCTORY COURSES

The following introductory electives are expected to serve as prerequisites to further study in a subfield. Thus the Introduction to World Politics should be taken before enrolling in a more advanced International Politics course. Introduction to the Legal Process is a prerequisite to courses in Law, and so on. Additional prerequisites may be listed under some courses and may be waived only with the permission of the Instructor or the Department Chair.

10400: Introduction to World Politics

Major patterns of contemporary world politics and the basic analytic tools for examining them that have been developed by students of comparative politics and international relations. The course will examine competing ideologies and systems of governance, patterns of international conflict and cooperation, and causes of the rise, fall and transformation of systems of world politics. 3 hr./wk.; 3 cr.

12400: Political Ideas and Issues

The relevance of political theory in the examination and solution of current political controversies. The course will cover such themes as justice, legitimacy, civil liberties, civil disobedience, the nature of man, society and the state. Focus will be on great writings in political thought from all periods. 3 hr./wk.; 3 cr.

12500: Introduction to Public Policy

Contemporary public policy. How policy issues are formulated, resolved and evaluated. The major techniques of policy analysis and public affairs research, with emphasis on the social and political contexts of policy problems. 3 hr./wk.; 3 cr.

12600: Introduction to the Legal Process

The basic institutions, procedures and theory of the administration of justice. Students examine typical proceedings, civil and criminal, and the operation of administrative as well as judicial tribunals. The legal process in relation to the American political system. 3 hr./wk.; 3 cr.

ELECTIVE COURSES

The prerequisite for all electives is Political Science 10100 or permission of the instructor. Additional prerequisites may be listed under some courses.

I. United States Politics and Government

20700: The Politics of Criminal and Civil Justice

The uses and limitations of law as a vehicle for achieving and securing a just political and social order. Special attention to the persistence of discrimination and inequality in the establishment and operation of legal systems. Prereq.: PSc 10100, 12600, or permission of the instructor. (W) 3 hr./wk.; 3 cr.

20800: American Political Thought I: 1620-1865

The origins and development of American political thought from the Puritan times to the end of the Civil War. The course will include study of basic themes in American thought: the scope and bounds of legitimate government power, majority rule and minority rights, federalism and centralization, participatory democracy, checks and balances, religious freedom and separation of church and state. Also counts as a political theory and philosophy course. (W) 3 hr./wk.; 3 cr.

20900: American Political Thought II: 1865-Present

The development of American political thought from the end of the Civil War to the present. The course will include study of major political issues emergent since Reconstruction: race and gender issues, immigration, urbanization, multiculturalism, business-government relations, management of the American economy, and America's relationship to the world. Also counts as a political theory and philosophy course. (W) 3 hr./wk.; 3 cr.

21000: Urban Politics

The politics and policy problems of urban areas throughout the United States. Emphasis on both the central cities and their suburbs, as well as their relationships to state governments and national institutions. (W) 3 hr./wk.; 3 cr.

21100: New York Politics

The government and politics of New York City and State. An analysis of the processes, values and problems of contemporary New York and of the relationships between the City and rest of the State. (W) 3 hr./wk.; 3 cr.

21200: Constitutional Law, The Federal System

Survey of the historical and political role of the Supreme Court, focusing on leading decisions. These deal with central problems of judicial review and democracy, the federal system, and the scope and limits of congressional and presidential power. (W) 3 hr./wk.; 3 cr.

21300: Constitutional Law, Individual Liberties

The conflicts between majority rule and minority rights in leading Supreme Court decisions. Major attention to the more recent decisions concerning freedom of speech, freedom of religion, and other civil liberties, as well as social legislation and regulation of business. Prereq.: PSC 21200 or permission of the instructor. (W) 3 hr./wk.; 3 cr.

21600: Political Parties and Interest Groups

Interest groups and pressure politics. The rise of new groups in the political process. The nature and functions of parties under the American system of government; major and minor parties; party finance and political machines; national campaign issues and techniques. (W) 3 hr./wk.; 3 cr.

21700: Mass Media and Politics

The political questions raised by the growth, methods and technology of the mass media. Includes exploration of alternative theories of communication; the development of special media-oriented social roles and events; and the relationship between mass communication, symbolic politics, and political behavior at both the individual and societal level. (W) 3 hr./wk.; 3 cr.

22000: The Judiciary

How courts function in the political system. Examination of the motivations of judges, the social and cultural contexts of courtroom behavior, and role of the judiciary in policy-making. (W) 3 hr./wk.; 3 cr.

22100: The Congress

An examination of the role of legislative bodies in our political system. Organization, procedures and operations are the focus of the course. Case studies dealing with contemporary policy-making are integrated throughout the semester. (W) 3 hr./wk.; 3 cr.

22200: The Presidency

Assessment of the present and possible future role of the American presidency. The development of the office, its relationship to other institutions and politics, and contemporary problems. Topics include the duties of the President as Chief Executive, legislator, shaper of foreign policy, Commander-in-Chief, party leader, and head of state. (W) 3 hr./wk.; 3 cr.

22300: United States Foreign Policy

This course will examine the nature and instruments of American foreign policy with the aim of equipping the student with the tools to make his/her own evaluation. Emphasis will be on the interplay between "ideas" and "reality" in this nation's approach to the outside world. Current

foreign policy issues will be thoroughly examined. Also counts as an International Relations course. (W) 3 hr./wk.; 3 cr.

22400: An Introduction to Quantitative Data Literacy

The use and abuse of statistics in politics, journalism and the social sciences. Indices, such as crime and unemployment rates, and the use of statistical data in approaching policy problems and in studying political phenomena. Emphasis on the use and limitations of quantitative data as evidence for description and problem analysis. This course may not be substituted for a required course in mathematics, statistics or methodology. (W) 3 hr./wk.; 3 cr.

22600: Ethnic and Racial Politics in the United States

Detailed examination of cooperation and conflict among various ethnic groups. Particular attention will be paid to such topics as busing, affirmative action, neo-conservative thought, and comparative ethnic issues. (W) 3 hr./wk.; 3 cr.

22800: Policy Analysis

Designed to provide practical insights into the use of technical information and technical skills in the legislative and administrative processes of government. Designed especially for students in the School of Engineering and Architecture, this course is open by permission of the instructor to other interested students. Prereq.: Economics 10400 or 26400 or permission of the instructor. (W) 3 hr./wk.; 3 cr.

22900: Women and Politics

This course explores the theoretical underpinnings of contemporary feminism and analyzes the changing dimensions of women's participation in American politics. Electoral, interest group, and elite level political involvement will be discussed and comparisons made with women's political role in other nations. (W) 3 hr./wk.; 3 cr.

32200: Freedom of Expression**Seminar**

An advanced seminar examining the provisions of the First Amendment of the U.S. Constitution that deal with freedom of expression from historical, theoretical, and doctrinal perspectives. Considers freedom of expression in the light of competing values such as equality and privacy. (W) 3 hr./wk.; 3 cr.

32400: The Politics of Protest

The emergence, development and ultimate impact of protest movements on politics and policy in American politics. Through an examination of several movements in the United States after World War II, such as the civil rights, women's and anti-tax movements, the course will focus on three basic sets of questions: under what

circumstances do dissident movements emerge? how do dissidents choose political tactics and strategies? and how do movements influence more conventional politics and policy? (W) 3 hr./wk.; 3 cr.

II. Comparative Politics and Government**23000: Contemporary Comparative Politics**

The basic problems of comparing different types of political systems and their institutions. Specific examples are taken from American, western European and the Communist experience, as well as from cases drawn from the developing world. (W) 3 hr./wk.; 3 cr.

23100: European Politics and Government

Political processes in European countries viewed in terms of historical influences and contemporary social structure, and in comparison with American experience. (W) 3 hr./wk.; 3 cr.

23500: Introduction to the Politics of Developing Nations

Analysis of theories of development and their application in particular to the nations of the global south, the political, social and economic problems of developing countries, with particular emphasis on public policy choices. International economic influences (problems of foreign aid, trade and investment) as well as domestic influences on policy are discussed. (W) 3 hr./wk.; 3 cr.

23600: Latin American Political Systems

Contemporary political systems in selected countries. Emphasis upon the cultural environments, constitutional foundations, and practices, political and administrative patterns, political instability and revolution, the role of the family, church, army, intellectual and caudillo, and the relations of these governments with each other and the world. (W) 3 hr./wk.; 3 cr.

23700: Political Systems in Asia

The political institutions in the Far East and developments in Southeast Asia in the framework of world politics. Analyzes selected problems affecting six major powers: Japan, India, Pakistan, Indonesia, Communist China and Russia-in-Asia. (W) 3 hr./wk.; 3 cr.

23900: Developing Political Systems in Africa

Events leading to independence, forms of government, politics and parties, sociological and economic factors, orientation and world politics. (W) 3 hr./wk.; 3 cr.

24000: Politics of Southern Africa

A survey of politics, race relations, and African nationalism south of the Zambezi: Angola, South Africa, Namibia, Zimbabwe, Mozambique, Lesotho, Botswana, and Swaziland. Special attention to South Africa, its relations with adjacent areas and other states north of the Zambezi and abroad, and the problems of revolutionary change. (W) 3 hr./wk.; 3 cr.

24500: Caribbean Politics

The course will focus on key actors and institutions shaping contemporary Caribbean politics and policy. Of particular importance will be the role of those actors and institutions, both domestic and transnational, in shaping development in the region. Case studies will be drawn from several islands to maximize the comparative nature of the course. (W) 3 hr./wk.; 3 cr.

35500: Environmental Politics: Comparative and Global Perspectives

Examines the rise of environmental consciousness and the key actors and institutions in environmental politics and policy-making at the domestic level. In particular such issues as global warming, ozone depletion, biodiversity, deforestation, and the links between environment and economic development are addressed. Latin America contains much of the planet's rainforests and biodiversity, hence has a great concern for "green" environmental issues. It is also urbanizing at a rapid rate and must address the "brown" environmental issues associated with rapid city growth and industrialization. Many of the cases read and examples cited during the course are drawn from Latin American context. (W) 3 hr./wk.; 3 cr.

III. International Relations**20200: International Political Economy**

An examination of the relationship between political and economic systems in selected industrialized and developing countries. Introduction to theories of political economy as they apply at the domestic and international levels. The course is designed to strengthen the students' theoretical foundation for advanced study of world affairs and to prepare them for courses focusing on particular world problems or areas such as industrialized countries or development in poor countries of the Third World. (W) 3 hr./wk.; 3 cr.

25000: Contemporary International Politics

Introduction to the dynamics of international relations: power, types of international systems, East-West relations, the foreign policies of major powers and of the Third World, causes of conflict and the

role of international law organization. (W) 3 hr./wk.; 3 cr.

25200: Theories of International Relations

Analysis of basic theoretical approaches at the individual, state, sub-systemic (regional) and systemic (international) levels. Includes discussion of personality and psychological approaches, decision-making, comparative foreign policy, regional integration, alliances, and the international system. Basic introduction to social science methodology as applied to international relations. (W) 3 hr./wk.; 3 cr.

25300: International Law

Development of the basic principles of international law, including those relating to war and peace. Special attention will be placed on the role of international law in international relations and recent legal problems in international politics: trade, the sea, terrorism, the redefinition of sovereignty, minority and human rights, and international criminal tribunals. (W) 3 hr./wk.; 3 cr.

25400: International Organization

General and regional intergovernmental organizations, with emphasis on purposes, organs, functions and processes of the United Nations; problems of conflict resolution, decolonization, disarmament, social and economic development and the application of international law are discussed. The National Model United Nations Simulation (PSc 25500) may be taken as an adjunct to this course. (W) 3 hr./wk.; 3 cr.

25500: Model United Nations Internship

Simulation of the United Nations in class and at local level, leading to a national exercise, held partly at the U.N., which brings together college students from around the country, from Canada, Puerto Rico and Japan. Should be taken simultaneously with, or after, PSc 25400. Open to other students only by permission of instructor. (W) 3 hr./wk.; 3 cr.

25600: Contemporary World Conflict

The psychological, sociological, cultural, economic and military sources of international conflict. Includes analyses of contemporary regional and global conflicts, and methods of conflict resolution, including negotiation, coercion, diplomacy and war. (W) 3 hr./wk.; 3 cr.

35700: International Relations in Selected Areas

A study of the foreign policies and interrelations of nations in selected areas; contacts, cooperation, and conflicts between areas will also be considered. (W) 3 hr./wk.; 3 cr.

IV. Political Theory and Philosophy**27300: Classical Political Thought**

Ancient writers and the experiences of the ancient city-state will be studied with a view to their influence, validity and contemporary relevance. Readings will include Plato and Aristotle, among others. (W) 3 hr./wk.; 3 cr.

27400: Modern Political Thought: Up to 1848

Will explore some of the political, social and ethical ideas which arose out of the process of modernization as it first occurred in the West. Readings vary from term to term, but include some of the following: Machiavelli, Hobbes, Locke, Montesquieu, Diderot, Rousseau, Burke, Paine, Bentham, Hegel, Marx (early writings), Shakespeare, and novelists of the nineteenth century. There will be special emphasis on the Enlightenment and French Revolution. (W) 3 hr./wk.; 3 cr.

27500: Contemporary Political Thought: 1848 to the Present

Issues and ideas discussed will include: alienation, anomie, mass society, eclipse of community, bureaucratization, uses and abuses of technology, totalitarianism, and ambiguities of modernization. Readings may include Marx, Weber, Freud, Kafka, Arendt, Orwell, and other nineteenth and twentieth century thinkers. (W) 3 hr./wk.; 3 cr.

37600: Marxism

A study of Karl Marx's social thought and political activity, and of other radical responses to modern capitalism. We will explore some of the "different roads to socialism" that have emerged in the twentieth century. There will be special emphasis on the contrast between democratic socialism and Leninism. (W) 3 hr./wk.; 3 cr.

37700: Judeo-Christian Political Thought

The contributions of Judeo-Christian thinking to the tradition of political thought in the West. The religious roots of radicalism, universalism, transcendentalism and individualism, as reflected in Old and New Testaments, and representative writers from the ancient, medieval and modern periods. (W) 3 hr./wk.; 3 cr.

V. Independent Study**30100-30200: Honors I-II**

Honors will be granted to graduating seniors on the basis of a research paper and a comprehensive written examination taken in two fields of political science. Admission to the course requires (1) a 3.2 average in courses taken in the Social Sciences since the freshman year and (2) approval by the Department Honors

Supervisor and the Dean. Apply no later than December 10 in the Fall term or May 1 in the Spring term. (W) Honors I (30100), 3 cr.; Honors II (30200), 3 cr.

31000: Independent Readings and Research in Political Science

Designed to meet the special needs of individual students not met by existing courses. Requires approval of Department Chair and availability of an instructor willing to supervise the reading or research program before registering. 1-3 cr./sem.

VI. Special Topics in Political Science

31100-31500: Selected Topic Seminars in Political Science

Advanced study in limited registration seminars, the topics to be chosen from the area of American politics, comparative politics, international relations, political theory and methodology, and combinations of the above. Open to students only with the permission of the Department Chair. 2 hr./wk.; 3 cr.

31600-32000: Selected Topic Electives in Political Science

Advanced study in topics chosen from the areas of American politics, comparative politics, international relations, political theory and methodology, and combinations of the above. Prerequisites to be established by instructor. 3 hr./wk.; 3 cr.

VII. Internships

32300: Legislative Internships

Offers students the opportunity to participate in the New York Assembly or Senate Internship Programs, or other legislative internships that combine practical experience and academic training. Credit varies, though typically 12 credits will be awarded for those students who successfully complete the programs offered by the New York State Legislature. Prereq.: junior or senior status and permission of the instructor.

32701-32702: Seminar Internship in Public and International Affairs

This course is part of a City University internship program designed for students interested in the practical aspects of government at city, state and federal levels, as well as in international organizations. 2 hr./wk., plus internship; 4 cr.

FACULTY

Sherrie L. Baver, Associate Professor
B.A., Barnard College; M.Phil.,
Columbia Univ., Ph.D.

Marshall Berlan, Distinguished Professor

B.A., Columbia Univ.; B. Litt., Oxford Univ.; Ph.D., Harvard Univ.

Vincent G. Boudreau, Professor
B.A., LeMoyne College; M.A., Cornell Univ., Ph.D.

Jacqueline A. Braveboy-Wagner, Professor
B.A., Univ. of the West Indies, M.Sc.; Ph.D., Univ. of Arizona

Bruce Cronin, Associate Professor
B.A., SUNY (Albany); M.A., New York Univ.; Ph.D. Columbia Univ.

Daniel R. DiSalvo, Assistant Professor
B.A., Skidmore College; M.A., Fordham Univ.; Ph.D., Univ. of Virginia

Leonard Jeffries, Jr., Professor
B.A., Lafayette College, M.I.A.; Ph.D., Columbia Univ.

John Krinsky, Associate Professor and Chair
B.A., Swathmore; M.A., Columbia Univ., Ph.D.

Mira Morgenstern, Associate Professor
B.A., City College; M.A., Yeshiva Univ.; Ph.D., Princeton Univ.

Andrew Rich, Associate Professor
B.A., Univ. of Richmond; M.A., Yale Univ., M.Phil., Ph.D.

PROFESSORS EMERITI

Moyibi J. Amoda

Allen B. Ballard

Randolph L. Braham

John A. Davis

Alan Fiellin

Joyce Gelb

Diana Gordon

John H. Herz

George N. McKenna

Thomas G. Karis

Arnold Rogow

Edward V. Schneier

Pre-Law Program

(DIVISION OF SOCIAL SCIENCE)

Professor Karen Struening, Acting Director • Program Office: NA 4/149 • Tel: 212-650-5581

GENERAL INFORMATION

The City College offers the following undergraduate degree in Pre-Law:

B.A.

PROGRAM AND OBJECTIVES

Admission to law school is not based upon any specific pre-legal course of study. Superior students from all disciplines are accepted by law schools, and no student should feel it necessary to major in pre-law to be a competitive applicant to schools of law. Indeed, most legal educators strongly encourage undergraduate pre-law students to avoid an excessively narrow course of study and to enroll in challenging courses which will strengthen their writing and analytical abilities.

The American Bar Association recommends that pre-law students follow a course of studies which will give them precision and polish in both written and spoken English, sharpen their skills of reasoning, logic, decision-making, and analytical thinking, and equip them with a broad understanding of history, politics, economics, philosophy and the relationship of law to social institutions. Similarly, a 1982 Task Force Report to the Conference of Chief Justices called for "an undergraduate course of study that fosters a broad understanding of U.S. political institutions and values, an appreciation of the history of Western culture and ideas, insight into human behavior, and experience in the analysis and critical examination of ideas."

The interdisciplinary Pre-Law Major is designed to offer City College undergraduates just such a broad and demanding curriculum.

REQUIREMENTS FOR MAJORS

Required Courses

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|--|----|
| Economics: | |
| One of the following two: | 3 |
| 10000: Principles of Microeconomics (3 cr.) | |
| 10300: Principles of Macroeconomics (3 cr.) | |
| English: | |
| 21002: Writing for the Social Sciences | 3 |
| One of the following two: | 3 |
| 23000: Prose Writing Workshop (3 cr.) | |
| 33000: Critical Reading and Writing (3 cr.) | |
| Philosophy: | |
| 20100: Logical Reasoning | 3 |
| Two of the following three: | 6 |
| 11100: Critical Thinking (3 cr.) | |
| 30800: Ethics (3 cr.) | |
| 30900: Social and Political Philosophy (3 cr.) | |
| Political Science: | |
| 12600: Introduction to the Legal Process | 3 |
| 20800: American Political Thought I: 1620-1865 | 3 |
| 20900: American Political Thought II: 1865-Present | 3 |
| 21200: Constitutional Law I: The Federal System | 3 |
| 21300: Constitutional Law II: Individual Liberties | 3 |
| Elective Courses | 12 |
| Four courses from the following list, or as approved by the pre-law advisor: [No more than two from any single department] | |
| Anthropology: | |
| 20100: Cross-Cultural Perspectives (3 cr.) | |
| 22500: Class, Gender and Ethnicity (3 cr.) | |
| 23100: Anthropology of Law (3 cr.) | |

Economics:

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|---------------------------------------|
| 22000: Microeconomic Theory I (3 cr.) |
| 22100: The Congress (3 cr.) |
| 22500: Macroeconomics I (3 cr.) |
| 22600: Macroeconomics II (3 cr.) |

English:

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| 41900: Advanced Writing Workshop (3 cr.) |
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History:

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| 37000: The American Legal Tradition (3 cr.) |
| 33200: The Era of the American Revolution (3 cr.) |
| 33300: The New Nation, Slave and Free, 1783 to 1840 (3 cr.) |
| 33400: The Era of Civil War and Reconstruction, 1840-1877 (3 cr.) |
| 33500: The Response to Industrialization, to 1917 (3 cr.) |
| 33600: The United States in the Twentieth Century (3 cr.) |

Philosophy:

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| 30500: History of Philosophy I (4 cr.) |
| 30600: History of Philosophy II (4 cr.) |
| 30900: Social and Political Philosophy (3 cr.) |

Political Science:

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| 20700: The Politics of Civil and Criminal Justice (3 cr.) |
| 22000: The Judiciary (3 cr.) |
| 22100: Congress and the Legislative Process (3 cr.) |
| 22200: The Presidency (3 cr.) |
| 27500: Contemporary Political Thought: 1848 to the Present (3 cr.) |

Psychology:

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| 24700: Social Psychology (3 cr.) |
| 26900: Behavior in Organizations (3 cr.) |

Sociology:

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| 23700: Foundations of Sociological Theory (3 cr.) |
| 24100: Criminology and Corrections (3 cr.) |
| 25100: Urban Sociology (3 cr.) |

Total Credits

45

ADDITIONAL REQUIREMENTS

In addition to major requirements, all Pre-Law majors must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) *or* Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)
2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

Premedical Studies Program

(DIVISION OF SCIENCE)

Belinda G. Smith, Director • Department Office: MR 529 • Tel: 212-650-6622

GENERAL INFORMATION

PROGRAMS AND OBJECTIVES

Eligibility Requirements for Undergraduate Students interested in PPS:

- a completed application;
- a cumulative 3.0 GPA and a 3.0 GPA in science courses;
- one year of general biology;
- one semester of general chemistry;
- one semester of calculus.

Eligibility Requirements for Post-Baccalaureate Students interested in PPS:

Two-step application process: students must submit the CUNY Transfer Admission application, and the Program in Premedical Studies Post-baccalaureate application. Two letters of recommendation are required. A personal statement is also required. Official transcripts must be forwarded from the undergraduate institution to the Director. Students must have a minimum 2.8 GPA to be considered for the Postbaccalaureate program at The City College of New York. The application deadlines are May 1 for summer, August 1 for Fall and December 1 for Spring.

Summer Field Experience

During the summers following the sophomore and junior years, PPS students are encouraged to work as volunteers in hospitals, community health centers, or research laboratories.

Undergraduate Research

Qualified juniors and seniors may elect to do research in biochemistry, biology, chemistry, physics or psychology. Projects are supervised and guided by members of the City College faculty.

Some of these students are eligible for scholarships and salaries through the Biomedical Research Programs.

PROGRAM REQUIREMENTS

PPS students who are undergraduate degree candidates must select a major department and complete all departmental and divisional requirements. Most courses listed are also applicable to the departmental major in science.

Required Courses

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|---|------|
| Biology | 8 |
| 10100: Foundations of Biology I (4 cr.) | |
| 10200: Foundations of Biology II (4 cr.) | |
| Chemistry: | |
| 10301: General Chemistry I | 4 |
| 10401: General Chemistry II | 4 |
| 26100: Organic Chemistry I | 3 |
| 26300: Organic Chemistry II | 3 |
| One of the following two: | 2-3 |
| 26200: Organic Chemistry Lab (2 cr.) | |
| 27200: Organic Chemistry Laboratory (3 cr.) | |
| Physics: | 8 |
| 20300-20400: General Physics (for Biology, Humanities or Social Science majors) | |
| 20700-20800: General Physics (for Chemistry or Physics majors) | |
| Mathematics: | |
| One of the following sequences: | 8-12 |
| Sequence 1: | |
| 20500: Elements of Calculus (4 cr.) | |
| 20900: Elements of Calculus and Statistics (4 cr.) | |
| Sequence 2: | |
| 20100: Calculus I (4 cr.) | |

20900: Elements of Calculus and Statistics (4 cr.)

Sequence 3:

20100: Calculus I (4 cr.)

20200: Calculus II (4 cr.)

17300: Introduction to Probability and Statistics (4 cr.)

Sequence 4: (for Chemistry and Physics majors)

20100: Calculus I (4 cr.)

20200: Calculus II (4 cr.)

20300: Calculus III (4 cr.)

Total Credits

40-45

ADVISEMENT

The Program in Premedical Studies provides academic guidance and career counseling, among other services. Students who need advice on course planning, information regarding seminars and symposia, etc., have the opportunity to meet with Peer Advisors in the office, MR-529; 212-650-6622 or email premedical@sci.ccnycuny.edu.

Tutorial Services

Small group tutoring in biology, chemistry, physics and mathematics is available to all students in the program.

CLUBS

The Caduceus Society

The City College Premedical (Caduceus) Society, founded at the College in 1935, presents weekly lectures and workshops on medical school admissions policies, financial aid, interviewing techniques and other matters related to admission to schools of health professions.

Alpha Epsilon Delta

Alpha Epsilon Delta, the national Premedical Honor Society, has a chapter at The City College of New York.

The mission of the Society is to encourage and recognize excellence in premedical scholarships; to stimulate an appreciation of the importance of premedical education; to promote communication between medical and premedical students and educators; to provide a forum for students with common interests; and to use its resources to benefit health organizations, charities and the community.

AWARDS

The Bolognino Scholarship

To students admitted to medical school.

The Sigmund and Rebecca L. Mage Scholarship

To a student in the process of applying to medical school.

The Dr. Jonas E. Salk Scholarship Award

To students admitted to medical school. A university-wide award.

The Benjamin Segal Scholarship

To a humanities graduate at the College admitted to medical school.

The Irving (Isaac) Shendell Memorial Scholarship

To students admitted to dental school.

Department of Psychology

(DIVISION OF SOCIAL SCIENCE)

Professor Robert Melara, Chair • Department Office: NA 7/120 • Tel: 212-650-5442

GENERAL INFORMATION

The City College offers the following undergraduate and combined degrees in Psychology:

B.A.

B.S.

B.A./M.A. (Combined Degree)

PROGRAMS AND OBJECTIVES

The major provides students with a broad overview of theoretical and research perspectives in psychology and applications of these perspectives to social and community issues. Undergraduate training is offered through gateway courses and advanced courses and can include honors study and laboratory and fieldwork. These offerings provide opportunities for students to work closely with faculty and professionals in the field on research and service projects. Both the B.A. and the B.S. are degree options for psychology majors. Highly qualified and motivated students can earn their B.A. and M.A. degrees simultaneously. The department also offers the coursework needed to obtain New York State certification as an Alcohol and Substance Abuse Counselor. Graduates of the Department of Psychology should be:

Knowledgeable

Understand basic and more advanced psychological theories, principles, and concepts in a variety of areas such as, human development, social interaction, psychopathology, cognitive processes, and the biological bases of behavior.

Analytical

Acquire and apply critical thinking to the content of a discipline and to

practical problems they confront in other settings, including: evaluating fact-based evidence, engaging in both inductive and deductive logical reasoning, identifying and considering multiple points of view, and applying the above processes to problem-solving.

Conduct research and evaluate research by others, including: evaluating hypotheses, research designs, research findings, and theories and formulating questions and hypotheses, designing research protocols, and analyzing research findings, using appropriate statistical procedures and statistical software packages.

Practical

Apply psychological concepts, principles and research findings to understanding social, political, and cultural phenomena and to their own lives and experiences.

Effective in Communication

Demonstrate effective communication skills in oral, written, and numerical formats.

Professional in Attitudes and Behavior

Act ethically, both in the conduct of research and in their everyday interactions

REQUIREMENTS FOR MAJORS

Required Courses

| | |
|---|-----|
| Psychology: | |
| One of the following three: | 3-4 |
| 10101: Psychology for Freshman Honors Students (4 cr.) | |
| 10200: Applications of Psychology in the Modern World (3 cr.) | |
| 10299: Applications of Psychology in the Modern World (3 cr.) | |
| 21500: Applied Statistics | 4 |
| 32100: Experimental Psychology | 4 |

| | |
|------------------|----|
| Gateway Courses | 9 |
| Advanced Courses | 12 |

In addition to Psychology 10101, 10200 or 10299, 21500 and 32100, students must complete nine credits from "gateway" courses (20000 level), with at least one course from three of the four areas of concentration (Developmental Psychology, Social/Personality Psychology, Cognitive Psychology, and Biological Psychology). Twelve credits must be from advanced courses (30000-level) and must come from at least two of the concentration areas.

Total credits 32

ADDITIONAL REQUIREMENTS

In addition to major requirements, B.A. in Psychology majors must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) *or* Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)
2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

In addition to major requirements, all B.S. in Psychology majors must complete the following:

1. General Education Requirement including FIQWS, Calculus, Perspective and In-depth requirements (for students who entered after Fall 2008) *or* Old Core Requirement, including English

11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2008)

2. English 21003
3. Foreign Language Requirement
4. CPE Examination
5. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

REQUIREMENTS FOR THE MINOR

Students may minor in Psychology by completing Psychology 10200 and any additional four 3-credit Psychology courses achieving a total of 15 credits.

THE COMBINED B.A./M.A. DEGREE

Students with a general GPA of at least 3.2 and a Psychology GPA of at least 3.5 may be accepted into the B.A./M.A. program after having completed at least undergraduate statistics for psychology, two gateway courses, and having an idea of a research direction. The combined degree requires the completion of 54 credits, 32 for the undergraduate degree and 22 for the graduate degree. An application includes three letters of recommendation from members of the faculty and a written personal statement describing the likely area of thesis interest and/or mentor for that research. Students are admitted during both Fall and Spring semesters. Applications from outstanding transfer students are encouraged once a student has enrolled in classes at CCNY, has targeted a research interest, and can acquire a recommendation from at least one CCNY faculty member. Interested students should contact Professor Vivien Tartter, Director, B.A./M.A. Program, NAC 7/209; 212-650-5709.

To earn the B.A./M.A. degree, the requirements for the undergraduate major must be met (32 credits

including Statistics, Experimental Psychology, Gateway courses in three areas and advanced courses in two). Students may substitute MA courses for the undergraduate 30000-level course requirement. Students complete one semester of honors research during their senior year and submit at the end of that year a full literature review in their thesis area.

For the MA degree, students must submit a full empirical thesis, including the literature review, and complete 22 credits of MA coursework not also counting toward the BA degree. These classes must include graduate statistics, graduate experimental, a Master's-level course from the cognitive, biological or assessment psychology areas, and a one-semester research seminar.

BA/MA Required Courses

| | |
|---|-----------|
| Undergraduate Psychology Courses: | |
| 10200: Applications of Psychology in the Modern World | 3 |
| 21500: Applied Statistics | 4 |
| 32100: Experimental Psychology | 4 |
| Three gateway (20000-level) courses | 9 |
| 30100: Honors Research | 3 |
| Four 30000-level or MA-level courses in two gateway areas | 12 |
| Total Undergraduate Credits | 35 |

Graduate Psychology Courses:

| | |
|--|-----------|
| V0100: Advanced Experimental Psychology | 4 |
| V0500: Statistical Methods in Psychology I | 3 |
| One MA-level course from among the areas of cognitive, physiological, or assessment psychology | 3 |
| Three additional MA-level courses | 9 |
| B9900: Psychological Research and Seminar | 3 |
| Total graduate credits | 22 |
| Total credits for the B.A./M.A. degree | 57 |

LABORATORY AND FIELDWORK

Majors are strongly encouraged to gain practical training in psychology, either through research experience in laboratories administered by full-time faculty in the Psychology Department or by working at local

agencies or organizations involved in psychology-related activities. Research experience is particularly valuable for the opportunity to work closely on a research project with a faculty member. The experience can be used in preparation for honors study or in application for advanced graduate study in psychology. PSY 23300-23600 are each one-credit courses in laboratory and fieldwork, which can be taken in consecutive semesters. Interested students should contact Dr. Glen Milstein (gmilstein@ccny.cuny.edu), NAC 7/217D, 212-650-5718.

HONORS DEGREE IN PSYCHOLOGY

The Honors Program in Psychology offers high-achieving and highly motivated students the opportunity to design and fully implement an original research project. Students must enroll in PSY 32100 (Experimental Psychology) during the first semester of honors work. Typically, the project is begun during the junior year under the supervision of a faculty research mentor, and continues for three semesters. Often the student designs the study during the first semester, spends the second semester collecting data, and the third semester conducting data analyses and writing a research report based on the data. Students receive honors research credit across consecutive semesters in PSY 30100, 30200, and 30300, respectively. The final research report must be typewritten, following the style outlined in most current version of the Publication Manual of the American Psychological Association. For more information contact Dr. Glen Milstein (gmilstein@ccny.cuny.edu), NAC 7/217D, 212-650-5718.

CREDENTIALLED ALCOHOL AND SUBSTANCE ABUSE COUNSELOR (CASAC) PROGRAM

Majors are able to complete the undergraduate coursework in psychology required for a CASAC Trainee certificate awarded by the New York State Office

of Alcoholism and Substance Abuse Services (OASAS) – the official state authority that awards credentials for addiction counseling. OASAS has approved eight 3-credit psychology courses as meeting the NY State education requirements for the addiction counselor-trainee credential. A CASAC-Trainee certificate is issued by NY State OASAS once a minimum of 350 clock hours of OASAS-registered education and training courses have been satisfactorily completed at CCNY. For further information and to register in the CASAC program, contact Dr. Denise Hien (dhien@ccny.cuny.edu), NAC 8/131, 212-650-5666.

ADVISEMENT

To better guide psychology majors through their academic experience, the Psychology Department administers a faculty advisement program called P.A.S.S. – the Psychology Advisement Support System. At the beginning of each academic year, each newly declared (i.e., within the past 12 months) CCNY psychology major is assigned a specific faculty advisor. Majors are encouraged to contact their P.A.S.S. advisor early in the semester to make an appointment for an advisement session. The goal of the sessions is to address new academic issues, confront obstacles to academic success, create a plan of study, and discuss career options. Students also may visit their advisor or the department chair or deputy chair during office hours. Transfer students who desire to major in Psychology should contact the department chair as soon as possible to be assigned a P.A.S.S. faculty advisor.

PSYCHOLOGICAL CENTER

The department's Psychology Center offers psychological testing and short- and long-term therapy to CCNY students with mood, anxiety, and interpersonal problems. Married and unmarried couples, single-parent and two-parent families, students of all ages and their parents are welcome. The Psychological Center is part of the

doctoral training program in Clinical Psychology. Treatment is provided by advanced doctoral students under the supervision of the clinical faculty, licensed clinical psychologists from other programs, and external licensed clinical supervisors. All services are completely confidential. For further information, and to request an application for services, visit the Psychological Center's front desk, which is located in NAC 8/101, or call 212-650-6602. The Center staff is available on Tuesdays, Wednesdays, and Thursdays from 8:30-11:00 AM and from 2:00-7:00 PM.

DEPARTMENT ACTIVITIES

The Psychology Students Association (PSA)

The PSA or "Psychology Club" is a student-run organization that encourages psychology majors as well as non-majors to broaden their horizons in the field of psychology and accentuate their participation within the City College community. The club meets weekly on Thursday's from 12:30 to 1:45 pm in NAC 7/219. Office hours are posted outside NAC 7/215. During club hours PSA hosts both formal and informal seminars and lectures in which invited speakers share some of their experiences as working psychologists and offer helpful hints about securing a future career in psychology. During informal meetings PSA engages in team-building exercises and various group related activities such as movie nights, bake sales, study-groups and freshman tutoring as well as field-trips to various psychological conventions. PSA provides an excellent opportunity to learn leadership skills that will be helpful in future careers. The department encourages all psychology students to join the PSA and become active in its leadership. Interested students should contact the club advisor, Dr. Brett Silverstein (bsilverstein@ccny.cuny.edu).

Psi Chi

Psi Chi is the National Honor Society in Psychology, founded in 1929 for the purposes of encouraging, stimulating, and maintaining excellence in

scholarship, and advancing the science of psychology. Psi Chi provides national recognition for academic excellence in psychology, an honor that can be noted on employment applications, vitae, and résumés. Psi Chi also provides over \$250,000 annually in awards and grants to its student members and chapters. The City College of New York chapter of Psi Chi was chartered in 1961, and has supported both undergraduate and graduate students pursuing research interests in such areas as clinical, cognitive, social, and developmental psychology. Membership in Psi Chi is recognized at Departmental honors ceremonies. Psi Chi also publishes a journal of undergraduate research that includes useful information for students in psychology. Membership in Psi Chi is open to qualified candidates of any age, sex, sexual orientation, race, handicap or disability, color, religion, and national and ethnic origin. Membership is for life. The national registration fee of \$35 is the only payment ever made to the national organization, which does not charge dues. Students qualify for membership in Psi Chi if they: (1) are recommended by a faculty member, (2) have taken 9 credits of psychology beyond PSY 10200, (3) have a minimum 3.0 grade point average (GPA) in Psychology AND in cumulative grades, and (4) have completed 3 semesters of college courses. Interested students should contact Dr. Bob Melara (rmelara@ccny.cuny.edu), NAC 7/201, 212-650-5716.

Departmental Colloquium Series

Throughout the year the Psychology Department sponsors lectures on various topics in psychology, including cognitive neuroscience, clinical psychology, and health psychology, given by prominent members of the scientific community. The lectures are free and open to the public. Majors are encouraged to attend. Announcements can be found on the department website at (<http://www1.ccny.cuny.edu/prospective/socialsci/psychology/index.cfm>).

AWARDS

The following awards are given annually at the department's awards ceremony, held each May:

Bernard R. Ackerman Foundation Award

Joseph E. Barmack Memorial Award

Francis P. Hardesty Award

Gardner Murphy Award

Ward Medal

Kenneth Clark Award

For more information on awards, contact the Department Chair.

COURSE DESCRIPTIONS

SPECIAL COURSES

In addition to our regular course offerings, the Department usually offers special topics courses each semester. These have included courses on Sleep & Dreams, Special Topics in Child Development and Interviewing. New topics are constantly being considered. See Psych 31100-32000: Seminars in Special Topics in Psychology.

CORE COURSES

10101: Psychology for Freshman Honors Students

Designed to provide for greater student participation. In addition to attendance at special Psychology 10101 lectures, students will participate in a 2 hour seminar, during which student papers will serve as the basis for class discussion. 2 lect., 2 seminar hr./wk.; 4 cr.

10200: Applications of Psychology in the Modern World

An introduction to the study of human development and learning, personality and motivation, sex differences, attitudes, aggressions, interpersonal attraction, behavior in groups and work settings, abnormal behavior and its treatment. Emphasis on the ways in which psychological theory and research can be applied to individual and social problems. May not be taken for credit by students who have already passed Psych 10101 or 10299. 3 hr./wk.; 3 cr.

10299: Applications of Psychology in the Modern World

For SEEK students. 6 hr./wk.; 3 cr.

ELECTIVE COURSES

20300: Psychology as the Science of Behavior

Introduction to basic research methods in Psychology. Students will gain first-hand experience in using a range of scientific methods to study basic psychological questions and will critically examine reports of social science findings. Prereq.: Psych 10200 or 10299 (required for Psychology majors). May not be taken for credit by students who have passed Psych 10101. (W) 3 hr./wk.; 3 cr.

21500: Applied Statistics

Summation notation, frequency distributions; graphs; percentiles; measures of central tendency and variability; standard score; the normal curve; statistical inference; one-sample tests of significance; confidence intervals; 2-sample tests of significance; linear correlation and regression; chi-square. All procedures are examined in the context of their application to research in psychology. Prereq.: Psych 10101 or 10200 or 10299. Credit will be given for only one of the following courses: Econ 29000, Math 17300, Psych 21500, 21800, Soc 23100. Required for Psychology majors. 5 hr./wk.; 4 cr.

22600: Introduction to Life-Span Development

Introduces theories, concepts and research which enrich our understanding of human development throughout the life cycle. Students may wish to take this course as a general introduction to human development before enrolling in courses which focus on particular developmental periods. (Psych 24600, 25600 and 26600). Prereq.: Psych 10101 or 10200 or 10299 or 20300. 3 hr./wk.; 3 cr.

23300-23600: Laboratory and Field Work

For students who wish to supplement classroom work by supervised experience in the field. It is expected that a student will work on the average of 3 hr./wk. per credit. Approval is required. Pre- or coreq.: Psych 10101 or 10200 or 10299. Only one credit of fieldwork can be applied toward the elective credits required for the Psychology major. 3 hr./wk.; 1 cr. Note: no more than six credits in any one department and no more than nine credits total will be permitted for the following courses: Anthropology 13300-13600, Asian Studies 20402, Black Studies 20000-20400, Psychology 23300-23600, Sociology 23300-23600.

24600: Introduction to Human Development: Infancy and Childhood

Topics include genetic considerations; prenatal development; the characteristics of

the neonate; cognitive processes; language development; personality changes; early socialization; moral development. Prereq.: Psych 10101 or 10200 or 10299. (W) 3 hr./wk.; 3 cr.

24700: Social Psychology

Fundamental concepts and methods used in the investigation of attitude and attitude change, prejudice, socialization, communication, groups, conformity and other topics. Issues will be studied in the light of theory, research and relevant social problems. Prereq.: Psych 10101 or 10200 or 10299. 3 hr./wk.; 3 cr.

24900: Psychology of Personality

This course explores the determinants of personality from a variety of perspectives, including psychodynamic, behavioral, cognitive, and humanistic, while also exploring how personality is influenced by factors such as gender, ethnicity, and culture. Students come to appreciate different perspectives regarding how and why people differ from one another. Prereq.: Psych 10100 or 10200 or 10299. 3 hr./wk.; 3 cr.

25300: Cognitive Psychology: Thinking, Knowing and Remembering

How do we come to understand the world we live in and the people with whom we interact? How is self-knowledge acquired? This course will consider the ways in which people acquire and process information. Why do we forget some things and remember others? How do we solve problems, learn to read and write, find the right words to express our ideas? What is "thinking?" How do we transform our ideas into action? Other topics include how computers process information; brain damage; and learning disabilities. Prereq.: Psych 10101 or 10200 or 10299. (W) 3 hr./wk.; 3 cr.

25400: Brain, Mind and Experience

This course will explore the nature of the relation between the brain states, mental states and complex human experience. It is intended to expose students to the intersection between the biological sciences and psychology. Prereq.: Psych 10100 or 10200 or 10299. 3 hr./wk.; 3 cr.

30100-30400: Honors I-IV

Prior application to and approval by Honors Office and permission of Psychology Department Honors Supervisor required before December 10 for Spring term or May 1 for Fall term. Prereq.: Psych 21500 and 32100.

31000: Independent Study

For students who wish to pursue advanced study or research in selected topics. Students must obtain written permission of faculty mentor and Dr. Milstein, before registration. The mentor must approve both the number of credits and the student's

plan of study (31001–1 cr.; 31002–2 cr.; 31003–3 cr.; 31004–4 cr.). This could involve intensive reading on a selected topic and does not necessarily involve experimental research.

31100-32000: Seminars in Special Topics in Psychology

Specially selected topics for intensive examination in several different areas. The topics and the courses offered each semester will be listed by the Psychology Department. Prerequisites stated with course descriptions. 3 hr./wk.; 3 cr.

32100: Experimental Psychology

The application of research methods to psychological problems. Techniques of formulating and investigating a problem and use of laboratory equipment are stressed. Experiments are performed in representative areas of psychology. Prereq.: Psych 10101 or 10200 or 10299, and 21500 (required for Psychology majors). (W) 2 lect., 4 lab hr./wk.; 4 cr.

33100: Evolution of Modern Psychology

The theoretical and conceptual problems involved in the development of psychology as a science and its relationship to other disciplines. An examination of selected theories, such as behaviorism, gestalt psychology and Freud, which have attempted to deal systematically with such persistent problems of psychology as perception, motivation, learning and personality. Recommended for juniors and seniors. Prereq.: Psych 10101 or 10200 or 10299. 3 hr./wk.; 3 cr.

33300: Psychology of Enculturation, Immigration and Acculturation

Individuals grow up within communities where they develop customs, language, and interpersonal habits. Migration disrupts this process. This course will describe and discuss these disruptions in relation to immigrants' developmental stages. The vulnerabilities and resiliencies that result from the decision processes necessitated by immigrant acculturation will be examined. Prereq: Psych 10100 or 10200 or 10299 and 24600. 3 hr./wk.; 3 cr.

33700: Parent-Infant Relationships

This course will introduce students to a wide range of approaches to the study of infancy and toddlerhood, including the development of attachment, autonomy, and a wide range of self-regulatory capacities. Theories of early infant social development in play, language and representation. The course will also consider the development of parent identity: what goes into making someone a "good" parent, and how can one, as an adult, change in the ways necessary to positive parenting? Finally the course will consider recent development

in parent-infant intervention, specifically parent-infant psychotherapy. Prereq: Psych 10101, 10200 or 10299 and 24600. 3 hr./wk.; 3 cr.

33800: The Psychology of Women

This course explores the social constructions, theories and research that have resulted in a psychology of women. It includes the biological, developmental, social and cultural aspects of femaleness in an historical and contemporary context. Students will be expected to consider and contribute from their own gender-establishing experiences. Prereq.: Psych 10101 or 10200 or 10299 and 24700 or 24900. (W) 3 hr./wk.; 3 cr.

33900: Psychology Applied to Work

Problem solving in the work environment using principles derived from psychological research: selection and placement of employees, psychological testing, job analysis, job evaluation, employment interviewing, performance appraisal and feedback, employee and management training and development, workplace design and human engineering. Emphasis will be placed upon social issues such as affirmative action, equal employment opportunity, substance abuse, and health and safety in the workplace. Prereq.: Psych 10101 or 10200 or 10299 and 24700 or 24900. (W) 3 hr./wk.; 3 cr.

34000: Drug and Alcohol Abuse: Causes and Treatment

Discusses theory and research on personality, developmental and genetic factors in the lives of drug and alcohol abusers; diagnostic techniques for the assessment of substance abuse and addiction; and the various techniques used in the treatment and prevention of drug and alcohol abuse. Prereq.: Psych 10101 or 10200 or 10299 and 25400. 3 hrs./wk.; 3 cr.

34300: Sensation and Perception

The psychology of sensation and perception in the study of how we humans see, hear, taste, smell, and touch the world around us. One sub-field is concerned with how people see colors, another with how people appreciate works of art & how people listen to music. By the end of this course, you should have a good grasp of what perception psychologists study, and some of their most important research findings. Prereq.: Psych 10101 or 10200 or 10299 and 25300. (W) 3 hr./wk.; 3 cr.

34400: Psychology of Language

Students are introduced to psycholinguistics through readings in linguistics, psychology, philosophy, education, artificial intelligence and neurocognition. Sound-writing-sign structures, semantics, syntax, pragmatics and discourse and their psychological processing including bilingualism,

language acquisition and loss in disorder or brain damage, and organization in the brain are studied. Issues relating language to consciousness, and whether animals "have" language will be discussed. Prereq: Psych 10101, 10200 or 10299 and 25300 or introductory course in Linguistics. 3 hr./wk.; 3 cr.

34500: Psychology of Violence

An introduction to the psychology of violence, with emphasis placed on understanding the scope of violence, its cause and effects. Prereq: Psych 10101, 10200 or 10299 and 21500. 3 hr./wk.; 3 cr.

34700: Social Psychology of Racism and Prejudice

The social psychology of prejudice and a particular form of prejudice-racism. The course activities are designed to help students understand how this behavior has been researched by behavioral scientists and has changed over time. The course will also explore how individuals and institutions perpetuate racism and prejudice across generations. Course content will also offer an introduction to definitions and origins of prejudice. Students will also learn about the origin and nature of stereotypes. Course readings and assignments will help students understand individual, cultural and institutional racism and learn about efforts to prevent prejudice and racism. Students will also have the opportunity to apply social psychology research and concepts to in this area to "real" situations as depicted in literature and/or film. Prereq: Psych 10100 or 10200 or 10299 and 24700. 3 hr./wk.; 3 cr.

34800: Abnormal Psychology

The description of various psychological disorders. Through the study of these disturbances the course gives insight into the general nature of personality functioning. Case material is presented. Prereq.: Psych 10101 or 10200 or 10299 and 24900. 3 hr./wk.; 3 cr.

35000: Treatment of Substance Abuse

This course takes an applied approach to recent research and theory concerning the treatment and prevention of substance abuse. More specifically, the course offers a comprehensive introduction to all aspects of case managements: assessment, planning, linking, monitoring and advocacy. A range of treatment options will be considered. However, our main focus will be behavioral, and this particular model of treating substance abuse will be examined in detail. Case examples will be used. Prereq: Psych 10101 or 10200 or 10299 and 24700 or 24900. 3 hr./wk.; 3 cr.

35100: Psychology of Human Sexual Behavior

Sexual behavior, attitudes, developments, and the consequences of the behavior are examined from a psychological perspective. Topics include historical and cross-cultural viewpoints, theories of human sexuality, gender roles, sexual dysfunction, sexual preference, psychological development of adult sexuality and aging sexuality. Prereq.: Psych 10101 or 10200 or 10299 and 24700 or 24900. Credit will be given for only one of the following courses: Psych 35100 or 24500. 3 hr./wk.; 3 cr.

35200: Sleep, Dreams and Sleep Disorders

This course will survey the principles of sleep organization and the evaluation and treatment of sleep disorders. Basic science topics will include assessment of sleep and sleepiness, homeostatic and circadian regulation, brain mechanisms, ontogeny, dream process, and memory. Applied topics will include sleep disorders assessment and treatment of conditions such as Insomnia, Narcolepsy, Sleep Apnea, Sleep Walking, Night Terrors, REM Behavior Disorder, Circadian Rhythm Disorders and Pharmacology. Prereq: Psych 10101 or 10200 or 10299 and 25400. 3 hr./wk.; 3 cr.

35300: A Seminar on Memory

This course provides students with an opportunity to examine the centrality of memory in human experience. Using observations from normal and extraordinary people, we will consider three broad questions, First, how does information acquired in the past insinuate itself into a persons' current thoughts, feelings and actions? Second, what relation do our current conscious recollections have to actual past events and experiences? Third, can memories that operate outside of the awareness affect our sense of the present, past and future state of affairs, and if so, how does this occur? Prereq: Psych 10101 or 10200 or 10299 and Psych 25300. 3 hr./wk.; 3 cr.

35400: Psychology of Prevention

The late 19th Century saw a revolution in our ability to prevent devastating physical ailments through the promotion of hygiene. The development of vaccines in the 20th Century gave parents the possibility to safeguard their children from lethal diseases for which there is still no cure. What then are the mechanisms with which we can prevent mental disorders in the 21st Century? Recent research has found that in the area of mental illness, prevention is a distant goal, while risk reduction and health promotion are viable foci of intervention. This course will examine the history and societal tensions between mental health promotion and mental illness treatment. We will study the skills necessary to

promote mental health and reduce risks for mental illness through community-based interventions, while learning the specific vocabulary of prevention research. We will examine current prevention research to determine the quality of data available to us today, and the needs for future information to improve prevention interventions. Prereq: Psych 10101 or 10200 or 10299 and 24700 or 24900. 3 hr./wk.; 3 cr.

35500: Psychology of Women and Violence

This course explores gender violence in its multiple forms from both a national and a global perspective. This class covers current theories and research pertaining to violence against women and the factors that contribute to it. Methods to address and alleviate this worldwide problem are also presented. Particular emphasis will be placed on exploring gender violence from a psychological perspective, examining risk and protective factors, and the consequences of being violently victimized, with the goal of understanding human behavior and interaction Prereq: Psych 10101 or 10200 or 10299 and 24700 or 24900. 3 hr./wk.; 3 cr.

35600: Introduction to Human Development: Adolescence and Youth

From puberty through early adulthood. Topics include the physical and psychological changes associated with puberty and the assumption of adult sex roles; cognitive and personality changes associated with developing autonomy; the varying social and cultural contexts within which adolescents and young adults develop; and the relationships of these age groups to social institutions. Prereq.: Psych 10101 or 10200 or 10299 and 24600. 3 hr./wk.; 3 cr.

35700: Community Psychology

The use of psychology in the solution of community problems, and the impact of social and psychological stressors is examined from a community-wide perspective. How can communities and neighborhoods be measured for mental health strengths and dangers? What kinds of preventive actions and strategies, and what kinds of treatment and programs can be taken on a community-wide basis to promote mental health? Prereq.: Psych 10101 or 10200 or 10299 and 24700 or 24900. 3 hr./wk.; 3 cr.

36100: Health Psychology

This course presents a survey of theory and research in health psychology. The aims of this class are to 1) acquaint students with current research in a variety of areas such as stress, coping, social support, prevention of illness, and health promotion; 2) broaden students' understanding of models, theories, and methods employed in health psychology research. Prereq: Psych 10101

or 10200 or 10299 and 10200, 21500, 32100. 3 hr./wk.; 3 cr.

36400: Psychology and the Black Experience

This course examines the psychological aspects of historical and contemporary experiences of people of African ancestry. The work of noted black psychologists in the United States and abroad is utilized to address issues of well-being and abnormality as they pertain to black people's past and current realities. Topics will include cross-cultural perspectives in black psychology, the black family, ethnic identity, education and the black child, mental health concerns of black people, research issues and the black community. Prereq.: either Psych 10101 or 10200 or 10299 and 24700 or 24900. 3 hr./wk.; 3 cr.

36500: Family Psychology

Family structure and process in terms of historical, cultural and psychosocial factors. Emphasis on viewing family interactions in terms of a psychodynamic system and subsystems. The complex relationships within the family and between the family and society serve as a setting for theorizing, researching and developing models of constructive intervention. Prereq.: Psych 10100 or 10200 or 10299 and 24700 or 24900. 3 hr./wk.; 3 cr.

36600: Introduction to Human Development: Adulthood and Aging

From early adulthood (marriage, parenthood, first job) up to the end of the life cycle. Topics include the developmental approach to adulthood; considering the psychological, sociological, and biological changes in adult life; sex differences; the family; work, leisure, and retirement; death and bereavement. Prereq.: Psych 10101 or 10200 or 10299 and 24600. 3 hr./wk.; 3 cr.

36700: Small Group Processes

The course is divided into two parts: self-study groups and lectures. The self-study group examines its own behavior in order to help the student develop an ability to observe, analyze and understand the small group as a social system. The lectures present concepts, case materials, and empirical findings on group phenomena. Prereq.: Psych 10101 or 10200 or 10299 and 24700 or 24900. 3 hr./wk.; 3 cr.

36900: Behavior in Organizations

Interaction between individual behavior and organizational factors such as structure, technology, environment, climate; and their impact upon worker productivity, satisfaction and motivation; leadership and supervision; group dynamics; strategies for organizational change; organizational development approaches, and quality of worklife issues. Prereq.: Psych 10101 or

10200 or 10299 and 24700 or 24900. (W)
3 hr./wk.; 3 cr.

37100: Introduction to Cognitive Neuroscience

Science of behavioral neurobiology and psycho-biology. The course will emphasize topics in neurobiology including history of brain/mind research, models of brain/behavior relationships, cellular and chemical interactions, brain development/aging, biological rhythms, systems of sensation and movement. Prereq.: Psych 10101 or 10200 or 10299 and 25400. 3 hr./wk.; 3 cr.

37300: Neuropsychology

Consideration of the effects of brain damage on psychological functioning, with emphasis on impairments in perception, attention, emotion, memory, and language abilities. Prereq.: Psych 10101 or 10200 or 10299 and 25300. 3 hr./wk.; 3 cr.

37700: Theories of Personality

A critical review of major contemporary theories of human personality, their relation to research findings and to methods of psychotherapy. Case studies interpreted from the perspective of the various theories. Prereq.: Psych 10101 or 10200 or 10299 and 24700 or 24900. 3 hr./wk.; 3 cr.

38800: Theories of Psychotherapy

Designed primarily to discuss and evaluate different forms of psychotherapeutic intervention. Concepts such as resistance, transference, and working through will be treated in the context of both psychoanalytic and interpersonal theory. The aims and techniques of behavioral therapy and case histories will be presented for analysis. Prereq.: Psych 10101 or 10200 or 10299 and 24700 or 24900 or 24600. 3 hr./wk.; 3 cr.

38900: Psychological Tests and Measurements

Introduces both theoretical and practical aspects. Methods for assessing intelligence, achievement, aptitude, personality, interests and attitudes. Evaluation of tests and interpretation of test scores; use of tests in educational and clinical prediction, guidance, personnel selection, and research. Prereq.: Psych 10101 or 10200 or 10299 and 24700 or 24900 3 hr./wk.; 3 cr.

FACULTY

Adeyinka Akinsulure-Smith, Assistant Professor

B.A., Univ. of Western Ontario; M.A., Columbia Univ., Ed.M., M.Phil., Ph.D.

Deidre M. Anglin, Assistant Professor

B.S., Cornell Univ.; M.A., Fordham Univ., Ph.D.

William Crain, Professor

A.B., Harvard Univ.; Ph.D., Univ. of Chicago

Diana Diamond, Professor

B.A., Wesleyan Univ.; M.A., Univ. of Massachusetts, M.S., Ph.D.

William Fishbein, Professor

B.S., New York Univ., M.A.; Ph.D., Univ. of Colorado

Tiffany Floyd, Assistant Professor

B.A. SUNY (Binghamton); M.A., Temple University, Ph.D.

Peter Fraenkel, Associate Professor

B.A., Boston Univ.; Ph.D., Duke Univ.

Hilary Gomes, Associate Professor

B.S., Georgetown Univ.; M.A., City College; Ph.D., CUNY

Cynthia A. Grace, Associate Professor

B.A., New Paltz; M.A., Columbia Univ., M.Ed., Ed.D.; Ph.D., CUNY

Denise Hien, Professor

B.A., Cornell Univ.; M.S., Teachers College, Columbia Univ., M.Phil., Ph.D.

Jon C. Horvitz, Professor

B.A., Haverford Univ.; Ph.D., Univ. of California (Santa Barbara)

Elliot Jurist, Professor

B.A., Harford College; Ph.D. (Philosophy) Columbia Univ.; Ph.D., CUNY

William King, Professor

B.A., Rutgers Univ.; M.A., Univ. of Colorado, Ph.D.

Arthur D. Lynch, Associate Professor

B.A., Univ. of Texas, Ph.D.

Robert Melara, Professor and Chair

B.A., Stony Brook Univ.; M.A., New School, Ph.D.

Glen Milstein, Assistant Professor

B.A., Brandeis Univ.; Ph.D., Teachers College (Columbia Univ.)

Ruth Ellen Proudfoot, Associate Professor

A.B., Radcliffe College; Ph.D., New York Univ.

Tony Ro, Professor

B.A., Univ. of California (Berkeley); Ph.D., Univ. of California (Davis)

Margaret Rosario, Professor

B.A., Princeton Univ.; Ph.D., New York Univ.

Jeffrey J. Rosen, Professor

B.A., George Washington Univ.; M.A., Clark Univ., Ph.D.

Millicent Roth, Professor

B.A., Brooklyn College, M.S.W., D.S.W., New York Univ.

Irvin S. Schonfeld, Professor

B.S. Brooklyn College; M.A., New School; Ph.D., CUNY

Brett Silverstein, Professor

B.A., State Univ. of New York (Stony Brook); Ph.D., Columbia Univ.

Arietta Slade, Professor

B.A., Sarah Lawrence College.; Ph.D., New York Univ.

Ellen E. Smiley, Associate Professor

B.S., Denison Univ.; A.M., Univ. of Illinois, Ph.D.

Arthur J. Spielman, Professor

B.A., The City College; Ph.D., CUNY

Vivien C. Tartter, Professor

B.A., Brown Univ., M.A., Ph.D.

Steven B. Tuber, Professor

B.A., Yale; M.A., Univ. of Michigan, Ph.D.

Deborah Vietze, Professor

B.S., Univ. of Redlands; M.S., Univ. of Southern California; Ph.D., Columbia Univ.

Paul Wachtel, Distinguished Professor

A.B., Columbia Univ.; M.S., Yale Univ., Ph.D.

Lissa Weinstein, Associate Professor

B.A., SUNY (Stony Brook); M.A., The City College; Ph.D., CUNY

Ann Marie Yali, Associate Professor

B.A., Eckerd College; M.A., SUNY (Stony Brook), Ph.D.

PROFESSORS EMERITI

John Antrobus

Anderson J. Franklin

Eugene L. Hartley

Douglas C. Kimmel

Herbert Nechin

Lawrence Nyman

Vera Paster

John J. Peatman

Getrude R. Schmeidler

Jerry Siegel

Ann Rees

Stephen Thayer

Harold Wilensky

Public Policy and Public Affairs Program

(DIVISION OF SOCIAL SCIENCE)

Professor Lily M. Hoffman, Director • Program Office: NA 6/137 • Tel: 212-650-6809

GENERAL INFORMATION

This specialization offers an interdisciplinary approach to studying policy issues with an emphasis on acquiring the analytical tools required for policy development and decision-making.

Marvin Rosenberg/Hubert Humphrey Program

The Marvin Rosenberg/Hubert Humphrey Program in Public Affairs provides paid internships for students in national, state and city offices, as well as with other political, civic and labor organizations. Students gain practical experience and specialized training while earning credit toward a public policy minor. Established by City College alumnus Marvin Rosenberg, the program emphasizes leadership skills and encourages students to combine their studies with responsible and effective political action.

REQUIREMENTS FOR THE MINOR

Students complete a minor in Public Policy as follows:

One of the following: 3

Sociology
 24100: Criminology (3 cr.)
 24200: Juvenile Delinquency (3 cr.)
 24500: Sociology of Social Welfare Institutions (3 cr.)
 25100: Urban Sociology (3 cr.)
 25300: Ethnic Minority Groups (3 cr.)
 25400: Social Problems (3 cr.)
 25500: Population & Human Ecology (3 cr.)
 27400: Urban Politics & Policy (3 cr.)
 29000: Immigration (3 cr.)
 31211: Public Policy Internship Seminar (3 cr.)

History
 32700: The U.S. Since 1945 (3 cr.)

45000: History of American Foreign Relations (3 cr.)

International Studies
 20100: International Studies: A Global Perspective (3 cr.)

One of the following: 3

Political Science
 12500: Introduction to Public Policy (3 cr.)
 21000: Urban Politics (3 cr.)
 21600: Political Parties and Interest Groups (3 cr.)
 21700: Mass Media and Politics (3 cr.)
 22100: The Congress (3 cr.)
 22200: The Presidency (3 cr.)
 22300: U.S. Foreign Policy (3 cr.)
 22800: Policy Analysis (3 cr.)

One of the following: 3

Economics
 26100: Economics of Regulation (3 cr.)
 22500: Macroeconomics I (3 cr.)
 25400: Urban Economics (3 cr.)
 26400: Public Finance (3 cr.)
 26500: Public Expenditure (3 cr.)

One of the following: 3

Economics
 31206: Leadership (3 cr.)
 35300: Administrative and Managerial Policy (3 cr.)
 35800: Governmental Regulation and Executive Decision Making (3 cr.)

One of the following: 3

CE 26400: Civil Engineering Data Analysis (3 cr.)
 Econ 29000: Principles of Statistics (3 cr.)
 Math 17300: Introduction to Probability and Statistics (3 cr.)
 Psy 21500: Applied Statistics (3 cr.)
 Soc 23200: Methods and Techniques of Sociological Research (3 cr.)

Substitutions for any of the courses in these categories may be made

with permission of the Director of the Public Policy Minor.

In addition, students must take an internship or a course involving field-work or service learning at a public service agency.

Total Credits 15

ADVISEMENT

Internship placements will be made in consultation with the program coordinator. Paid summer internships are available on a competitive basis. All students who wish to concentrate in Public Policy must consult with the program office in NA 6/137 regarding requirements and to fill out a student profile card.

Department of Sociology

(DIVISION OF SOCIAL SCIENCE)

Professor Gabriel Haslip-Viera, Chair • Department Office: NA 6/125 • Tel: 212-650-5485

GENERAL INFORMATION

The City College offers the following undergraduate degree in Sociology:

B.A.

PROGRAMS AND OBJECTIVES

Sociology majors may choose to take a varied selection of courses or they may take advantage of the Department's concentrations.

In the past the department's majors have gone on to leadership positions in academic life; city, state, and local government; advertising; consulting; and a number of other related professions.

Concentration in Urban Issues and Public Service

For students anticipating careers in the city or just interested in urban concerns, the Department offers a concentration in urban issues, politics, immigration, and public service, with sub-specialties in Urban Studies and Policy, Crime and Deviance, and Social Work.

These concentrations take advantage of our location in the heart of one of the most complex cities in the world. The objective is to bring social science theory and research to bear upon the pressing issues that confront major cities like New York, such as economic restructuring, immigration, housing, neighborhood transitions, education, urban poverty, politics, and fiscal crisis. These concentrations prepare students for careers in specific areas such as education, urban planning, public policy, and public administration.

The Social Research Laboratory

The Social Research Laboratory is used by the Department of Sociology

to place students in projects providing pre-professional experience in social welfare agencies. SRL courses (Sociology 23300, 23400, 23500, and 23600) may be taken by any student. The student need not be concentrating in Social Work or majoring in Sociology. Students may take the above courses for either two or three credits. The maximum number of credits allowed in these courses (commonly referred to as "fieldwork courses") is six in any one department of the College.

Master's Courses for Undergraduate Students

Some graduate courses may be taken by exceptional juniors and seniors with the permission of the instructor. Students are strongly advised to get the permission of the instructor in writing well before registration. The authorization will be required at registration.

REQUIREMENTS FOR MAJORS

Required Courses

| | |
|--|---|
| Sociology: | |
| 10500: Individual, Group and Society: An Introduction to Sociology | 3 |
| 23200: Methods and Techniques of Sociological Research | 3 |
| 23700: Foundations of Sociological Theory | 3 |

Elective Courses

Seven additional Sociology courses 21

Total Credits 30

Note: 23300-23600: Fieldwork does not count as one of the seven courses, but does count towards graduation

Concentration in Urban Issues, Politics, and Policy

While a great number of courses offered by the Department are relevant

to urban concerns, the following electives are especially recommended for a concentration:

| |
|--|
| 23300-23600: Fieldwork in Social Service (Social Work) |
| 24100: Criminology (Crime & Deviance) |
| 24200: Juvenile Delinquency (Crime & Deviance) |
| 24300: Sociology of Youth (Crime & Deviance) |
| 24400: Principles of Social Work (Social Work) |
| 24500: Sociology of Social Welfare Institutions I (Social Work) |
| 24800: Studies in Deviant Behavior (Crime & Deviance) |
| 25100: Urban Sociology (all sub-specialties) |
| 25300: Ethnic Minority Groups (all sub-specialties) |
| 25500: Demography-Population & Human Ecology (all sub-specialties) |
| 26900: Sociology of Law (Crime & Deviance) |
| 27400: Urban Politics & Policy (all sub-specialties) |
| 29000: Immigration (all sub-specialties) |

(Although the department does not offer a degree in Social Work, a concentration in this area has been found most helpful for students who later wish to study for M.S.W. degrees).

ADDITIONAL REQUIREMENTS

In addition to major requirements, all Sociology majors must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) or Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum

requirement (for students who entered before Fall 2007)

2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

REQUIREMENTS FOR MINORS

Students who wish to minor in Sociology are required to complete the following:

Required Course:

15000: Individual, Group and Society: An Introduction to Sociology 3

Elective Courses: 12
Four approved Courses

Total Credits 15

ADVISEMENT

All members of the department can help students wishing advisement on major requirements or specific courses.

Students wishing advisement on the graduate program in Sociology should see the chair of the graduate committee.

COURSE DESCRIPTIONS

Introductory and Core Courses

10500: Individual, Group and Society: An Introduction to Sociology

The language of sociology, the sociological perspective, and basic areas of sociological inquiry. Topics include: culture, socialization, self and society, social stratification and social class. The family, religion, polity, community organization, collective behavior, mass culture, social order and social change. 3 hr./wk.; 3 cr.

10501: Introductory Sociology For Freshman Honors Students

Provides a basic framework for sociological investigation and some knowledge of the institutions which constitute the fabric of society. The emphasis will be on concepts, hypotheses and theories which explain social behavior. Although social problems of contemporary relevance are often discussed, the focus of most of the material is on sociological problems and on analytical issues in the study of society. 3 hr./wk.; 3 cr.

Intermediate and Advanced Courses

23000: Qualitative Research Methods

The logic and practice of the major non-quantitative research methods in sociology: field observation; participant observation; qualitative interview; thematic content analysis of sociological documents. Students design and carry out projects to gain mastery of these methods. 3 hr./wk.; 3 cr.

23100: Sociological Statistics

An introduction to statistical theory and techniques as utilized by sociologists. This course covers descriptive and inferential statistics. Prereq.: Soc 10500. Credit given for only one of the following courses: Eco 29000, Math 17300, Soc 23100. 3 hr./wk.; 3 cr.

23200: Methods and Techniques of Sociological Research

The meaning and relevance of "the Scientific Method" as a canon guiding the logic of research in sociology. Historical perspective and method of social research in the recent past. Survey research, sampling, questionnaire construction analysis, and hypothesis-testing; community study, field observation, unstructured interviewing, participant observation, control of bias. 3 hr./wk.; 3 cr.

23300-23600: Field Work in Social Service or Tutorial Research

Involves, according to student's choice, either: (1) placement in special agency (welfare, poverty, urban planning, police, detention) where a student learns by working directly with clients under close supervision of the agency; or (2) carrying out a research project in the student's area of interest. In either case, the student meets regularly with a faculty member of the Social Research Laboratory. No more than six credits in any one department and no more than nine credits total will be permitted in the following courses: Anth 13300-13600, Asian 20402-20404, BLST 20000-20400, Psych 23300-23600, Soc 23300-23600. These credits count towards total credits needed for graduation, but do not count as credits needed for the major in Sociology. 2 hr./wk., 1 cr.; 4 hr./wk., 2 cr.; 6 hr./wk., 3 cr. Maximum: 6 cr. cumulative.

23700: Foundations of Sociological Theory

The roots of modern sociology in the ideas of nineteenth and early twentieth century theorists, such as Marx, Weber, Durkheim, Simmel, Veblen and Cooley, with emphasis on the intellectual and social context and current relevance of the concepts and propositions they developed. Suggested prerequisite: a course in the history of

ideas such as Hist 35100, 35200, 35300 or PSc 27400. 3 hr./wk.; 3 cr.

23800: Contemporary Sociological Theory

Modern sociological theory and practice. Contemporary theorists such as Parsons, Merton, Homans, Dahrendorf and others show how conceptualization and theory building proceeds in understanding self, society, class, power and alienation in the modern world. 3 hr./wk.; 3 cr.

24000: Personality and Social Structure

The relevance of biological and social factors (and the interaction of the two) are examined in an attempt to understand the variations and universalities of personality. Psychological and social theoretical views are presented, as are current works in socialization theory. 3 hr./wk.; 3 cr.

24100: Criminology and Corrections

Theories of crime causation and the social response to crime. Nature, extent, major types, and distribution of criminal behavior. The changing impact of police and the courts. 3 hr./wk.; 3 cr.

24200: Juvenile Delinquency

Theories of delinquency and youth crime, including the extent and major types of delinquent behavior, the impact of labeling, and explanations of re-entry into society. Analysis of delinquency causation, prevention, control and treatment. Strategies of diversion, alternatives to incarceration, the juvenile court, drug use and public policy, and the possibility of decriminalization. 3 hr./wk.; 3 cr.

24300: Sociology of Youth

Youth considered as a stage in socialization, a stratum, a demographic group with its own subculture, and as a force for change. Implications for education, mental health and urbanization. 3 hr./wk.; 3 cr.

24400: Principles of Social Work

Introduction to principles of group work, case work, and community action. Primarily designed for those planning a career in Social Work. Concurrent field work required (see description of Social Research Laboratory). 3 hr./wk.; 3 cr.

24500: Sociology of Social Welfare Institutions

Origins and growth of social welfare theory and practice. Impact of industrialization and urbanization. Trends in social legislation. Current issues and concepts. Social agencies and social work as a profession. Prereq.: minimum of 2 electives in Sociology. Concurrent field work required (see description of Social Research Laboratory). 3 hr./wk.; 3 cr.

24800: Studies in Deviant Behavior

Sources and effects of differences in behavioral norms between society at large and deviant groups (criminals, drug addicts, sexual deviates, cultural deviates). Power structure and the social definition and control of deviancy. Stigma, alienation and the problems of value relativism. 3 hr./wk.; 3 cr.

25000: Theory of Mass Culture and Mass Communications

The character of mass society in comparison with earlier forms. "High" culture and "pop" culture and the mass media of communications. Social effects of the mass media and the problem of public control. 3 hr./wk.; 3 cr.

25100: Urban Sociology

Nature and origins of the modern city, and of community life within and in relation to the metropolis. Urbanization as a process. Types of cities and urban communities. The changing nature of contemporary cities, urban development and the dilemmas of growth. 3 hr./wk.; 3 cr.

25200: Social Class

The application of various theories of social stratification to studies of societies and communities. The relationships of class positions to familial, educational, religious, political and economic behavior. 3 hr./wk.; 3 cr.

25300: Ethnic Minority Groups

Analysis of human relations from both social- structural and social-psychological standpoints. Prejudice and discrimination; their consequences for both minority and majority group members. Theoretical, historical, cross-cultural approaches. Examination of public and private organizations engaged in intergroup relations. Case materials from social action programs in the United States and other nations. 3 hr./wk.; 3 cr.

25400: Social Problems

The origins and career of "social pathology" as a sensitizing concept. The interrelationship between social issues, and social problems, and public policy. The problem of bias in defining a social problem and in devising a strategy for meliorative intervention. Case studies with contemporary relevance. Role of voluntary agencies, mass media and legislative bodies in identifying social problems. (W) 3 hr./wk.; 3 cr.

25500: Population and Human Ecology

The determinants and consequences of human migration and differential population composition. Comparative fertility and mortality in relation to selected sociocultural factors. Demographic description and analysis as a research tool. Implications of population trends for local,

regional, national and world problems. Recommended for all specialization programs in the Department. 3 hr./wk.; 3 cr.

26000: Theory of Social Change

Theories of institutional change in the past and present. How culture, social structure, and political, economic and technological factors are interrelated. Case studies of change in Western Europe and in developing countries today. 3 hr./wk.; 3 cr.

26200: Political Sociology

Theories of the polity and political behavior in sociological perspective. Types of government and of political order viewed comparatively and historically, and in relation to economic and social-psychological factors. Legitimation and subversion (counter-legitimation) as social process. Social movements. Analysis of contemporary issues. 3 hr./wk.; 3 cr.

26300: Contemporary Social Issues

An examination of the major controversial issues of the day: abortion, homosexuality, capital punishment, and the like. 3 hr./wk.; 3 cr.

26500: Sociology of Childhood

Examination of the socialization process of childhood, the familial environment of the child, influence of the peer group, the development of the self and values. Major psychological and sociological theories will be examined in the light of empirical evidence. 3 hr./wk.; 3 cr.

26600: Family Relationships

Sociological explanations of how and why husband/wife, parent/child, and other family relationships have varied, historically and today, in the United States and around the world. How sociological research can contribute to understanding and making informed choices and decisions in family life. 3 hr./wk.; 3 cr.

26700: Social Change in Developing Countries

Major processes of change today in Latin America, Asia and Africa. Theories of development as applied to industrialization and changes in occupational structure; urbanization, internal migration and population growth; national integration; changes in the class structure; revolution and reform. 3 hr./wk.; 3 cr.

26800: Studies in Social Forces and Mass Movements

Mass movements for reform, revolution and renovation. Socialism, communism, fascism, and the forces that brought them into being, natural history and internal dynamics of the type they represent. Contemporary case materials. 3 hr./wk.; 3 cr.

27000: Sociology of Medicine

The social bases of illness, social organization of medical care and the impact of medicine upon society. 3 hr./wk.; 3 cr.

27200: Religion and Religious Groups

The social bases for the function and impact of religion in contemporary society. 3 hr./wk.; 3 cr.

27400: Urban Politics and Policy

This course examines the changing U.S. city with a focus on New York City. Beginning with an overview of U.S. urban politics and policy, we explore the impact of economic, political, demographic and social trends on our cities; then examine several contested policy issues—housing, economic development, education and/or welfare. How and why have national problems become identified as "urban" problems? Is the city a viable problem-solving unit? What are the respective roles of public and private sectors? We will address these questions through critical reading, discussion and writing. 3 hr./wk.; 3 cr.

27700: Ethnic Families in the United States

A description and explanation of male/female values, power, conflicts, and achievements of families from various ancestral origins. Included will be elite and minority families and old and new immigrant families from Europe, Africa, Asia, Latin America, and the Caribbean. 3 hr./wk.; 3 cr.

29000: Immigration

This course will examine the new immigration to the U.S. in the light of the old, searching for similarities that link this latest wave to the turn-of-the-century experience, and for the differences that make the post-1965 immigration distinctive. 3 hr./wk.; 3 cr.

38100: Institutional Structure and Behavior

Offered irregularly. 3 hr./wk.; 3 cr.

38106: Selected Topics in Comparative Sociology**38200: Human Groups and Communities**

Offered irregularly. 3 hr./wk.; 3 cr.

38201: Occupations and Professions**38203: Small Groups****38206: Aging and Society****38207: Sex Roles and Social Change****38209: Sociology of Sexualities****31000: Independent Study**

The student will pursue a program of independent study under the direction of a member of the Department with the

approval of the Department Chair. Credit may be from 1-4 credits, as determined before registration, by the instructor, with the approval of the Chair.

30100-30300: Honors I-III

Approval of Dean and Department Honors Supervisor required. Apply no later than December 10 in the Fall term or May 1 in the Spring term. Credit flexible but usually 3 credits per term.

31100-32000: Selected Topics in Sociology

See Department for information. Hours and Credit TBA.

FACULTY

James J. Biles, Associate Professor

B.S.S., Ohio State Univ.; M.A., Michigan State Univ., Ph.D.

Mehdi Bozorgmehr, Associate Professor

B.S., California State Univ.; M.A., San Diego State Univ.; M.A., Univ. of California(Los Angeles), Ph.D.

Katherine K. Chen, Assistant Professor

B.A., Stanford Univ., M.A.; M.A., Harvard Univ., Ph.D.

Gwendolyn Ann Dordick, Lecturer

B.A., Univ. of California (Los Angeles), M.A.; M.Phil, Columbia Univ., Ph.D.

Marina Wikramanayake Fernando, Associate Professor

B.A., Univ. of Ceylon, Sri Lanka; M.A., Univ. of Wisconsin, Ph.D.

Gabriel Haslip-Viera, Professor and Chair

A.A.S., SUNY(Farmingdale); B.A., The City College M.A., Columbia Univ., Ph.D.

William Helmreich, Professor

B.A., Yeshiva Univ., M.A.; Ph.D., Washington Univ. (St. Louis)

Ramona Hernandez, Professor

B.A., Lehman; M.A., New York Univ.; Ph.D., CUNY

Lily M. Hoffman, Associate Professor

B.A., Cornell Univ.; M.A., Univ. of Michigan; Ph.D., Columbia Univ.

Jack Levinson, Assistant Professor

B.A., Wesleyan Univ.; Ph.D., CUNY

Iris Lopez, Professor

A.A., Borough of Manhattan Community College; B.A., New York Univ.; M.A., Columbia Univ., Ph.D.

R. L'Heureux Lewis, Assistant Professor

B.A., Morehouse College; M.A., Univ. of Michigan, Ph.D.

Leslie Paik, Assistant Professor

B.F.A., Brown Univ.; M.A., Univ. of California (Los Angeles), Ph.D.

Maritsa V. Poros, Assistant Professor

B.A., Goucher College; M.A., Columbia Univ., M.Phil., Ph.D.

Rueben Jack Thomas, Assistant Professor

B.A., Northwestern Univ.; M.A., Stanford Univ., Ph.D.

Chudi P. Uwazurike, Associate Professor

B.A., Univ. of Nigeria; M.A., Lagos Univ.; Ph.D., Harvard Univ.

PROFESSORS EMERITI

Ibtihaj Arafat

Milton L. Barron

Steven Goldberg

Gerald Handel

F. William Howton

Baidya Nath Varma

Charles Winick

Betty Yorburg

Department of Theatre and Speech

(DIVISION OF HUMANITIES AND THE ARTS)

Professor Eugene Nesmith, Chair • Department Office: CG 322 • Tel: 212-650-6666

GENERAL INFORMATION

The City College offers the following undergraduate degree in Theatre:

B.A.

Theatre

The B.A. degree program in Theatre offers a broad perspective of the academic and professional field, permitting great elective choice, and preparing students for a variety of career options. Following completion of the required sequence of courses, which expose the student to all facets of the theatre field, the student may take upper level elective courses in any one of these facets to gain a mastery of that subject. The student should be advised that further graduate and/or professional study is strongly recommended upon completion of the bachelor's degree before a student may be considered prepared to enter the professional theatre world.

In addition to completing the required curriculum for this degree program, students are encouraged to attend and participate in the numerous faculty and student-directed productions the program offers. These opportunities annually include four main-stage productions, two Playwright/Director Connection projects, and the One-Act Play Festival.

All Theatre majors, and other interested students from the College-at-large, take courses in theatre production at Davis Hall, which contains two main-stage theatres, and at the Compton-Goethals studio theatres. All these spaces boast state-of-the-art scenic, lighting, and sound equipment.

Most courses are open to non-majors without prerequisites, including 12700, 13100, 13200, 13400,

13600, 23800, 23900, 24000, 33000, and 33100; non-majors may register for any other course in the program provided they follow the prerequisite sequence. All students are welcome to participate in the many open-call auditions for productions held each year.

Speech

A non-degree service program that provides the general student population with basic courses for developing skills in oral communication.

Theatre

Speech

Brandon Judell, Speech Proficiency Exam Coordinator
NA 6/332D; 212-650-6388

CLUBS

The Drama Club

Professor Lydia Fort, Faculty Advisor

The Drama Club, open to all students interested in theatre, sponsors performances by students and outside artists, discussions by professionals, and workshops.

Events and Productions

Members of the Department of Theatre and Speech present shows and arrange events throughout the year, including:

- Faculty-directed productions: fully mounted main stage events.
- The Playwright/Director Connection: student directors stage original work by student playwrights.
- Harlem Repertory Theatre: students, alumni and professionals perform in a summer season of theatre for the community.
- The One-Act Play Festival
- Advanced Directing Projects

- Professional performances and workshops

AWARDS

Friars Club Award

For excellence and potential in acting.

Jacques Levy Award

Seymour Peck Scholarship and Creative Awards in the Arts

To outstanding undergraduate or graduate majors in the arts.

The Sandham Prize for Theatrical Performance

The Scanlon Prize in Theatre

The Bessie Spector Prize

Jacob A. Weiser Playwriting Fund Award

To assist young playwrights in pursuing their artistic goals.

The Bernie West Theatre Award

FACILITIES

Aaron Davis Hall

Davis Hall is a modern, three-theatre complex housing state-of-the-art equipment and staffed by professional technical personnel capable of mounting the most complex productions. The facility contains three spaces: The Marian Anderson Theatre, a proscenium theatre that seats an audience of 750; Theatre B, a black box experimental theatre that seats 150-250; and Theatre C, a rehearsal-workshop theatre for 50. The structure was specifically conceived and built to serve as a laboratory for students training in the arts and as a showcase for professional events.

Compton-Goethals Hall

The very finest facilities are available for the use of theatre students in

historic Compton-Goethals Hall. These include two studio theatres and various studio-classroom spaces, rehearsal areas and prop rooms.

Charles Gattnig Memorial Theatre Library

Extensive collection of plays, books of history and criticism, and periodicals, all available for perusal and check-out by students.

REQUIREMENTS FOR THEATRE MAJORS

| | |
|---|--------------|
| 12700: Speech for the Stage | 3 |
| 13100: Introduction to Theatre Arts | 3 |
| 13200: Body Movement | 3 |
| 13400: Basic Production and Design | 3 |
| 13600: Acting I | 3 |
| 21100: Theatre History I | 3 |
| 21200: Theatre History II | 3 |
| 21300: Theatre History III | 3 |
| 23300: Directing I | 4 |
| 23700: Technical Theatre Practicum | 2 |
| 33100: Playwriting | 3 |
| 33300: Directing II | 4 |
| Theatre Majors with pronounced foreign accents or speech impediments are also required to take: | 0-4 |
| SPCH 01100: Articulation (1 cr.) | |
| SPCH 23300: Voice and Diction (3 cr.) | |
| Elective Courses | 6 |
| 11300: Stage Make-Up | |
| 12700: Speech for the Stage | |
| 13200: Body Movement | |
| 13300: Arts Management | |
| 23200: Black Drama in the U.S.A I | |
| 23201: Black Drama in the U.S.A II | |
| 23600: Acting II | |
| 23601: Acting III | |
| 23602: Acting IV | |
| 23700: Technical Theatre Practicum | |
| 23800: Musical Theatre Workshop | |
| 23900: Acting for the Camera | |
| 24000: Stage Combat | |
| 33000: Performance Practice | |
| 33100: Playwriting | |
| 33600: Performance Practice in Film | |
| 37000: Special Problems in Directing | |
| 37100: Special Problems in Playwriting | |
| 37200: Special Problems in Technical Theatre and Design | |
| 43000: Theatre Workshop | |
| 43100: Internship in Theatre | |
| 45000: Special Topics in Dramatic Literature | |
| Total Credits | 40-44 |

Elective Courses

Theatre students are urged to supplement their required courses by studying related subjects in the Theatre Department as well as in other programs and departments, including singing, film and video directing, painting and sculpture, Shakespeare, and literature.

ADDITIONAL REQUIREMENTS

In addition to major requirements, all Theatre and Speech majors must complete the following:

1. General Education Requirement including FIQWS, FQUAN, Perspective and In-depth requirements (for students who entered after Fall 2007) or Old Core Requirement, including English 11000, English 21000 or equivalent, and the Writing Across the Curriculum requirement (for students who entered before Fall 2007)
2. Foreign Language Requirement
3. CPE Examination
4. Speech 11100 or the Speech Proficiency Test

For more information, please consult the chapter entitled Degree Requirements at the end of this *Bulletin*.

COURSE DESCRIPTIONS

THEATRE COURSES

30000-level and above courses may be taken only with faculty permission. All Theatre courses carry the designation THTR.

11300: Stage Makeup

The fundamentals of stage appearance, stage lights and audience proximity. Basic and painted illusion. Face proportion, base colors, proper tools and materials. 2 hr./wk. plus hrs. to be arranged; 1 cr.

12700: Speech for the Stage

Focusing on developing breath control, resonance and articulation. Introductory phonetics and physiology of speech, followed by the analysis and reading aloud of selected fictional texts. This course may be taken two times for credit. 3 hr./wk.; 3 cr.

13100: Introduction to Theatre Arts

The related creative arts of playwright, director, actor and designer; their collective contributions to the form of the play that

ultimately evolves on stage. Discussion of the institutions in contemporary American theatre. (W) 3 hr./wk.; 3 cr.

13200: Body Movement

Techniques to free and relax the actor's body, connect mental imagery with physical expression, and combine movement with speech. Elementary modern dance. This course may be taken two times for credit. 3 hr./wk.; 3 cr.

13400: Basic Production and Design

Practice in constructing, assembling and lighting the stage set. Introduction to stage management and allied fields as well as elementary exploration of design. 4 hr./wk.; 3 cr.

13600: Acting I

Principles and practice of acting. Introduction to relaxation, concentration, self awareness, inner objects, outer activities, objectives and obstacles, ensemble work, circle of belief, text analysis. Consideration of work ethic and professionalism. Basic scene and monologue exploration. 4 hr./wk.; 3 cr.

21100: Theatre History I

The development of theatre and drama from tribal origins to 1640 (including Egyptian, Greek, Roman and Medieval/Renaissance periods). (W) 3 hr./wk.; 3 cr.

21200: Theatre History II

The development of theatre and drama from 1640 to 1900, including Jacobean, Restoration, Romanticism, Early Melodrama, Naturalism. (W) 3 hr./wk.; 3 cr.

21300: Theatre History III

The study of plays and production styles prevalent throughout the Twentieth Century in Europe and America. This course will consider a selection of important plays and such important movements as: Symbolism, Futurism, Dada, Surrealism, Expressionism, Theatre of the Absurd, Theatre of Images, the rise of the Broadway musical, the Off-Off Broadway theatre movement, the rise of Afro-American and Latino schools of writing and production, New German Realism, Post-Modernism, etc. (W) 3 hr./wk.; 3 cr.

23200: Black Theatre, U.S.A. I

Spanning the period, 1821-1950, this introductory course offers an intensive exploration and analysis of the evolution of black dramatic literature in the United States of America. Through the process of close reading of dramatic texts, this course will offer insights into the movements, institutions, actors, playwrights and other related artists contributing to African-American theatre. (W) 3 hr./wk.; 3 cr.

23201: Black Theatre, U.S.A. II

Focusing on the contemporary period, from 1950 to the present, this introductory course examines the development of recent African American drama. Through the process of close reading of dramatic texts, this course will focus on the contributions of African-American playwrights, actors, designers, critics, and producers. (W) 3 hr./wk.; 3 cr.

23300: Directing I

Introduction to techniques of directing actors; scene and beat analysis; creative considerations of setting, properties, staging, and dramatic rhythm. Prereq.: Thtr 13600. 4 hr./wk.; 4 cr.

23600: Acting II

Continuation and development of improvisation and monologues, with intensive work on scene study. Prereq.: Thtr 13600 or permission of the Department. This course may be taken two times for credit. 4 hr./wk.; 4 cr.

23601: Acting III

Work on classical and modern poetic schools of dramatic works, featuring in-depth exploration of theatrical language, including consideration of emphasis, meter, connecting breath with thought, verbal imagery, and word-as-action. Both two-character scenes and monologues and soliloquies are required. Prereq.: Thtr 13600 or permission of the department. 4 hr./wk.; 3 cr.

23602: Acting IV

This course emphasizes auditioning for professional theatre and cinema. Consideration is given to building a repertoire, developing a resume, professional comportment, etc. The student will have experience in both the presentation of monologues and in doing cold readings. Prereq.: Thtr 13600 or permission of the instructor. 4 hr./wk.; 3 cr.

23701-23703: Technical Theatre Practicum

Guided individual work in one of the following areas: Stage Management, Costume Design and Construction, Set Design, Painting, and Construction, Stage Lighting, Property Construction and Acquisition, Sound Design. This course may be taken up to eighteen credits. By permission of the department. Variable hours; 1-3 cr./sem.

23800: Musical Theatre Workshop

This course emphasizes acting through singing. The students will gain familiarity with the various genres of songs within the musical comedy rubric and gain experience in performing them. There will also be choral work and an elementary workshop in jazz dance. This course may be taken two times for credit. 3 hr./wk.; 3 cr.

23900: Acting for the Camera

Students, using extant film scenarios, act in scenes from movies and gain practice in acting for television dramas and commercials. Performances are video-taped, played back, and analyzed. This course may be taken two times for credit. 4 hr./wk.; 3 cr.

24000: Stage Combat

Introducing students to the art of stage combat. Begins with basic exercises and culminates in a comprehensive and choreographed scene. Students learn the importance of partnering, discipline, and the difference between actual violence and effective illusion. Emphasis is on safety, acting values and telling the story of the fight in a theatrical setting. This course may be taken 2 times for credit. 4 hr./wk.; 3 cr.

25000: Ballet

The fundamentals of classical ballet, including intense barre and floor work on basic steps and positions as well as consideration of the history of ballet, from its roots as a court diversion to its present hybrid manifestations. This dance form will be placed in its context as a mode of theatrical expression, as a means to tell a story, to symbolize the full range of human emotion, and as abstract movement. Students will gain basic mastery as well as train and discipline their bodies. 4 hr./wk.; 3 cr.

25100: Jazz Dance

Emphasis will be placed on perfecting basic dance techniques, creating basic jazz compositions, and developing a more in-depth understanding of the historical development of American jazz dance from its African, social and modern dance roots to its contemporary influences and its symbiosis with American Musical Theatre. 4 hr./wk.; 3 cr.

25200: Modern Dance

Students will work to develop alert, strong and intelligent bodies. They will be exposed to a variety of approaches to dance technique and aesthetics. The students will learn through improvisation to develop movement material, to work alone and in collaboration with others. Students will increase their strength, suppleness and grace through a series of warm-ups, energetic center floor exercises, and spatially oriented movement. 4 hr./wk.; 3 cr.

25300: Tai Chi

Tai Chi Chuan is an ancient Chinese exercise based on centering and balance which has proven helpful to strengthen the body, increase flexibility, develop patience, and discipline the mind. Students will be instructed in the first of the three parts of the classical form, a series of slow rhythmic movements that center and integrate the mind and body. 4 hr./wk.; 3 cr.

30100-30300: Honors

Variable cr., usually 3 cr./per sem.

31000: Independent Study

Upper level work on issues of dramatic literature, theatre history, and criticism. Permission of program advisor required. Variable cr.

31100-32000: Selected Topics

Advanced study in selected topics and problems chosen from areas of theatre with emphasis upon aspects not treated in regular courses. Hours and credits to be arranged.

33000: Performance Practice

Active participation in the production of a play either as actor, assistant director or as a member of the technical crew. Open to all students in the college. By audition. Permission of faculty advisor required. May be taken up to eight times for credit. 20 hr. rehearsal/wk.; 4 performances; 2 cr.

33100: Playwriting

Development of skills in writing for the theatre; practice in developing dramatic situations, dialogue, building characters, etc. This course may be taken two times for credit. (W) 3 hr./wk.; 3 cr.

33300: Directing II

Advanced course in directing, utilizing extended and more complex scenes and texts. Students direct a one-act play. Prereq.: Thtr 23300 or permission of the Department. 4 hr./wk.; 4 cr.

33600: Performance Practice in Film

The student performs in one or several student films and/or videos sponsored by the Film and Video programs. Ultimately presents a portfolio of work and a journal to selected theatre faculty for evaluation. This course may be taken two times for credit. Permission of the department required. 3 hr./wk.; 3 cr.

37000: Special Problems in Directing

The student directs a full-length theatrical work under faculty guidance. Permission of major advisor required. Prereq.: Thtr 33300. Hours variable; 3 cr.

37100: Special Problems in Playwriting

The student writes a full-length theatre work under faculty supervision. Permission of major advisor required. This course may be taken two times for credit. Prereq.: Thtr 33100 (taken twice), Engl 32201. Hours variable; 3 cr.

37200: Special Problems in Technical Theatre and Design

Guided work on a project of substantial scale, either in costume, lighting, set, or sound design, stage management or extensive apprenticeship in technical crews.

Permission of program advisor and technical director required. Prereq.: Thtr 13400. May be taken up to four times. Hours variable; 3 cr.

43000: Theatre Workshop

Creative work in both acting and directing for advanced students who demonstrate outstanding talent. Permission of the Department required. 3 cr./sem. Maximum: 3 sem.; 9 cr.

43100: Internship in Theatre

Involves work at a theatre or theatre organization outside the college environment. The work could be in (1) theatre management and administration, (2) technical theatre, (3) various creative areas, including acting directing and design. The Theatre Advisors must approve the outside organization as well as a coherent plan for the nature and quality of the work the student proposes to do. Ultimately, the student presents to their campus advisor a portfolio or journal chronicling their internship work as confirmed by the on-site supervisor. 43101: 2 hr./wk.; 1 cr.: 43102: 4 hr./wk.; 2 cr.: 43103: 6 hr./wk.; 3 cr.

45000: Special Topics in Dramatic Literature

Specialized study of specific playwrights, genres, and historical periods of drama-turgy. Prereq.: Eng 11000. 3 hr./wk.; 3 cr.

SPEECH

01100: Articulation

Primarily for students whose English is difficult to understand owing to foreign accent, dialect or incorrect learning. 2 hr./wk.; 1 cr.

00380: Speech Communication

Basic skills in extemporaneous speaking, oral reading, small group communication, interview techniques and listening. Each student will have at least one performance recorded in the TV/Media Center. Students who have completed Speech 11100 may not take this course. For SEEK Students only. 4 hr./wk.; 3 cr.

11100: Foundations of Speech Communication

Basic skills in extemporaneous speaking, oral reading, small group communication, interview techniques and listening. Each student will have at least one performance recorded in the TV/Media Center. Students who have completed Speech 00380 may not take this course. 3 hr./wk.; 3 cr.

11400: Oral Interpretation

Theory and practice in reading aloud. 3 hr./wk.; 3 cr.

23300: Voice and Diction

Effective self-expression in communication, with emphasis on voice, diction and vocabulary. 3 hr./wk.; 3 cr.

FACULTY

Robert Barron, Assistant Professor

B.A., Brown University; M.F.A., Yale School of Drama

Lydia Fort, Assistant Professor

B.A. New York University; M.F.A., University of Washington

Orsini Gonzalez, Lecturer

B.A., SUNY (Binghamton); M.A., Queens College; Ph.D., Fordham Univ.

Keith L. Grant, Associate Professor

B.F.A., Univ. of Utah; M.A., Pennsylvania State Univ.; M.F.A., Yale Drama School

Brandon Judell, Lecturer

B.A., CCNY, M.A.

Kate Levin, Assistant Professor

B.A., Harvard Univ.; Ph.D., Univ. of California (Berkeley)

Julio A. Matos, Lecturer

B.M., Florida State Univ.; M.F.A., Pennsylvania State Univ.

Eugene Nesmith, Associate Professor and Chair

B.F.A., The City College; M.F.A., Univ. of California (San Diego)

Kathleen Potts, Lecturer

B.A., Univ. of Southern Maine; M.F.A., Columbia Univ.

David Willinger, Professor

B.A., Herbert Lehman College, M.A.; Ph.D., CUNY

PROFESSORS EMERITI

Steven Urkowitz

Women's Studies Program

(DIVISION OF SOCIAL SCIENCE)

Professor Marilyn Hacker • Program Office: NA 7/133 • Tel: 212-650-7494

GENERAL INFORMATION

PROGRAMS AND OBJECTIVES

The Women's Studies Program offers an interdisciplinary undergraduate minor. The purpose of the program is to engage students in the discovery and production of knowledge that emerges from feminist perspectives on culture and society. We seek to provide students with the analytic competency that results from engagement with a curriculum focused on the intersections of gender, race, ethnicity, class, sexuality, and nation and that promotes responsible citizenship in a diverse global environment. The program introduces students to the history of women and their social, cultural and scientific contributions; it stresses the importance of social responsibility, activism, and community outreach. The program supports and sponsors both on and off campus events relevant to women's social, cultural and political issues with a strong sense of commitment to women in the metropolitan region. Both curricular and extracurricular activities of the program are grounded in multiple feminisms and interdisciplinary approaches to feminist thought.

- **Development**
- **Economics**
- **Government Service**
- **Medicine**
- **Science**
- **Social Science**
- **the Arts**
- **the Humanities**

REQUIREMENTS FOR THE MINOR

Required courses

| | |
|--|----|
| 10000: Women's Roles in Society | 3 |
| Elective courses (with approval of the Program director) | 12 |

Total Credits **15**

Events/Activities

The Women's Studies program hosts and co-sponsors Women's History Month, including many exciting talks, films, and activities during March. The program also hosts talks and activities in conjunction with other groups, programs, and college departments, including Art, History and Political Science.

AWARDS

CCNY undergraduate students are eligible for the following awards:

The Joan Kelly Essay Award

Women Hold up the Sky Award

The Most Outstanding Written Work in WS 10000 Award

COURSE DESCRIPTIONS

Introductory and Core Courses

10000: Women's/Gender Roles in Contemporary Society

An introduction to issues that arise when women's lives and gender roles become the focus of critical inquiry. How do different societies and academic disciplines define women? How do women's experiences vary in relation to factors such as race, ethnicity, class, sexuality, age and nationality? How have women resisted, adapted to, and transformed "women's space" in the United States and elsewhere? (W) 3 hr./wk.; 3 cr.

Intermediate and Advanced Courses

31000: Independent Study

The student will pursue a program of independent study under the direction of a member of the program with the approval of the Program Director. 1-4 hr./wk.; 1-4 cr.

31100-32000: Selected Topics in Women's Studies

Topics not covered in the usual program offerings. Topics will vary from semester to semester depending upon student and instructor interest. Credits and hours will be determined by the instructor and the program. 1-4 hr./wk.; 1-4 cr.

Elective Courses in Other Departments

Below is a partial listing of courses accepted in the Women's Studies program. Please consult an advisor for all applicable courses each semester.

Anthropology

- 20100: Cross Cultural Perspectives
- 20300: Human Origins
- 22500: Class, Ethnicity & Gender
- 22600: Culture, Personality & Behavior
- 23200: Witchcraft, Magic and Religion
- 23600: Sex, Marriage and the Family in Cross-Cultural Perspective
- 25500: The Anthropology of Health and Healing
- 25600: Women in Cross Cultural Perspective
- 28500: Human Heredity, Race and Intelligence
- 29500: Bio-Cultural Anthropology
- 31403: Women and Violation of Human Rights
- 31404: Health Issues Alternatives

Asian Studies

- 20700: Asian Women

Art

- 21066: Women in World Art

Biology

- 32100: Physiological Processes
- 31613: Women's Health

Black Studies

16600: Caribbean Immigration
31416: The Black Women

English

31713: Latina Writers
37501: Women Writers of the
Middle Ages and the Renaissance
37502: 19th Century Women Writers
37503: 20th Century Women Writers

Foreign Languages and Literatures

31500: Selected Topics: French
Women in Literature (in English)
45300: Gender Issues in Hispanic
Letters

History

31500: History of Sexuality
31613: History of Women and Medicine
36000: Women in Modern History
36600: The American Women's
Movement

Jewish Studies

27300: The Jewish Woman

Latin American and Latino Studies

13200: The Contemporary Hispanic
Family
29000: Health Care Planning and
the Hispanic Experience
29100: Culture and Health

Political Science

20900: American Political Thought 2
22900: Women and Politics

Philosophy

34600: Feminist Philosophy

Psychology

24500: Psychology of Human
Sexual Behavior
31823: Psychology of Women and
Violence
36500: Family Psychology

Sociology

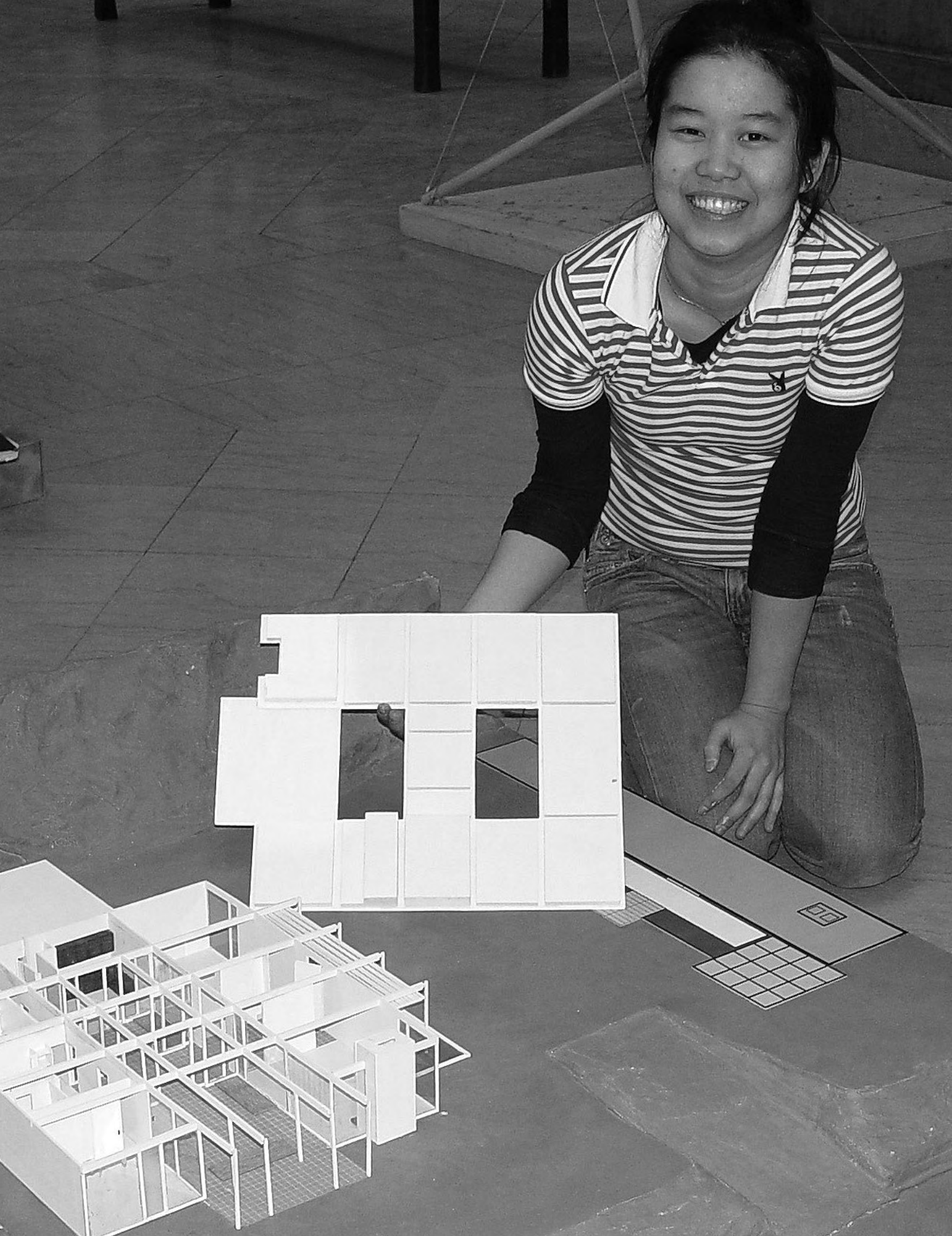
25100: Urban Sociology
26600: Family Relationships
26700: Social Change in
Developing Countries
27700: Ethnic Families in the
United States
38207: Sex Roles and Social Change
38209: Sociology of Sexualities

Spanish

33000: Representations of
Contemporary Spain in Its Cinema
33100: Representations of Latin
America in Its Cinema
43401: The Spanish Novel Since
the Civil War

FACULTY

The faculty of the program includes those professors who teach the program's courses and those whose departmental courses may be credited to the minor.



The Bernard and Anne Spitzer School of Architecture

The Bernard and Anne Spitzer School of Architecture

Professor George Ranalli, Dean • Professor Peter Gisolfi, Chair • Department Office: AR 113 • Tel: 212-650-7118

GENERAL INFORMATION

The Bernard and Anne Spitzer School of Architecture offers the following undergraduate degrees:

Bachelor of Architecture (B.Arch.)

Bachelor of Science (B.S.)

PROGRAMS AND OBJECTIVES

Architects, urban designers and landscape architects design buildings, cities, communities and the landscapes in which we live and work. They must be capable of synthesizing the needs of all of those involved in the complex process of shaping an environment, from inception and design to construction and management. The School gives equal emphasis to good design, technical knowledge and a clear understanding of human experience and community development. The City College's Architecture program is dedicated to the understanding of the complex systems of the city's urban fabric and a desire to make the city work well for the people who live and work there. The location of the School in Manhattan allows for direct access to a vibrant and exciting urban resource, which the program uses to the fullest extent.

The Architecture program leads students through the artistic, technical, intellectual and social process of designing buildings, communities and open spaces. All students are enrolled in this course of study, which leads to the Bachelor of Architecture (the professional degree for licensure) in five years.

A student may elect to obtain the B.S. in Architectural Studies after four years of study. An individual who obtains the 4-year B.S. in Architectural

Studies degree at City College may not obtain a Bachelor of Architecture degree at City College.

HISTORY

The program in architecture leading to the professional degree was initiated in September 1961, within the School of Engineering and Architecture.

In July 1968, a separate School of Architecture and Environmental Studies was created. In September 1971, the Urban Landscape and Urban Design options were added to the programs of the School. The City College Architectural Center was founded in 1980. In 2000, the name of the School was changed to the School of Architecture, Urban Design and Landscape Architecture. In 2009, the name was again changed to the Bernard and Anne Spitzer School of Architecture.

CURRICULUM

The educational program of the School is divided into three phases. Each phase has a specific emphasis.

In Phase 1 (first and second years), the student is offered a general education in liberal arts and sciences as well as a series of architecture and environmental studies (AES) lecture and workshop courses that serve as an introduction to the processes of change in the physical fabric of the urban environment.

Phase 2 (third and fourth years) is devoted to professional concentration in architecture. In each semester, the student is required to take parallel courses in three areas: problem-solving design workshops, history and theory of architecture, and the

technology of building systems for architecture.

Phase 3 focuses on advanced studies in architecture in the fifth year. The development of independent professional judgment is emphasized in this phase.

RESEARCH

The City College Architectural Center (CCAC) offers technical assistance to community and public agencies concerned with enhancing and rehabilitating their environments. The research component of this center develops new knowledge and skills to support the academic program. Particular emphasis is placed on developing the relationship of professionals and non-professionals, community groups, agencies and other clients and users in decision making affecting the environment. The CCAC also provides students with opportunities to gain field experience and contribute to the community.

SELECTED AWARDS, SCHOLARSHIPS AND HONORS

Alumni Association Scholarships

Architecture Alumni Group Scholarship

Megan Lawrence Memorial Award

Fred L. Leibman Book Award

Most Outstanding Student Awards: Years 1 – 5

Most Outstanding Thesis Project Award by Design Studio

Faculty History and Theory Award

Extech Award

Bernard L. Spanier Scholarship Fund

Ecole D'Art de Fontainebleau Scholarship

AIA/Architectural Foundation

Scholarship

AIA/New York Chapter Eleanor Allwork Award

AIA/Certificate of Merit

Carol J. Weissman Kurth Women in
Architecture Scholarship
Matthew W. Del Gaudio Award
AIA Henry Adams Award
Alpha Rho Chi Medal
J. Max Bond Award
Gerner, Kronick & Valcarcel Scholarship
James Stewart Polshek Scholarship

STUDENT ORGANIZATIONS

The American Institute of Architecture Students (AIAS)

National Organization of Minority Architecture Students (NOMAS)

City College Academy for Professional Preparation (CCAPP)

Digital Architectural Students Club (DASC)

Habitat for Humanity Campus Chapter

ACCREDITATION

The five-year professional degree (Bachelor of Architecture) is registered by the New York State Education Department and the National Architectural Accrediting Board.

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted a 6-year, 3-year, or 2-year term of accreditation, depending on the extent of its conformance with established educational standards.

Master's degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

The NAAB grants candidacy status to new programs that have developed viable plans for achieving initial accreditation. Candidacy status indicates

that a program should be accredited within 6 years of achieving candidacy, if its plan is properly implemented.

ADMISSIONS

FRESHMEN

For information about academic requirements, application procedures, placement examinations and special admissions programs, consult the front of this *Bulletin*.

CHANGING MAJORS WITHIN THE COLLEGE

Students in The City College who want to change their major to architecture must apply to the School of Architecture. A limited number of applicants may be accepted each year.

TRANSFER AND PREVIOUS DEGREE STUDENTS

Students with previous college course work or degrees may be exempted from some of the required and elective general education courses. An evaluation of a student's transfer credits is made by the director of academic advisement. Those wishing to apply must complete a CUNY Transfer Application. Once accepted students are individually evaluated on the basis of past academic work. A portfolio is required only for those who previously studied architecture.

APPLICANTS FROM OTHER INSTITUTIONS

Applicants who have earned a B.S. degree in Architecture at another institution should submit a transfer student application. Applicants will be scheduled for interviews with the Director of Academic Advising and asked to present a portfolio containing examples of their work. Placement in studio is based on portfolio evaluation.

REGISTRATION AND ADVISEMENT

Pre-Registration

All Architecture students must see an academic advisor before registration.

At these times, advisors will consult on matters of registration, program, credits, academic standing, or personal problems related to the student's professional career.

Program Planning Procedures

Entering freshmen are advised by an advisor in the School of Architecture. At the advisement session, they prepare a program for the coming semester. The approval of an advisor is required for any change in an approved curricular program.

Most courses offered by the School are part of a sequence. Since every course in this Bulletin is not offered every semester, students should be careful to plan programs that can be completed in the required number of semesters.

Most courses offered by the School have prerequisites, which are listed immediately after the course descriptions. The prerequisites must be successfully completed before the course that requires them can be taken.

Students may not register for two sequential courses simultaneously in Architectural Design Workshops, History/Theory, or Construction Technology, unless they have been granted permission by the Director of Academic Advising.

If the student wishes to drop a course that is a corequisite of another course, both must be dropped.

Students with an overall average of 2.33 and a 2.33 in professional courses and a successful portfolio review are permitted to proceed from Phase One (first and second years) to Phase Two (third and fourth years).

Students who have earned a B average in the preceding term, and who have no grade below a C in any subject studied that term, may be permitted to take more than 17 credits.

Students are expected to attend the School full-time and carry a minimum of 12 credits.

Students are responsible for seeing that they complete all requirements necessary for graduation. Students are also responsible for informing the Office of the Registrar if at any time

they have reason to believe their records are incorrect.

Students who suspend their studies must apply for re-entry.

DEGREE REQUIREMENTS

Phase One

First Semester

| | |
|-----------------------------------|---|
| AES 11100: Communication Studio I | 4 |
| FIQWS | 6 |
| Perspective | 3 |

Second Semester

| | |
|---|---|
| AES 12000: Communication Studio II | 4 |
| AES 21200: The Built Environment of New York City | 2 |
| Perspective | 3 |
| EAS Perspective | 4 |
| Elective | 3 |

Third Semester

| | |
|---|---|
| AES 23000: Communication Studio III | 4 |
| AES 23200: A Survey of Western Architecture I | 3 |
| AES 23300: Introduction to Digital Media | 4 |
| Physics 21900: Physics for Architects | 4 |
| Perspective | 3 |

Fourth Semester*

| | |
|--|---|
| AES 24000: Communication Studio IV | 4 |
| AES 24001: Portfolio Review | 0 |
| AES 24200: A Survey of Western Architecture II | 3 |
| AES 24302: Statics and Strength of Materials | 4 |
| Perspective | 3 |
| Electives | 4 |

*To proceed from the second to the third year in the Architecture program, a student must satisfactorily complete all required courses listed and electives for a minimum of 60 credits (exclusive of all ESL); have a minimum cumulative G.P.A. of 2.33, a minimum G.P.A. of 2.33 in all AES courses, complete Speech 11100 or pass the Speech Exemption Exam, pass the CUNY Proficiency Exam and pass a portfolio review (AES 24001). See advisor for any changes in curriculum.

Phase Two

Fifth Semester

| | |
|---|---|
| ARCH 35100: Design Studio I | 5 |
| ARCH 35201: Modern Architecture | 3 |
| ARCH 35301: Construction Technology I | 3 |
| ARCH 35401: Structures I (Wood & Steel) | 3 |
| ARCH 35302: Site Technology | 3 |

Sixth Semester

| | |
|------------------------------|---|
| ARCH 36100: Design Studio II | 5 |
|------------------------------|---|

| | |
|--|---|
| ARCH 36301: Construction Technology II | 3 |
| ARCH 36401: Structures II (Concrete) | 3 |
| Elective | 3 |

Seventh Semester

| | |
|--|---|
| ARCH 47100: Design Studio III | 6 |
| ARCH 47201: World Architecture | 3 |
| ARCH 47301: Construction Technology III (HVAC) | 3 |
| Electives | 3 |

Eighth Semester

| | |
|---|---|
| ARCH 48100: Design Studio IV | 6 |
| ARCH 48301: Construction Technology IV (Lighting and Acoustics) | 3 |
| Electives | 8 |

To proceed to the 5th year/thesis, a design portfolio and a thesis project statement must be approved. The student must have maintained a 2.33 G.P.A. overall and a 2.33 G.P.A. in all Architecture courses.

Phase Three

Ninth Semester

| | |
|--------------------------------------|---|
| ARCH 51100: Thesis Studio | 6 |
| ARCH 51200: Architectural Management | 3 |
| Electives | 8 |

Tenth Semester

| | |
|---------------------------|---|
| ARCH 52100: Thesis Studio | 6 |
| Electives | 9 |

Total Credits for B. Arch. Degree 160

Note: To earn the B.Arch. degree a student must successfully complete all required courses as well as complete a minimum of 40 elective credits of which 27 must be in architecture or on an approved list. The B.S. in Architectural Studies may be obtained by completing all courses required in the first four years totaling 128 credits with a minimum G.P.A. in Architecture and other courses of 2.0. An individual who obtains the four-year B.S. in Architectural Studies degree at City College, may not obtain a Bachelor of Architecture degree at City College.

ADVISEMENT

Architecture

Professor Ghislaine Hermanuz
AR 131; 650-7118/8731
Mr. Arnaldo Melendez
AR 132; 650-7307

FACILITIES

The Library

The Architecture Library contains more than 30,000 volumes related to the

programs of the School. It currently receives 70 periodicals, and has a collection of 11,000 pamphlets and pictures. Public workstations in the library offer web access. The Morris Raphael Cohen Library and the Science/Engineering Library are also available for student use. Professor Judy Connorton is the Chief of the Architectural Library.

The Model Shop

Students use the shop to make models that enable them to study design solutions in three dimensions and to analyze construction details and methods. The shop is equipped with laser cutter and CNC equipment as well as hand and power tools for wood and plastic. Instruction is provided in the use of equipment. Use of the shop is integral to the design curriculum, beginning with the first year studio.

Visual Resources Library

The Visual Resources Library is a reference collection of over 60,000 slides as well as a rapidly growing collection of digital images. It also includes facilities for photographing models and drawings and other equipment for recording or viewing architectural projects. Professor Ching-Jung Chen is the Art and Architecture Visual Resources Librarian.

The Digital Labs

The Digital Labs, housed in large central spaces in the School, provide students with a variety of networked computer equipment for carrying out graphic and design and building modeling projects. Advanced software for drafting, drawing and rendering as well as other applications are available. The labs are also used for teaching the various computer courses offered in the School.

The City College Architectural Center

The City College Architectural Center (CCAC) provides technical assistance in architecture and planning to neighborhood groups, non-profit housing groups and other organizations unable to pay for private services. The CCAC offers advanced students from the School of Architecture experience through internships and is a venue for independent studies. The CCAC also

acts as a center for various special projects and programs.

COURSE DESCRIPTIONS

Please note that FIQWS or exemption is a prerequisite to all Architecture and AES course except AES 11100 and AES 20100.

AES 11100: Communication Studio I

The course emphasizes analysis and design of architectural space through a series of repetitive exercises concentrating on process and production and examining the relationship between space, time, form, structure, landscape, scale, precedent, and program. Students master drafting and freehand pencil drawing techniques, and model-making techniques. 8 hr./wk.; 4 cr.

AES 12000: Communication Studio II

Students continue the spatial exercises introduced in AES 11100 with emphasis placed on formulating a personal, self-directed design process. Students master conceptual and physical tools of architecture through individual and team projects and explain, defend, and modify the design process through presentations and discussion, analysis and research of historical and theoretical precedents. Prereq: AES 11100. 8 hr./wk.; 4 cr.

AES 20100: Freehand Drawing

In this course the students are led to see architectural space and to understand and draw the elements that define it. Objects are seen and drawn relative to the greater spaces of which they are a part. Line drawing is the principal technique employed in this course. 4 hr./wk.; 2 cr.

AES 21200: The Built Environment of New York City

Exploring the conditions and factors that have led to the development of New York City and its world renowned architecture and open spaces. Field trips, papers and investigation on the creation of New York. 2 hr./wk.; 2 cr.

AES 23000: Communication Studio III

Analysis and methodology of design; drawing as a tool for design; orthographic projections. Prereq.: AES 12000. 8 hr./wk.; 4 cr.

AES 23200: A Survey of Western Architecture I

This is the first of a two-semester survey that reviews the physical forms of architecture and related arts in a chronological format through an examination of case studies. It seeks to show how architecture responds to the needs of societies, and how it influences those who use it. The first semester will explore Ancient Near Eastern, Egyptian, Greek and Roman, Early Medieval, Byzantine, Western Islamic,

Romanesque, Gothic and Renaissance Architecture against its social, cultural and political backdrops. 3 hr./wk.; 3 cr.

AES 23300: Introduction to Digital Media

Introduction to digital media including the concepts and ideas underlying such topics as image capture, image processing, three-dimensional modeling, rendering, digital graphic design, and two dimensional CAD drawing. Utilizing a lecture/demonstration format with associated "studio" or "lab" component, it is meant to develop students' knowledge and fundamental understanding of digital media as well as assure systematic and well-ordered acquisition and development of the skills required for effectively using digital tools in the design professions. Prereq.: AES 12000. 4 hr./wk.; 4 cr.

AES 24001: Portfolio Review

Review by faculty of the student's design portfolio which is to include work carried out in the 10000 and 20000-level design studios. Criteria include graphic ability, conceptual ability, progress and development. A grade of P is necessary to enter the third year. Coreq.: AES 24000. 0 cr.

AES 24200: A Survey of Western Architecture II

The second semester will explore Mannerist, Baroque, Ottoman, Rococo, Romantic, Neo-Classical and Colonial Architecture, as well as 20th century movements including Modernism, Post-Modernism, and contemporary trends in which architects are working today. The interaction of architecture with its social, cultural and political context will be stressed. 3 hr./wk.; 3 cr.

AES 24302: Statics and Strength of Materials

Evaluation of the balance of stationary forces in such statically determinate structural elements as beams, columns, cables, trusses, arches; analyzing reactions, axial forces, shear forces and bending moments. The evaluation of cross-sectional properties; measuring axial shear, bending, twisting and buckling strength of structural elements. Prereq.: Physics 21900. 3 hr./wk.; 3 cr.

ARCH 35100: Design Studio I

This is the first of four sequential workshop courses which develop programming, design and graphics abilities. These continuing, realistic exercises of the student's power to influence environmental change will preview the whole range of his or her activity as a practicing professional. Prereq.: entry to third year. 8 hr./wk.; 5 cr.

ARCH 35201: Modern Architecture

A continuation of AES 24200 which includes artistic movements and technological innovations from the late 19th century and 20th centuries: the modern movement in Europe and the United States, contemporary vernacular traditions worldwide, world architecture after World War II and new directions in contemporary architecture. Prereq.: entry to third year. 3 hr./wk.; 3 cr.

ARCH 35301: Construction Technology I

An introduction to building systems, including simple wood and masonry construction. Assemblies of various building components will be studied. Concepts of energy conservation will be related to building construction. In the studio sections students will develop construction drawings of simple building assemblies. Prereq.: entry to third year. 3 hr./wk.; 3 cr.

ARCH 35302: Site Technology

A survey workshop in the relationship of physical development to land forms. The student will deal with the basic principles of site planning, environmental and ecological factors of siting, building, grading, drainage, site structures and materials. Prereq: entry to third year. 3 hr./wk.; 3 cr.

ARCH 35401: Structures I, Wood and Steel

This course reinforces the statics and strength experience and applies it to real building situations. Simple wood and steel structures are used as the examples. Prereq.: AES 24302. 3 hr./wk.; 3 cr.

ARCH 36100: Design Studio II

Students will be introduced to the processes, knowledge and skills required for the design of a small group of buildings of simple program, within a selected number of the real financial, political and legal constraints in New York City. Prereq: ARCH 35100. 8 hr./wk.; 5 cr.

ARCH 36301: Construction Technology II

The course will concentrate on the technology of medium to high rise buildings of steel and concrete construction. Case studies of specific buildings will be used to help students expand by analysis their knowledge of a particular group of design applications of building systems. Prereq.: Arch 35301. 3 hr./wk.; 3 cr.

ARCH 36401: Structures II, Concrete

The knowledge of structural analysis is expanded to continuous systems. Examples are taken from concrete building structures with emphasis on the three-dimensional potential of planning space economically and elegantly. Prereq.: Arch 35401. 3 hr./wk.; 3 cr.

**ARCH 41002-41003 Series:
Independent Studies and Research**

For students in the third and fourth years who wish to pursue advanced study or research in selected topics. Students must obtain written permission from a faculty member who becomes the mentor for the student or students, as to the study plan and the number of credits. Prereq.: permission of the Department.

41002: 2 cr.

41003: 3 cr.

ARCH 47100: Design Studio III

Students will progress from the simple buildings studied and designed the previous year to programs of increasing social and technological complexity. Prereq: ARCH 36100. 8 hr./wk.; 6 cr.

ARCH 47201: World Architecture

A continuation of Arch 35201 including case studies of traditional architecture, landscape and urban design of India, China, Korea, Japan, Southeast Asia, Islam and Medieval Europe, with a view towards understanding how architectural forms develop, and interact with the societies that produce them. 3 hr./wk.; 3 cr.

ARCH 47301: Construction Technology III

Heating, ventilating, air-conditioning, plumbing, and electrical systems in buildings will be studied from a rudimentary design view to a level from which students will understand criteria involved in making choices between construction systems. Such things as space requirements and coordination with other building systems will be studied. Prereq.: Arch 36301. 3 hr./wk.; 3 cr.

ARCH 48100: Design Studio IV

A continuation of the work done in previous design studios. Problems focus on multifunctional building complexes. Interdisciplinary emphasis to correlate the student's work with others implementing environmental change: government agencies, elected officials, community groups and leaders, engineers and social scientists. Prereq: ARCH 47100. 8 hr./wk.; 6 cr.

ARCH 48301: Construction Technology IV

The artificial and natural lighting of buildings will be studied along with the analysis and treatment of the built sonic environment. Spaces for performance and public assembly will be addressed along with housing and other building types. Prereq.: Arch 47301. 3 hr./wk.; 3 cr.

**ARCH 51002-51003 Series:
Independent Studies and Research**

For fifth year students who wish to pursue advanced study or research in selected

topics. Students must obtain written permission from a faculty member who becomes the mentor for the student or students, as to the study plan and the number of credits. Prereq.: permission of the Department.

51002: 2 cr.

51003: 3 cr.

ARCH 51100: Thesis Studio

Each student identifies an actual architectural problem in the city of New York. The student must generate a series of basic alternate designs and present a rationale for the selection of one of the alternatives. The selected alternative is to be represented in the form of schematic models, drawings and diagrams. Prereq: Arch 48100. 10 hr./wk.; 6 cr.

ARCH 51200: Architectural Management

The principles of management as applied to the architectural profession. Included in this course are: the general organization of the profession and its relation to client, community, and the construction industry; new management techniques, organization and retrieval; project delivery, construction, and professional documents, cost control, legal surety, contract and financial management. 3 hr./wk.; 3 cr.

ARCH 51300: Selected Topics in Architecture

Special study in topics not covered in the usual department offerings. Topics vary from semester to semester, depending on student and instructor interest. Usually 3 hr./wk.; 3 cr.

ARCH 51312: Building Information Modeling**ARCH 51315: Critical Issues in Architecture****ARCH 51321: Urban Reconstruction****ARCH 51323-51324: Teaching Architecture I & II****ARCH 51327-51330: Research and Community Service Work with the City College Architectural Center****ARCH 51332: Introduction to Urban Preservation****ARCH 51345: Latin American Architecture****ARCH 51348: Computer Rendering and Animation****ARCH 51349: Low-Energy Buildings****ARCH 51352: Environmental Justice****ARCH 51356: Developing Communication Skills****ARCH 51359: NYC Housing: The Forces That Shape It****ARCH 51365: Curating Architecture****ARCH 51362-51363: Co-op Internship I & II****ARCH 51372: New Directions in Green Design****ARCH 51374: Seminar on Louis Kahn****ARCH 51380: Housing Theories****ARCH 51381: American Urban Landscape****ARCH 51388: Architecture and Photography****ARCH 51393: Transportation and Architecture****ARCH 52100: Thesis Studio**

The student develops alternate schematic solutions for the major sub-systems of his or her design. A rationale is developed for the selection and integration of sub-systems. The student makes a complete presentation of the revised design that could provide sufficient information to form a basis for preparation of contract documents for the construction of the project. Prereq.: Arch 51100. 10 hr./wk.; 6 cr.

FACULTY

Jacob Alspector, Associate Professor
B.Arch., The Cooper Union

Hillary Brown, Professor
B.Arch., Oberlin College, M.Arch., Yale Univ.; FAIA, LEED AP

Lance Jay Brown, Professor
B.Arch., Harvard Univ., M.Arch, (Urban Design); R.A., A.I.A, A.C.S.A., D.P.

Mi-Tsung Chang, Assistant Professor
B.Arch., Pratt Institute, M.Arch.; Ph.D., Union Institute

Jerrilyn Dodds, Distinguished Professor
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M.Arch., Univ. of Washington

Hanque Macari, Professor

M.S. (Envr. Design), Univ. of Wisconsin (Madison); B. Arch., Univ. of Florida; R.A.

George Ranalli, Professor and Dean of the Spitzer School of Architecture

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Achva Benzinberg Stein, Professor

B.L.A., Univ. of Calif. (Berkeley); M.L.A., Harvard Univ., F.A.I.A.

Elisa Terragni, Associate Professor

M. Arch., Facolta di Architettura, Politecnico di Milano

Christian Volkmann, Associate Professor

Dipl. Arch. ETH, Eidgenossische Technische Hochschule (Switzerland)

Lee Weintraub, Associate Professor

B.S.Arch., The City College; R.L.A.

June P. Williamson, Associate Professor

B.A., Yale Univ.; M.Arch., M.I.T.; M.U.P., The City College of New York

PROFESSORS EMERITI**Jonathan Barnett**

Carmi Bee

Horst Berger

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R. Alan Cordingley

John Deans

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M. Paul Friedberg

David E. Guise

James B. Jarrett

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M. Rosaria Piomelli

Labelle Prussin

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Bernard P. Spring

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The School of Education



The School of Education

Dr. Doris Cintrón, Acting Dean • Office: NA 3/213 • Tel: 212-650-5302

The School of Education, an outgrowth of the extension courses organized in the fall of 1908 for teachers, librarians, and social workers, was established as a separate school of The City College in the spring of 1921. It is organized under its own faculty to prepare men and women for various educational services, teaching and non-teaching, in day care/pre-school settings, as well as in the elementary and secondary schools. It is also open to in-service personnel who wish to take courses for professional development.

In collaboration with the other Schools and Divisions of The City College, the School of Education offers programs of study in a number of professional fields. Professional preparation for educational service is under the jurisdiction of the Board of Trustees of the City University of New York and coordinated by its Committee on Coordination of Teacher Education.

The programs lead to the degrees of Bachelor of Science and Bachelor of Science in Education. The School also offers a minor, including student teaching, to a large number of liberal arts degree students seeking state certification in certain secondary school teaching areas. Programs of study are designed to meet state certification and New York City licensing requirements. Students who obtain the bachelor's degree may, upon graduation, apply for NYS teacher certification electronically, using the TEACH Online Services application system. Instructions for using the system are available from the CCNY certification website at <http://www1.ccnycuny.edu/prospective/education/index.cfm>. Candidates must also indicate to the CCNY certification office (NA 3/213)

that they wish to be recommended for certification.

MISSION AND SHARED VISION OF THE SCHOOL OF EDUCATION

The City College School of Education provides access to the field of education for all who show promise of contributing to New York City schools and the education of the City's children. In keeping with the historical mission of the College, the School opens its doors to those who, because of national origin, native language, or economic condition, might otherwise find a career in education out of reach.

The preparation of teachers in the United States is intended to meet the needs of a democratic society. In New York City, this is extended to preparing educators to work with students who are diverse in all respects. To that end, the School seeks to draw on the varied strengths of candidates while ensuring that they acquire the academic, pedagogical, technological, professional, and personal skills required of an educator in an urban setting. The School commits itself to ensuring that its graduates can demonstrate solid grounding in the liberal arts and sciences, a deep understanding of public purposes of education in a democracy, thorough training in effective teaching skills, and the professional and affective dispositions to work successfully with students, families, and colleagues in the field.

The School focuses on five themes to insure coherence across its curriculum, instruction, field experience, and assessment:

- A. Content knowledge
- B. Pedagogical knowledge

- C. Diversity
- D. Leadership
- E. Building of caring communities.

A. Developing In-depth Knowledge About the World

Candidates preparing to work in schools in teaching or supervisory roles demonstrate the content knowledge and skills necessary to help all students learn. All the College's programs attempt to meet national and professional standards of content, rigor, and coherence. This knowledge is found in the liberal arts and sciences and is presented with the most up-to-date technology. Indeed, there is a consensus of educators, from progressives to traditionalists, that literature, history, philosophy, mathematics, natural science, foreign languages, and art and music must be part of a university curriculum.

To that end, the institution requires a core curriculum emanating from its College of Liberal Arts and Science. The School adopts and enhances this curriculum by requiring of its candidates additional math and science courses. Undergraduate candidates, in addition to their pedagogical courses, must complete an academic major or concentration. (In addition to these requirements, pedagogical courses echo the content of the liberal arts core and concentrations. Philosophy, history, mathematics and English are part of these courses.)

Content knowledge is demonstrated in teaching methods courses: e.g. language arts, social studies, math and science. In these courses, candidates are introduced to State learning standards at the level appropriate to the certification they seek. Through the use of content knowledge, candidates

must be able to determine the widest and deepest potential knowledge base of each of their students with the accompanying strategies that range from direct instruction to inquiry so the student can, from textual and electronic sources, obtain, rehearse, recall, and transfer new knowledge to routine and new learning contexts. Knowledge of students and pedagogy goes hand-in-hand with content knowledge.

The seven knowledge areas of a university curriculum, listed above, have value in themselves, a value that education and liberal arts faculty communicate, deliberately and in passing, even in pedagogical courses. These faculties work together on curriculum and search committees. Only if they share and transmit the value of these knowledge areas will candidates develop a disposition to continue experiencing these and participate in life-long learning. If they are not disposed to recognize this value they will not be able to pass it on to their students.

The target for teacher and other professional candidates with regard to content includes in-depth knowledge of the subject matter to be taught or supervised including the methods of the discipline that determine what becomes knowledge. Candidates demonstrate this knowledge through inquiry, critical analysis, and synthesis of the subjects they plan to teach. Some are able to meet target levels of performance by graduation from the programs of the School. Others, at that point in their development as educators, meet, at least, acceptable levels. But all graduates have the basic tools, technology and necessary dispositions to continue their development as educational professionals as well as learners. In order to ultimately meet target levels of performance, our graduates will have to continue to develop their content as well as their professional knowledge.

B. Becoming Skilled, Reflective Practitioners

Teacher competence is obviously a primary influence on student learning. Critical dimensions of competence are pedagogical knowledge and skills.

The School of Education adds to this the knowledge and skills to be a successful educator in urban schools that serve a diverse population of children and families and the disposition to use these to promote the learning of all children. In order to articulate the School's purposes and goals, pedagogical competence is divided into six subcategories:

- 1) Knowledge of human learning and development. In coursework, candidates build their pedagogical knowledge on a foundation of learning and developmental theory in tandem with practice in fieldwork. Candidates observe students in an educational and cultural context.
- 2) Knowledge of constructivism and inquiry learning. In coursework and fieldwork, candidates learn how to provide students with opportunities to explore, inquire, discover, and problem-solve. Candidates apply knowledge by gradually implementing a wider range of instructional practices in the field with diverse groups of students.
- 3) Knowledge of pedagogical approaches to working with students with special needs. Candidates, whether in special education or not, recognize that they may be called upon to work in inclusion classrooms and engage in culturally responsive teaching. As well as experiencing constructivist and inquiry models, candidates investigate complementary models for students with special needs.
- 4) Knowledge of the use of instructional technology for teaching, learning, and assessment. The School promotes the skillful use of instructional and communications technology with a predominantly "across the curriculum" approach based on the recognition that technology must be used to support student learning.
- 5) The knowledge and ability to put into practice both multiple teaching strategies and approaches to assessment that build on the

knowledge and strengths that students bring to school and allow for differentiated instruction for diverse learners. Based on their knowledge and experiences with cultural differences, candidates integrate multiple strategies in the preparation of lessons and fieldwork. They are introduced to formal and informal assessment approaches in foundation courses and in succeeding course and fieldwork experiences, become comfortable with a wide range of assessment strategies.

- 6) Application of knowledge and skills through sequenced experiences in the field. Through sequenced fieldwork, candidates grow in their ability to apply the skills and knowledge learned. Fieldwork culminates in a carefully monitored semester of student teaching or a practicum in which they engage in a formal inquiry into their teaching practice.

C. Educating For and about Diversity

The great strength of City College is the diversity of its students and faculty. As a public institution, the College has in place a policy of nondiscrimination on the basis of age, color, disability, national or ethnic origin, race, religion, sex, sexual orientation, veteran or marital status. As a campus situated at the center of one of the world's most diverse metropolises, the College enjoys the opportunity of making that policy a living reality.

The School of Education subscribes wholeheartedly to the goal of full inclusion and so works continuously to ensure that the diversity of the New York City population, and particularly of the surrounding local community of upper Manhattan, is reflected in the make-up of the faculty and in the perspectives, concerns, and materials taken up throughout the curriculum. Access to education and to careers in teaching for the widest possible representation across the City's population is central to the School's mission but, at the same time, a wider variety of educational options is often available to the economically more advantaged.

In this light, the School and the College seek especially to provide access to those who are economically disadvantaged. Mechanisms to provide such access include low tuition, financial aid, academic support services, and scheduling of classes to accommodate students who work.

The School views the diversity of students and faculty, defined in its widest sense, not just as an obligation but as an educational resource. While an emphasis on multiculturalism does prepare learners for the diversity of the world outside the classroom, a diverse classroom actually brings that reality into the educational process itself. In a true community of learners, where each member contributes to the learning process, it must be the case that greater diversity of lived experience among the learners results in a richer learning experience for the community. For the School of Education candidate, diversity is more than a fact of the world, something about which the candidate must learn; it is a fact of the candidate's own classroom, something through which the candidate can learn. It is the responsibility of faculty to draw upon the diversity of the school to enrich the learning processes of all candidates, a practice that serves as a model for candidates in their own teaching.

The School is continuously working towards finding ways to promote understanding across experiential divides. Particularly where native cultures, languages, and dialects differ from candidate to candidate, candidate to instructor, and faculty member to faculty member, it is a challenge to appreciate and accurately assess the value of another's contribution. It is also a challenge to prepare candidates to meet the demands of state and professional assessment instruments, which may not always be sufficiently sensitive to cultural and linguistic differences. The School strives to meet these demands without sacrificing either academic rigor or cultural and linguistic pluralism.

D. Nurturing Leadership for Learning

- 1) General preparation. Our goal is to develop the capabilities of candidates to assume leadership roles in their classrooms, schools, and communities. Whether or not candidates eventually assume formal leadership positions, the acquisition of the knowledge, skills, technology, and dispositions required for providing leadership serves to enhance their performance at the classroom, school, and community levels. Accordingly, developing the capacity to apply leadership skills that foster the development of community in multicultural, multilingual schools is a theme that is embedded and reinforced in the course content, fieldwork, research requirements, and internship experiences offered by all the programs in the School.

Candidates acquire the ability to lead and participate in decision-making bodies that address the academic content and management structure of the diverse programs in their schools. They are prepared to engage in collaborative processes that encourage the mutual efforts of teachers, administrators, and staff to work and learn together. They become skilled at collegial planning and evaluation, managing conflict, and reflecting and dialoging on their own professional practices. They seek to become stewards of best practice and, by so doing, feel a responsibility for the whole School and not just the classroom.

- 2) Preparing candidates for formal leadership positions. Candidates learn to lead through the co-creation of a shared vision, values and goals. To accomplish this, they learn to build consensus, manage conflict, and clearly communicate the importance of the shared vision and values on an ongoing basis. They learn to create and maintain a culture of cooperation and collaboration which has teaching and learning as its central

focus. They develop the value of empowering teachers and staff to act on their own ideas by involving them in decision-making processes and encouraging them to think of themselves as leaders. They demonstrate commitment to and sensitivity and respect for diverse cultures served by school communities.

Faculty in the leadership preparation programs utilize case study methodology, problem-based learning, and cooperative learning strategies to prepare candidates to understand the process of developing and articulating a vision and its related goals, to acquire the skills and dispositions needed to relinquish authority to teachers and staff, to appropriately involve others in decision-making processes, to delegate authority, and to share credit with others for the successes enjoyed by a school or other institutional unit.

E. Building Caring Communities

Community-building must be at the heart of any school improvement effort. Caring communities are places where teachers and children support and celebrate each other's learning and general well-being. The School, in order to help candidates begin this career-long endeavor, focuses on the creation of democratic classrooms and schools and teachers' roles as models of caring, values, and moral behavior.

- 1) Democratic classrooms and schools. Candidates come to understand what democratic classrooms and schools look like and what values they have. Faculty strive to be examples, not as transmitters where their voices dominate, but as co-intentional learners, coaches, and facilitators. Beyond modeling faculty explore with candidates the dynamics of democratic classrooms and emphasize why they are important. They emphasize the connection between public education and caring citizens equipped to make judgments as they participate in the decision-making processes of society.

2) Teachers as models of caring, values, and moral behavior. All teachers need to know their students well and, to the extent possible, personalize instruction and provide advice, nurturing, and counseling when needed. Faculty of the School, therefore, need to know candidates well and help them identify ways to know their students and to express interest in and caring for them. Candidates need to remember details about students' lives, keep notes, call and visit their homes, respond authentically, and ask students what they think and care about. Most of all, candidates need to learn that being a caring teacher is not playing a role. They must be authentic persons before they are caring persons. To be authentic in front of students leaves one vulnerable, and candidates need to be able to deal with that vulnerability.

Candidates, therefore, learn how classrooms and schools become caring communities and how they become more democratic. They understand behaviors and forces that militate against caring, democratic classrooms. They exhibit caring and democratic behaviors in their education classes. Finally, they will define the values their classrooms will support and understand how these values will contribute to the building of character in their students.

The School continually reviews and evaluates all undergraduate and graduate programs, including the objectives, content, and learning activities of individual courses. Experimentation is sought in all aspects of the program. Through required courses, counseling, experience in community agencies, and in affiliated and other schools, students are prepared to fill their role as urban teachers.

OFFICERS OF THE ADMINISTRATION

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Mr. Kurt Brown
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UNDERGRADUATE PROGRAMS

Early Childhood Education (see Center for Worker Education)

Childhood Education

Bilingual Childhood Education (Chinese, Haitian, and Spanish)

SECONDARY EDUCATION MINORS

English Education

Fine Arts Education

Foreign Language Education: Spanish

Mathematics Education

Music Education

Science Education: Biology, Chemistry, Earth Science and Physics

Social Studies Education

UNDERGRADUATE ADMISSIONS

For information about academic requirements, application procedures, placement examinations, and special admissions programs, consult the back of this *Bulletin* or go to the Admissions Office in A-101.

Prospective secondary education, childhood education, and bilingual

childhood education students must apply for admission to the School of Education through the Office of Student Services, NA 3/223A. The criteria for admission are:

1. City College GPA of 2.5 or higher;
2. pass the School of Education Admissions Test (S.E.A.T.) administered by the School of Education through the Office of Student Services;
3. A minimum of 45 credits. Twelve credits must be completed at CCNY with at least three credits in Education.
4. Complete a satisfactory interview with program faculty.

Students interested in Early Childhood Education should contact the Center for Worker Education at 25 Broadway, New York, NY 10004 (212) 925-6625.

Those who plan to teach music or art or any secondary school (middle or senior high school) subject are enrolled in the College of Liberal Arts and Science and follow a program leading to either a B.A. or B.S. degree. These students will take the education sequence as a minor in Education under the guidance of both education and liberal arts advisors. Students wishing to minor in secondary education must apply for admission in the Office of Student Services, NA 3/223A. They must meet the requirements for the minor in Education, in addition to the requirements of the individual liberal arts programs.

The School of Education evaluates transfer credits of students with 45 or more credits. In general, credit is given only for courses completed with a grade of "C" or better in properly accredited programs. No credit will be granted for courses in which the lowest passing grade (usually "D") was obtained. No credit may be given in excess of the number of credits actually earned in a course, or in excess of the number of credits listed for the comparable course in the CCNY curriculum.

Maintenance of Matriculation

As a professional school with the responsibility of recommending students for New York State certification, the School of Education must conduct ongoing professional assessment of all students. In cases where a faculty member determines that an individual is inappropriate for the teaching profession, he/she may recommend removal from the teacher preparation program to the chair of the department. The student has the right to appeal to the Committee on Course and Standing. The findings of the Committee are final.

LIBERAL ARTS CORE REQUIREMENT

All students in the School of Education are required to complete a Core of liberal arts courses. Credit is given only for courses completed with a grade of "C" or better. Students planning to specialize in secondary education generally choose a major in the liberal arts, and fulfill the Core requirements appropriate to that major. For childhood and bilingual childhood education majors the Core requirements are outlined below. Early Childhood Education majors should refer to the Department of Interdisciplinary Arts and Sciences section of this *Bulletin*. For further information on Core requirements, students should consult their academic advisors. All courses that are offered by specific departments within the College of Liberal Arts and Science are described in this *Bulletin*. The following Core courses are required for childhood education and bilingual childhood education (B.S.Ed.) majors:

| | Credits |
|--|----------------|
| World Civilization: | |
| 10100: World Civilizations I | 3 |
| 10200: World Civilizations II | 3 |
| World Humanities: | |
| 10100: World Humanities I | 3 |
| 10200: World Humanities II | 3 |
| Social Science: | |
| One of the following two: U.S. Society: | 3 |

10100: The Development of the United States and Its People (3 cr.)
Political Science:
10100: American Government and Politics (3 cr.)

Philosophy:
30000: The Rational Animal 3

Arts:
One of the following two: 3
Art 10000: Introduction to the Visual Arts of the World (3 cr.)
Music 10100: Introduction to Music (3 cr.)

Science:
10300: Science 1 3
10400: Science 2 3
And one 30000-level course in Biology, Physics or Astronomy (Childhood Education majors only) 3

Mathematics:
18000: Quantitative Reasoning 3
18500: Basic Ideas in Mathematics 3

English:
11000: Freshman Composition 3
21001: Writing for Humanities and the Arts 3
Speech 11100: Foundations of Speech Communication* 3

Liberal Arts:
One of the following two:
Art 15500: Art in Education 1 3
or
Music 15200: Music in Elementary Education 2
And
Psychology 10200: Applications of Psychology in the Modern World 3

Foreign Language—Candidates for the B.S.Ed. degree who entered the College in Fall 1988 or later must successfully complete two years of a foreign language in high school or two semesters in college (or equivalent):

For Bilingual Childhood Education: (0-3)

For Childhood Education: (0-8).

**The Speech Examination is a College requirement. Students in the School of Education meet this requirement by taking Speech 11100 or passing an exemption examination.*

CUNY PROFICIENCY EXAMINATION

All students must take and pass the CUNY Proficiency Examination after completing 45 but no more than 60 credits. Students who fail the CPE once should see an advisor to plan a preparatory program. Students who fail the exam twice must see the CPE faculty liaison for appropriate guidance.

LIBERAL ARTS MAJOR REQUIREMENTS

New York State requires that individuals seeking childhood and adolescent teacher certification have completed a liberal arts major in addition to their preparation in education. For those who wish to teach in secondary schools, this is a major in the teaching area. Those wishing to teach in the elementary school may complete traditional liberal arts major (American studies, art, economics, English, history, music, political science, psychology, sociology, Spanish) or they may complete a special interdisciplinary major designed specifically for those preparing to be elementary teachers. There are six interdisciplinary major areas: biology, earth science, chemistry, mathematics, language and literature, and social studies. Those preparing to be elementary school teachers should consult with an advisor to select an appropriate liberal arts major.

ADDITIONAL REQUIREMENTS

1. A professional development seminar in health education, child abuse, and school violence prevention and intervention (EDUC 41900).
2. Competence in Spanish or other language approved by advisor.

Competence in a second language is required of B.S.Ed. degree students. The sequence is designed to give students oral competency in the language and also to familiarize them with the diversity within the New York City student population.

Students who have had three years of a foreign language in high school

will meet the language requirement. When less than three years were taken in high school, students are required to take additional coursework at the college. Students who have a satisfactory speaking knowledge of a second language may be exempted from these courses by passing an oral competency test given each semester by the Department of Foreign Languages and Literatures. Students may apply for the test in NA 5/223.

Medical Examination

The nature of a teacher's work requires especially good health. Therefore, all education students must arrange to have a medical examination prior to fieldwork and student teaching placements; also, they must inform the School of Education of any significant or possibly disabling illness as soon as they become aware of it.

A person with physical conditions which are likely to lead to frequent absences, or who might be unable to cope with emergency situations in a school, will only be admitted when given a clearance by the New York City Public Schools Medical Examiner. All students are required to have a tuberculin skin test. The forms for the test results are available in the Wellness and Counseling Center (MR 15). Students must make their own arrangements for the tuberculin test. They may be examined by their own private physician, by a physician on the staff of a hospital, or at the City College Wellness and Counseling Center. The completed form should then be brought to the Office of Field Experiences, NA 6/207A where the student will be given a copy if needed.

Interviews and Ratings

While physical fitness, knowledge of the subject area, and the ability to use English (and the second language, in the case of bilingual childhood education majors) skillfully in writing and speaking are important, there is another criterion for teaching which is probably the most difficult to evaluate: familiarity with professional dispositions expected of educators as delineated in professional, state and

institutional standards. This is evaluated through personal interviews with the candidates on an ongoing basis.

Academic Average

The student's general average, as well as his or her status in the field of concentration and in education courses is considered. The special academic standards required vary somewhat for different fields. A declared major, a GPA of 2.5 and the recommendation of a faculty advisor are required for admission into student teaching.

Advisory Interview

When the candidate applies for admission to the School of Education, an appointment with an advisor is made to assure that the student's program is properly planned. Students are required to see an advisor at least once every semester for continuous academic advisement. Advisory appointments are scheduled in the Office of Student Services, NA 3/223A.

PROFESSIONAL TRAINING

Application for Student Teaching Courses

Candidates for secondary education, childhood education or bilingual childhood education teaching positions are required to take one semester of student teaching. The Application for Student Teaching must be filed in NA 6/207A during the first ten weeks of the candidate's lower senior term. Since the New York City Department of Education needs information in advance for the placement of student teachers, late applications cannot be considered. Deadline dates should be verified in the Office of Field Experiences, NA 6/207A, each semester or online at www.cuny.edu/education/fieldexperiences/.

Admission Requirements for Student Teaching

To be admitted to student teaching, students must have:

1. A completed application submitted to the Office of Field Experiences
2. A recommendation from their program advisor,

3. Completed a successful interview with the Director of Field Experiences,
4. Completed all liberal arts requirements, CLAS major and requisite education courses, with grades of "C" or higher,
5. Maintained a GPA of 2.50 or higher,
6. Shown satisfactory results from the tuberculin (TB) test,
7. Completed 100 hours of field experiences,
8. Submitted LAST and CST scores ,
9. Passed the CPE,
10. Declared a major/minor.

Students who are admitted into student teaching but do not successfully complete the experience must reapply and successfully complete all admissions procedures.

Appeals may be made through the Director of the Office of Student Services to the Committee on Course and Standing.

ACADEMIC/PROFESSIONAL STANDARDS AND REGULATIONS

Each undergraduate program establishes the academic and professional standards expected of its students. Traditional professional standards conform to but are not limited to the codes of ethics of professional educational associations.

The right is reserved to ask for the withdrawal of any student who fails to meet professional standards and/or fails to maintain a satisfactory academic and professional record in courses.

Jurisdiction over Academic and Professional Standards

Department chairs have jurisdiction over offenses regarding academic and professional standards for any student whose major field of interest is in their department.

Appeals Procedures of Academic Judgments

The School of Education Committee on Course and Standing will only review appeals that pertain to the School

Florida, Georgia, Maine, Massachusetts, New Hampshire, New Jersey, North Carolina, Rhode Island, South Carolina, Vermont and Virginia. More information on teaching in other states is available through the Certification Officer in NA 3/213.

STUDENT LIFE AND SERVICES

Office of Career Opportunities

The School of Education provides a placement service to assist education seniors, graduate students and education alumni in locating and securing positions in local and out-of-town school systems. Further information may be obtained from the Office of Student Services in NA 3/223A or the Career Services Office in the NAC Lobby.

Student Advisory Committee

This committee provides the opportunity for students to participate in standing committees of the School of Education. Its expanded aims include the conscientious desire to represent the point of view of education students on curriculum, policy, development and other matters of student interest. Students who wish to serve on the committee should apply through the Office of Student Services (NA 3/223A).

Advisory Services

Members of the faculty assist students in choosing an appropriate curriculum and planning a program of study. They also conduct evaluation interviews for admission to the School of Education and to advanced education courses. Advisors are available throughout the year, except for intersession, the first three weeks, and the final examination weeks of each term. During registration, only immediate problems can be considered, since individual advisors may not be present. During the Summer session, limited advisory service is available. Advisory appointments are scheduled in the Office of Student Services (NA 3/223A).

Education Club (Teachers of Tomorrow) offers students interested in teaching careers an opportunity to explore issues of common interest; to

promote professional growth; to act as a service group to the School of Education, The City College, and the community; and to maintain dialogue with the faculty in matters relevant to teaching. Students who wish to join the club or serve as officers should apply through the Office of Student Services (NA 3/223A).

Honor Society

Kappa Delta Pi is an Honor society in education. City College constitutes the Gamma Iota Chapter. Graduate students and undergraduates in the junior or senior year who are preparing for the teaching profession, and who exhibit commendable personal qualities, sound educational ideals, and superior scholarship may be elected to membership if recommended by a committee on admissions.

Department of Childhood Education

Professor Nancy Stern, Chair • Department Office: NA 6/207B • Tel: 212-650-7262

GENERAL INFORMATION

The City College offers the following undergraduate degrees in Childhood Education:

Bilingual Childhood Education (B.S. Ed.) (Chinese, Haitian, and Spanish)

Childhood Education (B.S. Ed.)

Early Childhood Education (B.S.)
(see Department of Interdisciplinary Arts and Sciences)

REQUIREMENTS FOR MAJORS

Bilingual Childhood Education (B.S. Ed.)

Required Courses:

| | |
|--|-----|
| 20000: Inquiry in Education | 3 |
| 20001: Fieldwork: Inquiry | 0.5 |
| 20600: Observing Children and their Development | 3 |
| 20601: Fieldwork: Observing Children and Their Development | 0.5 |
| 22200: The School in American Society: Bilingual Education in the Urban School | 3 |
| 22300: Classroom Based Inquiry on Bilingual Education | 1 |
| 32200: How Children Learn Mathematics: Implications for Teaching | 3 |
| 32201: Fieldwork: Mathematics | 0.5 |
| 32300: Emergent to Fluent Literacy | 3 |
| 32310: Emergent Literacy and Diverse Learners | 3 |
| 35301-35303: Teaching Language Arts and Reading in a Bilingual Program (Spanish/Haitian/Chinese) | 3 |
| 35600: Language, Mind and Society | 3 |
| 41600: Seminar in Bilingual Childhood Education | 2 |
| 41900: Child Abuse and Health Education Seminar | 0 |
| 42000: Science in a program of Childhood Education | 3 |
| 42100: Integrating the Curriculum through the Social Studies | 3 |

| | |
|--|-------------|
| 45400: Teaching English as a Second Language | 3 |
| 45500: Classroom Based Inquiry on Biliteracy and Bilingual Education | 2 |
| 45600: Teaching Content (Math, Science, and Social Studies) Using Both English and a Native Language | 1 |
| 45800: Student Teaching in Bilingual Childhood Education | 4 |
| Total Credits | 44.5 |

Childhood Education (B.S. Ed.)

Required Courses:

| | |
|--|-----------|
| 20000: Inquiry in Education | 3 |
| 20001: Fieldwork: Inquiry | 0.5 |
| 20600: Observing Children and their Development | 3 |
| 20601: Fieldwork: Observing Children and Their Development | 0.5 |
| 22100: Urban Schools in a Diverse American Society | 3 |
| 22101: Fieldwork: Schools | 0.5 |
| 32200: How Children Learn Mathematics: Implications for Teaching | 3 |
| 32201: Fieldwork: Math | 0.5 |
| 32300: Emergent to Fluent Literacy | 3 |
| 32310: Emergent Literacy and Diverse Learners | 3 |
| 41500: Seminar in Childhood Education | 3 |
| 41800: Student Teaching in Childhood | 4 |
| 41900: Child Abuse and Health Education Seminar | 0 |
| 42000: Science in a program of Childhood Education | 3 |
| 42100: Integrating the Curriculum through the Social Studies | 3 |
| 42300: Literacy: Fluent to Experienced | 3 |
| Total Credits | 36 |

Early Childhood Education (B.S.)

See listing for the Department of Interdisciplinary Arts and Sciences.

ADVISEMENT

The Office of Student Services (NA 3/223A; 212-650-5316) or the Office of the Chair (NA 6/207B; 212-650-7262) will assist you in contacting the faculty member in charge of any of the programs above.

COURSE DESCRIPTIONS

Each of the following courses carries a designation of EDCE unless otherwise noted.

20000: Inquiry in Education

A study of the inquiry process and the resulting knowledge as a basis for learning and thought. Students carry out their own investigation and relate inquiry to elementary curriculum and children's learning. Educational technology integrated throughout. Prereq: ENGL 11000; coreq: EDCE 20001. (W) 5 hr./wk.; 3 cr.

20001: Fieldwork Inquiry

Field experiences fulfilling assignments made in EDUC 20000 or 21100. 15 hours in inclusive and diverse school settings. Prereq: ENGL 11000; coreq: EDCE 20000. Pass/Fail only. 0.5 cr.

20600: Observing Children and Their Development

This course is grounded in the notion that how children think, how their language develops, and how their families, their culture, and their environment influences and shapes them affect how they learn in school. Salient themes explored include the child as a maker of meaning, the nature of intelligence, attachment, gender identification, and the social context of development (i.e., race, culture, and class). Prereq: ENGL 11000; coreq: EDCE 20601. (W) 3 hr./wk.; 3 cr.

20601: Fieldwork: Observing Children and Their Development

Structured field assignments in how to observe, what to observe, how to analyze, document and interpret children's behavior, and how to apply the understandings gained from this documentation to instructional practices in the classroom. Pass/

Fail basis only. Prereq: ENGL 11000; coreq: EDCE 20600. 0.5 cr.

EDUC 21100-21200: Inquiry into Learning and Development

A field-based course in which students engage in participant-observation in inclusion schools with significant levels of second language learners. The content of the course consists of theories of development, learning, and instruction as applied to urban children. Educational technology is integrated throughout. Includes 30 hours of fieldwork. Prereq: ENGL 11000. 6 hr./wk.; 6 cr.

EDUC 22100: Urban Schools in a Diverse American Society

The social context of schooling. An inquiry into the philosophy, history, sociology, quality, immigration, and the education of children from non-dominant cultures. Digital technology will be used as much as possible in data gathering. (Students may not receive credit for both EDUC 22100 and 22200.) Prereq: ENGL 11000; coreq: EDUC 22101. 3 hr./wk.; 3 cr.

EDUC 22101: Fieldwork: Schools

Students engage in fieldwork consisting of ethnographic investigation of neighborhoods, interviewing of parents, and polling of college students. 15 hr. in school settings. Pass/Fail basis only. Coreq: 22100. 0.5 cr.

22200: The School in American Society: Bilingual Education in the Urban School

Analysis of selected social, political and economic forces that influence the school as an institution, and in turn are influenced by the school, especially in urban settings. Special attention to immigrant, bilingual and language minority groups. (Students may not receive credit for both EDUC 22100 and 22200.) Prereq: ENGL 11000. (W) 3 hr./wk.; 3 cr.

22300: Classroom-Based Inquiry on Bilingual Education

Students will spend four weeks in each of four schools being exposed to different kinds of classrooms, both bilingual and monolingual, and different levels, both lower and upper levels. They will conduct classroom-based inquiry on philosophical, historical and linguistic issues of bilingualism and bilingual education, as well as curriculum and materials inquiry. Includes 30 hours of fieldwork. Coreq: 22200. 1 hr./wk.; 1 cr.

EDUC 31000-31004: Independent Study in Education

May be elected under three different options. Approval of faculty sponsor and appropriate department chair must be ob-

tained during the preceding term. 1-4 cr. sem.

Option A: Research: a scholarly and systematic investigation (empirical, historical or descriptive) culminating in a written report.

Option B: Service: intensive participation in a school or community project, provided the individual's roll, responsibility or contribution can be identified.

Option C: Reading: a scholarly and systematic review of literature in an area, culminating in a written report.

32200: How Children Learn Mathematics: Implications for Teaching

Mathematical development of children from pre-school to upper elementary grades through their action and exploration. Students plan for and assess differentiated instruction to students within the full range of abilities. Educational technology integrated throughout. Prereq: Math 18500. 3 hr./wk.; 3 cr.

32201: Fieldwork in Learning Math

Students practice the instructional and assessment strategies learned in EDCE 32200 for helping children learn mathematics. Pass/Fail basis only. Prereq: Math 18500. 15 hours in diverse and inclusive school setting; 0.5 cr.

32300: Emergent to Fluent Literacy

Emergent to fluent literacy acquisition for students with diverse cultural and linguistic backgrounds and students with special needs; assessment of semantic, phonic and phonemic awareness; strategies for children having difficulties in acquisition of speaking, listening, reading and writing competencies; organizing shared, guided and independent reading and writing instruction; use of technology. 3 hr./wk., plus 20 hours in diverse and inclusive settings; 3 cr.

32310: Emergent Literacy and Diverse Learners

Prospective teachers acquire pedagogical knowledge, understanding and skills to support successful literacy learning for students of diverse cultural, linguistic and socioeconomic backgrounds who are learning to read. The focus is on language and reading. Prereq.: EDCE 32300. 3 hr./wk., plus 20 hours in diverse and inclusive settings; 3 cr.

35301-35303: Teaching Language Arts and Reading in a Bilingual Program (Spanish/Haitian/Chinese)

Methods and materials for teaching language arts and reading in a bilingual program, with emphasis on techniques for teaching, in their own languages, children who speak language other than English. (W) 3 hr./wk.; 3 cr.

35600: Language, Mind and Society

An introduction to basic concepts in linguistics, including phonology, lexicon, and grammar, with special consideration to the sociolinguistic and psycholinguistic aspects of bilingualism and biliteracy. These latter include: language variation, language contact, and first- and second-language acquisition. The course should provide a framework for language education. (W) 3 hr./wk.; 3 cr.

41500: Seminar in Childhood Education

An opportunity for candidates to reflect with others about their student teaching experiences and a forum for discussion of relevant issues in education. Topics of discussion and/or assignments include: integrating theory and practice, facilitating classroom community through structures and routines, planning coherent and integrated curriculum, analyzing the physical education and health curriculum, implementing differentiated instruction in the general education and or inclusive classroom, integrating instruction and assessment to inform teaching and support student learning, and fostering respectful and effective home-school relations. Candidates will be asked to consider the social/political/cultural landscape of public education and its impact on the classroom. Candidates will compile a portfolio that documents their growth as a teacher. Prereq.: 100 hours of fieldwork, EDCE 32200, 32300, 32310; Coreq.: EDCE 41800, 42300, EDUC 41900. 3 hr./wk.; 3 cr.

41600: Seminar in Bilingual Childhood Education

Application of the principles of teaching to all aspects of the curriculum. Understandings and skills to plan a coherent and integrated curriculum. Assessment systems that inform teaching and support student learning. Developing classroom structures, routines, teaching strategies and skills that build community and maintain discipline with a range of learners. Special emphasis is given to match instructional approaches to the needs and interests of diverse learners as well as to build a respectful and productive classroom environment and effective home-school relations. Prereq.: 100 hours of fieldwork,

EDCE 32300, 32310, 32200; coreq.: EDCE 45800, EDUC 41900. 2 hr./wk.; 2 cr.

41800: Student Teaching in Childhood Education

Student teaching is full-time five days a week for fifteen weeks. Students will have one main placement in grades 1-3 or 4-6. In addition they will student teach for a minimum of 20 full days at the other level. The student teaching experience is designed to provide prospective childhood teachers with opportunities to teach and critically analyze teaching practices in urban classrooms. Students will: develop and improve teaching practices and organizational skills; plan instruction to meet the academic, cognitive and emotional needs of all students, including the special needs child and the English language learner; practice formal and informal assessment techniques; examine special features of classroom management in the inclusive classroom; develop awareness of the many ways in which the classroom, home and community environment are supportive of the learner. 300 hours. Coreq.: EDCE 41500, EDUC 41900. 20 hr./wk.; 4 cr.

EDUC 41900: Child Abuse and Health Education Seminar

Definitions, indicators, and the impact of sexual abuse, physical abuse, emotional abuse, and neglect on the child and his/her family. The course will also focus on the process of reporting these types of abuse, with special emphasis on the role of the classroom teacher. Coreq: student teaching. 2 hr./wk.; 0 cr.

42000: Science in a program of Childhood Education

An introduction to learning science at the elementary level. Emphasis on firsthand experiential learning of science through the design, conduct, and communication of science investigations that portray underlying elements of science inquiry. Students relate learning experiences to state and national standards in science. Pre- or coreq.: EDUC 41800, 41900, 42100, 42300. 3 hr./wk.; 3 cr.

42100: Integrating the Curriculum through the Social Studies

This course is designed to provide prospective teachers with skills and understandings about how to integrate the curriculum through social studies. Prospective teachers will learn how to help children inquire about the world around them utilizing all available materials and resources (including technology) to plan extended studies that integrate the disciplines. Special attention will be given to learning how to utilize students' diverse ethno-cultural backgrounds as a learning resource; how to create a productive and respectful

community of learners in the classroom; how to embed the New York State Learning Standards in curricular work, utilizing a range of disciplines; and how to use research, geography, and technology skills to enhance students' learning. Pre- or Corequisite: student teaching. (W) 3 hr./wk.; 3 cr.

42300: Literacy: Fluent to Experienced

The nature of literacy acquisition and development, and the relationship between the language of children and the language of textual discourse. Focus on assessment, motivation, instructional strategies, classroom environment, and evaluation of instruction. Coreq.: EDUC 41800, 41900. 3 hr./wk.; 3 cr.

45400: Teaching English as a Second Language

Methods and materials useful in teaching English to non-native speakers in elementary schools; applicability of modern structural studies of the language to such teaching; appropriateness of various techniques and aids for different age levels. (W) 3 hr./wk.; 3 cr.

45500: Classroom Based Inquiry on Biliteracy and Bilingual Education

Students will spend 60 hours for a total of 15 weeks in a school working in one bilingual classrooms. Students will be expected to teach and plan literacy/language lessons, activities and units for these students. 2 hr./wk.; 2 cr.

45600: Teaching Content (Math, Science, and Social Studies) Using Both English and a Native Language

This fifteen-hour weekend seminar is designed to develop an interdisciplinary approach to teaching Math, Science, and Social Studies using both English and a native language (e.g., Chinese, Haitian, and Spanish). Prospective bilingual teachers will be provided with knowledge, interdisciplinary content skills, and specific language-related skills on how to use available materials and resources (i.e., standard glossaries and curriculum guides) when planning and integrating content-area learning experiences and/or interdisciplinary thematic units, using both English and one of the native languages specified above. 1 hr./wk.; 1 cr.

45800: Student Teaching in Bilingual Childhood Education

The student teaching experience is designed to provide prospective childhood teachers with opportunities to teach and critically analyze teaching practices in monolingual and bilingual classrooms. Students will: develop and improve teaching practices and organizational skills; practice the use of two languages to meet

the academic, cognitive and emotional needs of all students; practice formal and informal assessment techniques; examine special features of classroom management in the bilingual classroom; develop awareness of the many ways in which the classroom, home and community environment are supportive of the learner. 300 hours; Coreq.: EDCE 41600, EDUC 41900. 6 hr./wk.; 4 cr.

FACULTY

Megan Blumenreich, Associate Professor

B.A., Colby College; M.A., Teachers College, Columbia Univ., Ed.M., Ed.D.

Doris Cintrón, Associate Professor and Acting Dean

B.A., CCNY, M.S.; Ed.M., Teachers College, Columbia Univ., Ed.D.

David Crismond, Associate Professor

B.A., Rutgers College; M.S. Ed., Harvard Graduate School of Education, Ed. D,

Joseph Davis, Associate Professor

B.S. Wake Forest Univ.; M.S.P.H., Univ. of North Carolina; M.A., M.Phil., Columbia Univ., Ph.D.

Beverly Falk, Professor

B.A., Sarah Lawrence College; M.S.Ed, CCNY; Ed.D., Teachers College, Columbia Univ.

Catherine Twomey Fosnot, Professor

B.S., Univ. of Connecticut; M.S., SUNY (Albany); Ed.D., Univ. of Massachusetts

Catherine Franklin, Associate Professor

B.A., Univ. of Rhode Island; M.A., Lesley College Graduate School; Ed. D., Teachers College, Columbia Univ.

Amita Gupta, Associate Professor

B.Ed., Univ. of Delhi, B.Sc.; M.A., Columbia Univ.; Ed.D., Teachers College, Columbia Univ.

Gretchen Johnson, Associate Professor

B.A., Queens College.; M.A., Yeshiva Univ.; Ph.D., New York Univ.

Tatyana Kleyn, Assistant Professor

B.S., Ohio State Univ., M.E.; Ed.D., Teachers College, Columbia Univ.

Soyoung Lee, Assistant Professor

B.A., Sang Myung Women's University, Korea; M.A., Ph.D., University of California (Berkeley)

Adele MacGowan-Gilhooly, Associate Professor

B.A., Georgian Court College; M.A., Hunter College; Ed.D., Boston Univ.

Charles Malone, Lecturer

B.A., Eugene Lang College, New School Univ.; M.A., Univ. of California (Berkeley), Ph.D.

Denise McLurkin, Assistant Professor

B.A. Univ. of Calif.(Irvine); M.S., California Baptist College; M.A., Univ. of Michigan, Ed.D.

James L. Neujahr, Professor

B.A., Kalamazoo College; M.Div., Union Theological Sem.; M.A., Columbia Univ.; Ed.D., Teachers College, Columbia Univ.

Nadjwa Norton, Associate Professor

B.A., Yale Univ.; M.Ed., Teachers College, Columbia Univ., Ed.D.

Lisa Simon, Assistant Professor

B.A., Bryn Mawr College; M.A., New York Univ., Ph.D.

Nancy Stern, Associate Professor and Chair

B.A., The College of William and Mary; M.Phil. (Linguistics), CUNY , Ph.D.

Jan Valle, Assistant Professor

B.A., Furman University, M.A.; Ed.D., Teachers College, Columbia Univ.

Edward Wall, Assistant Professor

B.A. Univ. of Minnesota; M.A., Univ. of Maryland; Ph.D., Univ. of Michigan

Ann Wilgus, Assistant Professor

B.L.A., Sarah Lawrence Univ.; M.F.A., Univ. of North Carolina-Greensboro; M.S.Ed., Bank Street College; Ph.D., CUNY

PROFESSOR EMERITUS

Ruth R. Adams

Hubert Dyasi

Shirley Feldmann

Ruth Grossman

Elisabeth S. Hirsch

Oliver Patterson

Madelon Delany Stent



Department of Secondary Education

Professor Susan Semel, Chair • Department Office: NA 6/207B • Tel: 212-650-7262

GENERAL INFORMATION

The City College offers the following undergraduate minors in Secondary Education:

English Education, Art Education, Foreign Languages: Spanish, Mathematics Education, Music Education, Science Education: Biology, Chemistry, Earth Science and Physics, Social Studies Education

ADVISEMENT

The School of Education Office of Student Services (NA 3/223A; 212-650-5316) or the Office of the Chair (NA 6/207B; 212-650-7262) will assist you in contacting the faculty member in charge of any of the programs above.

REQUIREMENTS FOR EDUCATION MINORS

Preparation for teaching in secondary schools requires a CLAS major in a field taught in the secondary schools (i.e. science, mathematics) and completing the educational minor sequence below.

Education Courses for Teaching Art K-12 and Music K-12 (B.A.)

Required Courses

| | |
|--|-----|
| 20500: Adolescent Learning and Development | 3 |
| 22100: Urban Schools in a Diverse American Society | 3 |
| 22101: Fieldwork: Schools | 0.5 |
| 32500: Special Issues for Secondary School Teachers: Special Education, Second Language Acquisition and Literacy | 3 |
| 41200: Teaching Reading and Writing in Secondary School Subjects | 3 |
| 41900: Child Abuse and Health Education Seminar | 0 |

| | |
|--|-------------|
| 46300: Student Teaching and Teacher Education Seminar | 6 |
| One of the following: | 4 |
| 44400: Methods of Teaching Art (4 cr.) | |
| 44700: Teaching Music in the Secondary Schools (4 cr.) | |
| Total Credits | 22.5 |

Education Courses for Teaching Biology, Chemistry, Earth Science, Physics (B.S.) and English, Math, Social Studies (B.A.)

Required Courses

| | |
|---|---|
| 20500: Adolescent Learning and Development | 3 |
| 32500: Special Issues for Secondary School Teachers: Special Education, Second Language Acquisition and Literacy | 3 |
| 41200: Teaching Reading and Writing in Secondary School Subjects | 3 |
| 41900: Child Abuse and Health Education Seminar | 0 |
| 44100-44700: Methods of Teaching in Secondary Schools | 4 |
| 45101-45104: Development of the Secondary School: Philosophy, Urban Issues and Curriculum Development in Secondary School | 4 |
| 46300: Student Teaching and Teacher Education Seminar | 6 |

Total Credits

23

Education Courses for Teaching Spanish (B.A.)

Required Courses

| | |
|--|---|
| 20500: Adolescent Learning and Development | 3 |
| 22200: The School in American Society: Bilingual Education in the Urban School | 3 |
| 22300: Classroom-based Inquiry | 1 |
| 32500: Special Issues for Secondary School Teachers: Special Education, Second Language Acquisition and Literacy | 3 |
| 35600: Language, Mind and Society | 3 |
| 41100: Field-based Inquiry: Teaching of Spanish | 1 |

| | |
|--|-----------|
| 41300: Methods of Teaching Writing and Reading in Spanish in Secondary Schools | 3 |
| 44500: Methods of Teaching in the Secondary Schools: Spanish | 3 |
| 46500: Student Teaching in the High School | 4 |
| 46600: Seminar on the Teaching of Spanish and Literacy in Secondary Schools | 2 |
| Total Credits | 26 |

COURSE DESCRIPTIONS

Each of the following courses carries a designation of EDSE unless otherwise noted.

EDUC 20500: Adolescent Learning and Development

How theories and research on learning and development manifest themselves in urban settings for teachers of adolescents. Teacher-centered and student-centered, human and technology-based approaches promoting independent, self-regulated adolescent learners. Cultural implications and classroom applications: learning, intelligence, motivation, affect, parenting styles, and development (cognitive, social moral), classroom communication and management strategies. Fieldwork activities in exemplary junior high and high school classrooms structured to meet State standard and to help prepare students to pass the ATS-W. 3 hr./wk.; plus 15 hours fieldwork; 3 cr.

EDUC 32500: Special Issues for Secondary School Teachers: Special Education, Second Language Acquisition and Literacy

Nature of students with disabilities and special health-care needs. Effects of disabilities on learning and behavior. Identifying strengths, individualizing instruction, and collaborating to prepare students to highest achievement levels, literacy and independence. Language acquisition/literacy development by native English speakers and English language learners. Developing listening, speaking reading, and writing skills. Fieldwork related to the study of students with disabilities, students learning English as a second

language, and literacy issues. 3 hr./wk., plus 15 hours fieldwork; 3 cr.

41100: Field-based Inquiry: Teaching of Spanish

Through field-based investigations of the teaching of Spanish in secondary schools, students are expected to understand how theoretical and empirical foundations of the teaching of Spanish are implemented in the classrooms; to develop inquiry skills and processes, gather information and be able to organize this information in meaningful ways, reflect and critique this information, its presentation modes and the inquiry processes used to gather the given information. Coreq.: EDSE 44500. Includes 15 hours of fieldwork. 1 hr./wk.; 1 cr.

41200: Teaching Reading and Writing in Secondary School Subjects

For perspective teachers in secondary school subject areas. Explore the roles of reading and writing in supporting learning across the curriculum. Current research and theory will be discussed and methods of incorporating literacy activities will be developed. 3 hr./wk.; 3 cr.

41300: Methods of Teaching Writing and Reading in Spanish in Secondary Schools

This course explores theories and methods of teaching writing and its connections to reading, speaking and listening as part of the Spanish classroom and across the curriculum in the secondary school. Candidates will develop an awareness of themselves as writers as they explore authentic purposes for writing and develop their craft in basic genres (personal and academic writing in Spanish). Includes 15 hours of fieldwork. Prereq.: SPAN 32100, SPAN 32200 and SPAN 37300. 3 hr./wk.; 3 cr.

EDUC 41900: Child Abuse and Health Education Seminar

Definitions, indicators, and the impact of sexual abuse, physical abuse, emotional abuse, and neglect on the child and his/her family. The course will also focus on the process of reporting these types of abuse, with special emphasis on the role of the classroom teacher. 2 hr./wk.; 0 cr.

44100: Methods of Teaching English in Secondary Schools

Since English classrooms emphasize the complex interactions between reading, writing, listening, and speaking, this course, required for all English Education students, explores the pedagogical theories, teaching practices, and curriculum trends confronting English teachers today. The course work facilitates the move from student to teacher with increased ease, interest, knowledge, and professionalism.

Includes 30 hours of fieldwork. Advance approval required. 3 hr./wk.; 4 cr.

44200: Methods of Teaching Secondary School Social Studies

Principles and methods of teaching social studies in secondary schools. Students will see these principles and methods in use in as part of their 10 hours of fieldwork experience. Topics include: lesson planning, classroom management, co-operative learning, questioning, remediation, enrichment, motivation, assigning homework, testing and assessment, reading in social studies, writing and note taking in social studies, problem solving, an overview of the secondary school curriculum in social studies, the use of technology in the secondary school curriculum, teaching methodology for students with special needs, methodology used for students learning English as a second language, literacy in the social science area classroom. Includes 30 hours of fieldwork. 3 hr./wk.; 4 cr.

44300: Methods of Teaching Secondary School Science

Principles and methods of teaching science in secondary schools. Topics include: lesson planning, classroom management, co-operative learning, questioning, remediation, enrichment, motivation, assigning homework, testing and assessment, problem solving, an overview of the secondary school curriculum in science, the use of technology in the secondary school curriculum, teaching methodology for students with special needs, methodology used for students learning English as a second language, literacy in the science-area classroom. Includes 30 hours of fieldwork. 3 hr./wk.; 4 cr.

44400: Methods of Teaching Art

Principles and practices of teaching art in elementary and secondary schools with special reference to learning standards, objectives, techniques, and assessment. Analysis of art curriculum and curriculum planning. 3 hr./wk. plus 10 hours fieldwork; 4 cr.

44500: Methods of Teaching in Secondary Schools: Spanish

In this course, candidates will explore the pedagogical theories, teaching practices and curricular trends of Spanish as a foreign and as a heritage language. Topics include assessment and evaluation of students, co-operative learning, lesson-planning, and the use of technology in the classroom. Emphasis will be placed in the teaching of reading and writing as it relates to the different levels of Spanish development and proficiency of the students. Differentiated planning and teaching will be part of the course. Coreq.: EDSE 41100. 3 hr./wk.; 3 cr.

44600: Methods of Teaching Secondary School Mathematics

Principles and methods of teaching mathematics in secondary schools. Students will see these principles and methods in use in as part of their 10 hours of fieldwork experience. Topics include: lesson planning, classroom management, co-operative learning, questioning, remediation, enrichment, motivation, assigning homework, testing and assessment, reading in mathematics, writing and note taking in mathematics, problem solving, an overview of the secondary-school curriculum in mathematics, the use of technology in the secondary-school curriculum, teaching methodology for students with special needs, methodology used for students learning English as a second language, literacy in the mathematics-area classroom. Includes 30 hours of fieldwork. 3 hr./wk.; 4 cr.

44700: Methods of Teaching Music

Principles and practices of teaching music in elementary and secondary schools with special reference to learning standards, objectives, techniques, and assessment. Analysis of music curriculum; curriculum planning. 3 hr./wk. plus 10 hours fieldwork; 3 cr.

45101: Development of the Secondary School: Philosophy, Urban Issues and Curriculum Development in Secondary School English

History, philosophy and role of education. Evolution of high school curricula; instructional planning and multiple research-validated-instructional strategies for teaching within the full range of abilities. Adapting curricula for students with special needs/second-language-learning students. Literacy development by native-English speakers and English-language learners. Using technology in the curriculum. Includes 30 hours of fieldwork. 3 hr./wk.; 4 cr.

45102: Development of the Secondary School: Philosophy, Urban Issues and Curriculum Development in Secondary School Social Studies

The history, philosophy and role of education; the evolution of the social studies curriculum; instructional planning and multiple research-validated-instructional strategies for teaching within the full range of abilities; adapting the curriculum for students with special needs and second-language-learning students; literacy development by native-English speakers, as well as English-language learners; the use of technology in the curriculum. Includes 30 hours of fieldwork. 3 hr./wk.; 4 cr.

45103: Development of the Secondary School: Philosophy, Urban Issues and Curriculum Development in Secondary School Science

The history, philosophy and role of education; the evolution of the science curriculum; instructional planning and multiple research-validated-instructional strategies for teaching within the full range of abilities; adapting the curriculum for students with special needs and second-language-learning students; literacy development by native-English speakers, as well as English-language learners; the use of technology in the curriculum. Includes 30 hours of fieldwork. 3 hr./wk.; 4 cr.

45104: Development of the Secondary School: Philosophy, Urban Issues and Curriculum Development in Secondary School Mathematics

The history, philosophy and role of education; the evolution of the mathematics curriculum; instructional planning and multiple research-validated-instructional strategies for teaching within the full range of abilities; adapting the curriculum for students with special needs and second-language-learning students; literacy development by native-English speakers, as well as English-language learners; the use of technology in the curriculum. Includes 30 hours of fieldwork. 3 hr./wk.; 4 cr.

46300: Student Teaching and Teacher Education Seminar (Grades 6-12)

This seminar, a continuation of the teacher education seminar offered to first semester juniors, will be taken concurrently with student teaching. The focus is on the students' reflection of their teacher education preparation. There will be a final presentation along with the submission of a professional portfolio. 27 hr./wk.; 6 cr.

46500: Student Teaching in the High School (Spanish 7-12)

Students must be in their assigned schools for a two hour block of time five days per week for seventeen consecutive weeks. 10 hr./wk.; 4 cr.

46600: Seminar on the Teaching of Spanish and Literacy in Secondary Schools

Designed to explore the secondary schools' teaching of Spanish to native speakers and foreign language learners, with emphasis on developing oral, and literacy skills among secondary schools students. Curricula, literature and related language learning technologies, programs, methods, tests and diverse assessment and evaluation instruments will be studied. 2 hr./wk.; 2 cr.

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Alfred S. Posamentier

Howard Sasson



The SEEK Program

Department of SEEK Counseling and Student Support Services/SEEK Program

Professor E. Maudette Brownlee, Chair/Director • Department Office: NA 5/226 • Tel: 212-650-5774

GENERAL INFORMATION

PROGRAMS AND OBJECTIVES

The Department administers the Search for Education, Elevation and Knowledge (SEEK) Program. SEEK is a state-funded, educational opportunity program which provides a range of support services to students with a demonstrated need for academic and financial support. Students enrolled in the City College SEEK Program receive counseling, tutoring, and additional financial aid.

ADMISSIONS

Students are eligible for the SEEK Program only at the time of their initial admission. Transfer students who previously were enrolled in either another SEEK, CD, EOP, or HEOP program also qualify for enrollment in the City College Program. Students who are interested in applying for the SEEK Program should complete the appropriate section of the CUNY Freshman application (or Transfer application). For further details regarding admission criteria and procedures, contact the CUNY Office of Admission Services, 1114 Avenue of the Americas, New York, NY, 10036. All SEEK students are admitted conditionally to the College pending verification of their economic eligibility according to New York State income guidelines for opportunity programs.

PROGRAM REQUIREMENTS

Incoming freshmen are required to attend SEEK's summer program. Freshmen also must complete the SEEK New Student Seminar and satisfy basic skills requirements consistent with the

University's policy. Contact the SEEK office for further information regarding program requirements.

COUNSELING

Counseling is a major component of the Program's services. Through this program unit, students receive academic, personal, and career counseling designed to support their academic efforts and improve their educational outcomes. Each student is assigned a counselor who works closely with the student to monitor his or her academic progress throughout their period of enrollment. In addition to providing individual counseling, SEEK counselors conduct personal development workshops and teach the department's New Student Seminar.

FINANCIAL AID

SEEK students who qualify receive additional financial assistance in the form of a book stipend, college fees, and extended tuition assistance. The amount of assistance provided is based on need, as determined by financial aid guidelines.

TUTORING AND SUPPLEMENTAL INSTRUCTION

A range of tutorial and academic support services are offered to SEEK students through the program's Peer Academic Learning (PAL) Center. Tutoring, both individual and small group, is available in a variety of academic subject areas. In addition, supplemental instructional services, including special skills workshops, cooperative learning groups, precept classes, and test preparation

workshops, are provided for Program students throughout the year.

DEPARTMENTAL ACTIVITIES

Each year, the SEEK department holds several student events. The major ones are the SEEK Awards Program and Salute to Graduating Seniors, the New Student Assembly, Chi Alpha Epsilon National Honor Society induction, the SEEK Scholars reception, and cohort reunions.

DEPARTMENTAL AWARDS

Several awards are presented annually, including those for the Outstanding SEEK Graduate of the Year, Outstanding Scholastic Achievement, and the Exemplary Freshman of the Year, the top three departmental awards. Students may be nominated for an award by any SEEK faculty or staff member, and selections are made by the SEEK Awards Committee.

COURSE DESCRIPTIONS

SEEK students take advantage of the full range of courses offered to all students in the College. Placement in appropriate introductory courses is based on an evaluation of high school preparation and performance on entrance examinations. Separate SEEK sections are offered in selected courses to provide students with smaller class size and the opportunity for more intensive course work.

00108: New Student Seminar:

All entering freshmen and transfer students are required to take the New Student Seminar 00108 which is designated for SEEK students only. This is a non-credit course which provides new students with an orientation to the College and to the SEEK program; disseminates information

about college guidelines, regulations and retention standards; helps students to clarify their educational and career goals; encourages the development of greater self awareness and the development of those personal skills and attitudes critical to college success. 1 hr./wk.; 0 cr. (Required)

FACULTY/STAFF

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Louis Beckenstein

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The Grove School of Engineering

The Grove School of Engineering

Professor Joseph Barba, Dean • Office: ST 142 • Tel: 212-650-5435

THE PROFESSION OF ENGINEERING AND COMPUTER SCIENCE

Engineering, including Computer Science, may be broadly defined as harnessing nature for the service and convenience of society. An engineer or computer scientist is specifically trained to plan and develop the structures, devices, and systems, and to supervise the processes, that bring about this objective. Engineering differs from pure science in that it seeks to use scientific facts for improvements and progress within the limitations of materials, costs, and time.

The student who contemplates an engineering/computer science career should score above average in mathematics and science. Intellectual curiosity, an ability to see things from a fresh point of view, and tenacity in solving problems are also essential. Because engineers and computer scientists typically work in teams, the ability to get along with colleagues is usually important. Because engineers and computer scientists must communicate with clients, the ability to use clear, correct English is crucial. In addition, to achieve career success, the engineer/computer scientist must cultivate such qualities as tact, understanding, and willingness to accept responsibility.

In the City College Grove School of Engineering, students receive a broad-based general education as well as professional training. The goal is twofold: to educate students for excellence in their chosen engineering discipline and to help them achieve in addition the qualities necessary not only for a successful career but also for a rewarding life.

ENGINEERING AND COMPUTER SCIENCE ETHICS

In order to maintain high standards of conduct and uphold and advance the dignity of the engineering and computer science profession, engineers and computer scientists are committed to the following: exercising integrity and impartiality in the service of employers, clients, and the public; striving to increase competence in engineering and computer science while enhancing the prestige of the profession; and using knowledge and skill for the betterment of human welfare. Statements of standards for relations with the public, clients, and employers are available from technical societies and from the Accreditation Board for Engineering and Technology (ABET). The Grove School of Engineering is also affiliated with the Order of the Engineer, a nationwide organization open to engineering seniors, who accept an obligation to maintain high ethical standards in their professional and personal behavior.

HISTORY

The City College Grove School of Engineering is the sole entity for engineering education within The City University of New York. Its origins date from 1916, when the Board of Trustees authorized a curriculum leading to the Diploma of Junior Civil Engineer. In 1917, more extensive courses in chemical, civil, electrical, and mechanical engineering were established within the natural science curriculum of the College of Liberal Arts and Science. In 1919, the School of Technology was established with four engineering programs leading

to the degrees of Chemical Engineer, Civil Engineer, Electrical Engineer, and Mechanical Engineer, as well as the degree of Bachelor of Science in Engineering. After 1936, the latter degree was replaced by the degrees of Bachelor of Chemical Engineering, Bachelor of Civil Engineering, Bachelor of Electrical Engineering, and Bachelor of Mechanical Engineering.

Effective September 1962, the Board of Higher Education approved a change in the name of the School of Technology to the School of Engineering and Architecture.

In December 1962, the Regents of the University of the State of New York reduced the number of degree designations authorized for engineering programs. The new degree designations for the School became Bachelor of Engineering and Master of Engineering. Authority was given to the College to indicate the branch of engineering in parentheses after the degree title, e.g. Bachelor of Engineering (Chemical Engineering), Master of Engineering (Civil Engineering). These designations have been in effect since September 1, 1963.

Effective July 1968, the Board of Higher Education approved the separation of the School of Engineering and the School of Architecture. The latter is now called the School of Architecture, Urban Design and Landscape Architecture.

Since September 1963, under the authority of The City University of New York (CUNY), the School of Engineering has offered advanced study leading to the degree of Doctor of Philosophy. The doctoral program is available to students from the Biomedical, Chemical, Civil, Electrical and Mechanical Engineering degree

programs. In August 2008, The City College was granted the authority by the State of New York to offer Ph.D. degrees in Engineering.

Beginning September 1968, The City College has offered a four-year curriculum leading to a Bachelor of Science degree in Computer Science. Since September 1969, a Master of Science degree in Computer Science has also been offered. The Doctor of Philosophy degree in Computer Science is also available.

Since September 1999, the Doctor of Philosophy degree in Biomedical Engineering has been offered. Since September 2000 the degree of Master of Science (Biomedical Engineering) and the degree of Bachelor of Engineering (Computer Engineering) are available. Since September 2002 the degree of Bachelor of Engineering (Biomedical Engineering) has been offered.

In 2006, the School of Engineering was renamed The Grove School of Engineering in recognition of the generous support of its renowned alumnus, Dr. Andrew S. Grove '60.

MISSION

The mission of the Grove School of Engineering is:

- I. To be a school of national pre-eminence among public schools of engineering and computer science, recognized for the excellence of its instructional and research programs;
- II. To provide readily accessible, quality undergraduate and graduate education in a broad range of fields to a highly diverse student body, including traditionally underrepresented minorities and women, working adults, and immigrants;
- III. To maintain and expand the program of fundamental and applied research in areas of national interest, particularly in technologies with relevance to New York City, its metropolitan region and New York State;
- IV. To provide public service and continuing professional education

opportunities to New York City and State, the local community in which the institution resides, the engineering and computer science professions, and society at large.

GOAL STATEMENT

The goals of the Grove School of Engineering are to:

1. Attract and maintain a world class faculty devoted to the synergistic activities of teaching and research;
2. Increase the competitive position of the school for attracting high achieving students;
3. Educate students to achieve the outcomes set forth by each program;
4. Continuously enhance the quality and technological relevance of graduate education and research programs;
5. Implement appropriate instructional delivery and support systems that facilitate access by a highly diverse student body;
6. Encourage multi-disciplinary approaches to both teaching and research in keeping with current technological progress in today's world;
7. Develop partnerships with industry, government, and other external organizations that will enhance the School's educational and research activities;
8. Attract the external resources necessary to support cutting-edge research;
9. Assist in the preparation of K-14 students for further education in engineering and computer science; and
10. Provide continuing education, technological expertise and public service to the engineering and computer science professions, the local community, and the state and city governments.

OFFICERS OF ADMINISTRATION

Professor Joseph Barba

Dean

ST 142, 212-650-5435

Associate Professor Ardie D. Walser

Associate Dean, Undergraduate Affairs

ST 209, 212-650-8020

Professor Mumtaz Kassir

Associate Dean, Graduate Studies

ST 152, 212-650-8030

UNDERGRADUATE ADMISSIONS

Degree Programs

Currently, programs are offered leading to undergraduate degrees in the following majors:

Bachelor of Engineering

- Biomedical Engineering
- Chemical Engineering
- Civil Engineering
- Computer Engineering
- Earth System Science and Environmental Engineering
- Electrical Engineering
- Mechanical Engineering

Bachelor of Science

- Computer Science

Freshman Admission Requirements

For information about academic requirements, application procedures, placement examinations, and special admissions programs, consult the Admissions section of this Bulletin.

Because mathematics and physics are of such great importance in engineering, it is recommended that students choose as many courses as possible in these subjects while still in high school. High school students should also concentrate on perfecting their use of English in reading and writing.

TRANSFER STUDENTS

Information about admission requirements, application procedures, placement examinations, and evaluation of transfer credits can be found in the Admissions section of this *Bulletin*. For other questions, refer to the Office of Admissions, A-101, (212) 650-6448.

Transfer students are admitted to the Grove School of Engineering or directed to the College of Liberal Arts

and Science on the basis of the math and science courses they have completed, the total number of credits completed, and their college (sometimes high school) GPA, as detailed in the Admissions section. Students who do not meet Grove School of Engineering criteria but who are otherwise eligible for admission to City College may enter the College of Liberal Arts and Science (CLAS), from which they may transfer to the Grove School of Engineering once they meet the admission requirements.

In general, highest priority is given to graduates of CUNY community colleges holding an approved A.S. degree in Engineering Science. (Students pursuing a degree in Engineering Technology should note that no technical courses in the technology program are transferable to any engineering program.) Students who are pursuing an A.A.S. degree should note that their coursework might not fulfill their major degree or general education requirements. For more information about articulation with CUNY colleges call (212) 650-8020, or visit the website of CUNY TIPPS (Transfer Information & Program Planning System) <http://www.tipps.cuny.edu>. Please note that the CUNY TIPPS web site is to be used as an on-line reference tool and is not binding. All final decisions regarding the transferability of courses remain with the College and the School of Engineering.

Students at other colleges who eventually wish to continue in engineering are advised to select math and science courses such as calculus, calculus-based physics, and college chemistry.

In most cases, the credit structures at each college are different and students are likely to lose some credits in the transfer process. Because of this fact, and also because the adjustment process may be somewhat easier, students may find it advantageous to transfer at the earliest point allowed by regulations. The recommended alternative is to start at City College as a freshman.

SECOND-DEGREE STUDENTS

Students holding a valid undergraduate (four-year) or graduate degree from an accredited college and wishing to obtain an undergraduate degree in engineering or computer science will be admitted to the Grove School of Engineering based on a transcript evaluation by the Associate Dean of Undergraduate Affairs. Second-Degree students must fulfill all the same admission requirements as transfer students. Upon admission, the Associate Dean will develop a suitable program for the student, which will generally waive some of the degree requirements satisfied during the attainment of the earlier degree. Students may not deviate from this program without the written approval of the Associate Dean. Students must apply for admission at least three months before the start of the semester they wish to enter. Students wishing to enter with second-degree status should first visit the Admissions Office to obtain basic information as well as the proper forms. The second degree cannot be the same subject as the first. Students must meet the departmental residency requirements described below.

JOINT/DUAL DEGREE STUDENTS

The Grove School of Engineering has established several areas of study as jointly registered dual admission programs with Eugenio Maria De Hostos Community College (Hostos) and LaGuardia Community College. Students who are in these programs, and successfully attain the A.S. degree in engineering at either of the two schools, and fulfill the Grove School of Engineering's admission requirements for transfer students, are admitted to the Grove School of Engineering at the junior level, where they complete the additional course requirements for the Bachelor of Engineering degree.

The 60 credits necessary to earn the AS degree as part of a joint/dual degree program fulfill the course requirements of the first two years of the cor-

responding Bachelors Degree program at the Grove School of Engineering.

Note that the above applies only to the following two-year school engineering programs:

Maria De Hostos Community College

- Chemical Engineering
- Civil Engineering
- Electrical Engineering

LaGuardia Community College

- Civil Engineering
- Electrical Engineering
- Mechanical Engineering

For more information on the joint/dual degree engineering programs please contact the Office of Undergraduate Affairs (Steinman Hall room ST 209, 212-650-8020).

EVENING STUDENTS

The Grove School of Engineering offers some evening courses, but many major courses in all curricula are available only during the day.

RESIDENCY REQUIREMENTS

To obtain a degree, every transfer student and second-degree student at the Grove School of Engineering must satisfy the residency requirement of his or her chosen program. This specifies the minimum number of upper-level credits that a student must take at City College in the department(s) of the major, and must be met regardless of the number of major transfer credits the student may claim. Students applying for admission should be aware of this requirement, which is described fully in the upcoming section "Overview of the Curricula."

TRANSFER CREDITS

Students who have completed 45 credits or more will have their evaluation completed by either an academic advisor from the Office of Undergraduate Affairs (room ST-209, 212-650-8020) or a program director, both in the Grove School of Engineering. Students with 44 credits and fewer will have their evaluations completed by the Transfer Evaluation Services Unit of

the Office of Admissions. In general, transfer credit is given only for courses completed in properly accredited programs. No credit will be given for any course in which a grade lower than "C" was obtained, or in which a pass/fail grading system was used. No credit may be given in excess of the number of credits actually taken, or in excess of the number of credits listed for the comparable course in the CCNY curriculum.

Students graduating from a CUNY community college with an A.A. or A.S. degree will receive the full 60 credits to which they are entitled under the general CUNY articulation agreement between its community and senior colleges. Students should note that some credits might not satisfy their particular degree requirements, but may instead be granted in the form of blanket credits.

Transfer Credit for Major Courses

Major courses taken under a program accredited by ABET (Accreditation Board for Engineering and Technology) and passed with a grade of C or better will receive transfer credit at City College, if their material fully covers that of a similar City College course. Subject to the C-minimum requirement, transfer credit for engineering courses may also be awarded as follows:

1. Courses that are part of a formal articulation agreement with City College will receive transfer credit.
2. Foreign students may in some cases receive credit by examination. Before being allowed to take such an examination, the student must provide evidence that he or she has had similar courses. At the discretion of the Associate Dean, foreign students may also receive transfer credit by submitting sufficiently detailed, authenticated curricular materials.

The above notwithstanding, the Grove School of Engineering reserves the right to withhold transfer credit for any academic reason it considers justifiable.

THE OFFICE OF STUDENT DEVELOPMENT

The purpose of Grove School of Engineering's Office of Student Development (OSD) in 2M Steinman is to help students with less than 45 credits navigate the City College campus to ensure a successful transition to college life and eventual graduation. To enhance students' college experience, OSD has a vibrant slate of new student programs, beginning with a new student welcoming reception in early May and academic counseling programs.

These programs are designed to increase retention by forging a sense of community between students, counselors and the engineering faculty. One such program is the Program for the Retention of Engineering Students (PRES), which targets underrepresented minorities, women and the disabled. Along with its transfer student companion program, Transfer Recruitment and Retention at City College (TRACC), PRES earned the 1997 White House Presidential Award for Excellence in Mathematics, Science, and Engineering Mentoring.

OSD academic counselors conduct Orientation for both Fall and Spring entrants; it includes getting-acquainted activities and workshops on the habits of highly effective students. Counselors also work individually with each new freshman and transfer student, from the start of classes and continuing through the first semester and beyond, providing guidance and support not only with course selection, registration, and changing majors, but also with short-term personal counseling and wellness education. Faculty and upper-class engineering students participate in the welcoming process and encourage participation in engineering clubs. OSD also holds receptions during each semester to encourage students to become familiar with peers in their department.

To further support students' academic and career development, OSD regularly disseminates relevant information about scholarship, co-op education,

and internship opportunities. OSD also maintains a quiet study facility, which is open weekdays until 10 p.m. and Saturday afternoons. The Tutoring Center is open on weekdays.

Other OSD initiatives include overseeing: the Council of Engineering Student Organization Presidents and Faculty Advisors group, the Engineering Alumni Council, and the Diversity in Engineering Corporate Advisory Board (DECAB), which provides guidance on students' professional development, including information about and assistance with job opportunities. OSD also coordinates outreach and educational activities for the School's K-16 initiatives designed to attract talented students into engineering. OSD also coordinates special events such as the Grove School of Engineering Graduation and its Honors and Awards ceremony each spring.

OFFICES AND CLASSROOMS

David B. Steinman Hall is the primary engineering building. It houses the offices of the Dean, the Associate Deans of Graduate Studies and Undergraduate Affairs, the Office of Student Development, and the administrative offices and all laboratories, research facilities, computer rooms, and conference rooms of the Departments of Biomedical, Chemical, Civil, Electrical, and Mechanical Engineering. The administrative offices of the Computer Science Department are in NA 8/206. The Computer Engineering Program is co-administered by the Departments of Computer Science and Electrical Engineering. Many of the actual classrooms for engineering subjects are found in various other buildings on the campus.

LABORATORIES AND RESEARCH

Chemical Engineering

The Chemical Engineering Department provides six laboratories as part of its teaching facilities. These are the Chemical Engineering Science Laboratory, the Unit Operations and Control Laboratory, the

Particulate Science Laboratory, the Interfacial Chemistry Laboratory, the Bioprocessing Laboratory, and the Computer Laboratory. Safety procedures and training are emphasized in all laboratories.

In the Chemical Engineering Science Laboratory students make measurements of various thermodynamic properties such as vapor pressure and of transport properties such as viscosity, thermal conductivity and gas diffusivities. The data is then used to estimate the parameters in the appropriate constitutive equations using the methods learned in the statistics course. Students also study the mechanism of conductive, convective, and thermal radiation heat transfer.

In the Unit Operations and Control Laboratory students get hands on experience operating and characterizing the behavior of a wide variety of the types of equipment used in chemical plants. Among these are several heat exchangers, pumps, a piping network for studying fluid flow, flow meter apparatus, a distillation column, a chemical reactor, a packed column, a fluidized bed, a mixing tank, a drying oven, and a gas membrane separator. Most equipment is of pilot plant scale. Many experiments have computer interfaces. The distillation column is equipped with a control module that gives the students experience with the use of feedback control in the operation of equipment. Students also learn how to use a process chromatograph in conjunction with some of the other experiments.

The Powder Science and Technology Laboratory is attached to the course with the same name (ChE 45200) and is given together with it as demonstration of theoretical principles presented in class. The students are first introduced to powder characterization such as particle size, size distribution (using standard sieves and a light scattering instrument) and shape and surface structure using optical and electron microscopes. Instruments to measure powder specific surface area and pore volume using gas adsorption (BET and gas pycnometry) and

mercury intrusion are also presented. Characterization of bulk powders properties is achieved in the Jenike Shear Cell used to measure powder-yield loci at different initial compression levels. This is a special instrument, characteristic of powder engineering, used to determine powder flowability as well as for the design of powder storage vessels such as hoppers and bins. Finally, the MikroPul Hosokawa Micron Powder Characteristics Tester provides six mechanical measurements with one easy-to-use instrument, including 1) angle of repose, 2) compressibility, 3) angle of spatula, 4) cohesiveness, 5) angle of fall and 6) disperse-ability. Measuring such properties has great importance in the design of storage hoppers, feeders, conveyors and other powder processing equipment. The laboratory also has a significant research component dedicated to the measurement of dry powder flows in different geometries and the study of powder granulation (size-enlargement). Principles of these processes are also demonstrated to students using the existing research equipment.

The Interfacial Chemistry Laboratory provides students with exposure to some surface modification chemistry and the standard techniques used for the characterization of surface properties. Written and verbal reports are required. In addition to use of instrumentation, students will familiarize themselves with surface preparation and modification techniques, including self-assembly, evaporation, spin coating, and Langmuir-Blodgett techniques.

The Bioprocessing Laboratory is equipped with a bioprocess system that includes a fermentation bioreactor, an ultrasonic cell homogenizer, an isoelectric focusing prep cell, and, for final purification, a chromatographic separation system. Additional equipment includes Applikon 3 and 7 liter fermenters with an ultrasonic cell separator to permit cell recycle. On-line instrumentation includes an Aber Instruments live-cell probe and a methanol feed control system. All modules are computer accessible and

capable of feedback control. This lab is used in conjunction with both the graduate and undergraduate courses in bioprocessing to provide hands on training. Typical experiments are introductory microbiology, bioreactor operation and control, and protein purification.

The computer laboratory provides students with access to approximately 24 PCs and two printers on a local area network Applications software including the Aspen Engineering Suite, SuperPro Designer, Visio, Mathematica, and Matlab are available on these machines as well as E-mail and Internet access capability. The lab also provides workspace so that student design or study teams can work together. This lab is available from 9 AM to 9 PM weekdays and on weekends by previous arrangement.

Civil Engineering

The Department of Civil Engineering has the following laboratories: Materials of Engineering, Soil Mechanics, Fluid Mechanics, Environmental Engineering, Highway and Airfield, and Traffic/Transportation Engineering.

The Materials of Engineering Laboratory houses an Instron 8500 Series Universal Testing Machine. This machine is digitally controlled and capable of applying 55 kips (250 kN) dynamic loads. Supporting electronic control, data acquisition and computer software systems are available. Additional equipment for the static, dynamic and fatigue testing of materials includes testing machines for tension, compression, transverse-bending and torsion investigation. The laboratory contains hardness testing machines, impact testers, electric strain gauge consoles, and assorted peripheral equipment. Facilities for casting, curing and testing concrete are also available and include the following: walk-in variable temperature and humidity control environmental chamber, diamond tipped saw for cutting concrete, computer controlled servo-hydraulic compression test machine for 600 kip load capacity, ultrasonic pulse-velocity meter, and

maturity meters. Complete facilities for nondestructive evaluation of materials and structures are also available and include: ground-penetrating radar with 400 MHz antenna, ultrasonic transmitters, oscilloscopes, function generators and accelerometers.

The Soil Mechanics Laboratory is equipped to perform standard identification tests of soils, such as grain size distribution, liquid and plastic limits, shear strength, and compaction properties. In addition, facilities to perform detailed testing of undisturbed samples (consolidation and triaxial shear) are available and used regularly. A moist room is available for long-term sample storage.

The Fluid Mechanics Laboratory is equipped for studying both compressible and incompressible fluid media. Flow rates up to five cubic feet per second of water are provided by each of three independent high-pressure systems equipped with constant-head controls. Two low-constant-head supply tanks located in the laboratory provide lesser discharge capacities. The laboratory contains a 52-foot long tilting flume, a water tunnel, a subsonic wind tunnel, an air jet, pumps, turbines, a hydraulic bench, and various units for the study of frictional phenomena involving water and oil.

A one-dimensional Laser Doppler Anemometer (LDA) is used for the study of flow velocities in pipes and near the flow boundaries. In addition, the lab has a state-of-the-art wave tank, 6 ft. wide by 4 ft. high and 40 ft. long. It is equipped with a computer controlled five-paddle wave generator. This system can produce single waves, random waves, and angle waves. A two-dimensional Laser Doppler Velocimeter (LDV) equipped with computer controlled 3-D traverse and fully automated data acquisition system is used in the wave tank for studying beach hydraulics and off-shore similitudes. The lab is also equipped with a tilting sand flume for studying flow through highly porous media and groundwater contamination. A fully automated freeze and

thaw machine is also available for graduate research work.

The Environmental Engineering Laboratory is equipped for experimental evaluation of unit processes and operations in water and wastewater treatment as well as analysis of all physical, chemical and microbiological water quality parameters. The experimental facilities include settling columns, suspended and attached growth biological reactors, computer-controlled bioreactor for kinetic studies, a bench scale UV chamber, a 12-gpm 15-foot bubble contactor for ozone studies complete with ozone generator, gas and liquid phase ozone residual monitors and off-gas destructor, a 1000-ft pipe loop system for water instability studies, and all conventional experimental devices used in determination of chemical dose requirements. An environmental chamber for temperature-controlled experiments is also available.

The analytical capabilities of the laboratory include gas chromatography-mass spectrometer with purge/trap, inductive-coupled plasma spectrometer (ICP) gas chromatograph with EC and FID detectors, total organic carbon analyzer, ion chromatograph, water quality autoanalyzer, UV-visible doublebeam spectrophotometer with stopped-flow device, and phase contrast/epifluorescence research microscope. Field monitoring equipment includes water quality monitors with multiple probes and fluorometers.

The Traffic/Transportation Engineering Laboratory has both personal computers and UNIX workstations with their peripherals to provide students opportunities to work with traffic and transportation software for course work and transportation research. The laboratory has a variety of software, including SOAP84, HCS, PASSER II-90, TRANSYT-7F, NETSIM, AAP, PRIMAVERA, AutoCAD, and software for GIS. The laboratory also contains basic equipment necessary to conduct traffic engineering studies such as traffic counters and measuring wheels.

The Highway and Airfield Laboratory offers facilities for investigating the properties of the basic materials and mixtures that comprise pavements. A variety of strength and stability equipment and other apparatus are available for determining rheological and physical properties and for experiments in designing and testing bituminous mixes. The additional facilities of the Soils and Materials Laboratories make possible the study of mineral aggregates and their blends, soil-stabilization phenomena, and mix-design and properties of Portland cement concrete. Other facilities in the Chemical Engineering Department's Materials Research Laboratory extend the capacity to conduct thermoanalytic studies on standard and composite materials.

Computer Engineering

The Computer Engineering Program shares laboratory facilities in the Departments of Computer Science and Electrical Engineering.

Computer Science

The Department of Computer Science has substantial computing facilities, including two student PC laboratories, large Linux labs, and specialized laboratories for computer architecture, image processing, network protocols, operating systems, and parallel programming. A computer vision lab is under construction. Wireless and high-speed Internet connections are provided. All labs are equipped with laser printers.

The Linux labs are equipped with state-of-the-art Dell workstations running Red Hat Enterprise Linux. These labs provide software for graphics, image processing, numerical computation and logic design, and a variety of programming languages (such as C/C++, Java, Fortran, Scheme, Assembly, Python and Perl). The labs also provide database development environments, such as Oracle and MySQL. The PC labs utilize the Microsoft Windows XP environment, and provide a wide range of software for both students and faculty. The Computer Architecture Lab is equipped with high-end IBM, Dell and Sun workstations. Students use VHDL to program reconfigurable boards

supplied by Altera. The Operating Systems Lab is equipped with Sun Blade workstations.

The Image Processing Lab features dual-processor Dell workstations with high-end Nvidia Quadro 4 graphics boards, running Linux. The Network Protocol Lab is equipped with the latest networking devices, such as CISCO switches, routers, ATM switches and a network traffic simulator/analyzer. Also deployed are high-end Sun Ultra workstations and video capture capability for studying video multicasting. The Parallel Programming Lab provides a small Beowulf cluster based on Red Hat Enterprise Linux. This lab provides students and faculty with a prototyping environment for development and study of high performance computing.

Earth System Science and Environmental Engineering

ESE students take advantage of teaching laboratory facilities in the respective departments where the laboratory course is offered. These include such facilities as the Hydraulic and Environmental Labs in the CE Department, EAS Department Geoscience and Analytical labs, etc. The Remote Sensing/GIS computer laboratory facility is open to ESE students for Remote Sensing and GIS courses as well as to conduct the Senior Design project, independent study, or research. Faculty participating in the ESE program also have state-of-the-art laboratories that are utilized for student research and design projects. These include the EE Department Optical Remote Sensing Lab, the CE Department Hydrology Lab, the NOAA CREST Satellite Receiving Facility, and the Chemistry and Analytical Labs in the CCNY Science Division. In addition to the NOAA CREST Satellite facility, the Center also operates an air sampling shed on campus, and a number of local and regional networks including lidar and radiometer networks, and the New York City Meteorological Network for air dispersion and microclimate studies. Additional field work is supported through a number of research projects (from Navy, NOAA, NASA, etc.) and include coastal water

studies, snow and ice studies, soil moisture studies, etc. at various locations nationally and internationally.

Electrical Engineering

The undergraduate EE laboratory facilities comprise the core teaching laboratories, advanced senior level design laboratories and computer support facilities.

The newly renovated computer-controlled core laboratories are designed to give students hands-on experience on both analog and digital electronic circuits and in measurement apparatus currently used to characterize circuits and systems. Data acquisition using LabVIEW computer control software with GPIB interfaced measurement equipment is used to give the students hands-on experience in the fundamentals in communications, computer and control engineering.

All of the introductory core labs consist of laboratory stations (2 students per station) which have the following computer and measurement equipment: personal computers running both LabVIEW and Electronics Workbench (analog and digital circuit simulation software); a GPIB plug and play controller card; a data acquisition-generation board with 8 analog input lines and 2 analog output lines, 24 digital scope with GPIB storage module; a Hewlett Packard GPIB and RS-232 interfaced Digital Multimeter; a Hewlett Packard Triple Output Power Supply, a Hewlett Packard GPIB and RS-232 interfaced 15 MHz function generator.

The Analog Communications Laboratory uses the Lab-Volt Company's signal generators, receivers, noise generators, and spectrum analyzer for the analysis of the performance of AM, SSB, DSB, and FM communication systems.

The Computer Engineering Laboratory is designed to give students the capacity to perform high-level microcontroller programming and virtual emulation. The laboratory consists of 5 stations (2 people per station) each with: a PC; a Motorola Microcontroller Development System, a Motorola Emulator and specialized

assembler software and C Cross compilers. In addition, the laboratory has a Hewlett Packard 16-channel logic analyzer and assorted electronics components for laboratory exploration.

The advanced design laboratories include Local Area Network (LAN), Photonics Engineering, and Advanced Electronics. The LAN laboratory consists of IBM Multimedia PC's, Protocol Analyzers and several network design and simulation packages such as OPNET and COMNET. In addition, two ATM switches (2.4 Gbps) and a CISCO Router are available.

The Control Engineering Laboratory uses the Feedback Inc. analog servo-fundamentals trainer, which consists of an analog unit and a mechanical unit. The mechanical unit has a servomotor with position and velocity sensors. The analog unit allows students to wire the servomotor in a closed loop configuration and independently vary the position and velocity feedback gains. The trainer is interfaced to a PC running LabView software to acquire and display signals on a virtual oscilloscope. The six stations are networked to a printer to allow students to print the virtual oscilloscope display.

The Photonics Laboratory is designed to give a variety of laboratory experiences in optics, lasers, spectroscopy and fiber optics. Equipment includes laser diodes, a HeNe laser, a white light source, a fiber optic spectro-radiometry system, single and multimode fibers, laser power meters and a variety of optical components.

The NASA Remote Sensing Computer Laboratory is designed to provide computer resources to students involved in environmental engineering and remote sensing. Equipment comprises: 14 Dell Optiplex PII computers; 2 Dell 500 MHz PIII computers; 1 Dell 2300 network server; 24 port dual-speed internet hub; Tektronix Phaser 740P color network printers; Proxima DP 9250 LCD multimedia projector; MATLAB software (Mathworks Inc.); Arc View GIS software, DEC Visual Fortran 99 and a HP 6200 color flatbed scanner.

The laboratory facilities are supported by significant computer resources

which include both the Department UNIX network comprising over 90 SUN workstations as well as a large number of PCs in the PC Microcomputer Laboratory.

Mechanical Engineering

The Department of Mechanical Engineering provides separate laboratories for the study of aero-thermal-fluid engineering, manufacturing, material science, mechatronics, dynamics and controls, and CAD. A Senior Design Projects Fabrication and Test Laboratory and a machine shop serve the entire department. A personal computer center, open all day, is available for the convenience of students. In the Aero-Thermal-Fluid Laboratory, major experiments involve a refrigeration unit, a water turbine unit, a wind tunnel unit, an air pipe flow unit, a fin heat transfer unit, and a heat exchanger.

The Engineering Materials Laboratory includes extensive facilities for the preparation of specimens for metallographic examination using modern digital imaging analysis system, testing machinery for tension, compression, hardness, impact, fracture, fatigue, stress relaxation, and ultrasound characterization; equipment for heat treatment; as well as videocassette recording and projection devices.

The Mechatronics Laboratory teaches the use of various electromechanical devices, sensors and actuators. The devices include strain gauges, thermocouples, piezoelectric accelerometers, LVDT's, instruments for signal generation, filtering and amplification, stepper and DC servo motors, linear slides, and assorted electromechanical items (such as solenoids, relays, micro-switches, infrared proximity sensors, piezoelectric buzzers, strobe lights, fans, blowers, etc.). All these devices are controlled by PC-based data acquisition, microcontrollers, and programmable logic controllers (PLCs).

The Dynamics and Controls Laboratory contains equipment for dynamic balancing, vibration testing, and various feedback control units for rectilinear and translational mechanical systems, level and flow, thermal

and pressure systems and digital and analog servo-motor systems.

The Computer Aided Design Laboratory facility has twenty-six Dell Dimension 8200 series computers, a Dell PowerEdge 2500 server, two HP Color LaserJet 4600dn printers, an HP LaserJet 5100 printer, and a wide-screen monitor. The Department also has a Multimedia Distance Learning Facility which includes twenty-four Pentium PC's, document camera, LCD projector and whiteboard. In addition, the Department maintains twenty-seven Sun UNIX workstations and sixteen Pentium PC's in its other three computer laboratories. These systems are equipped with mechanism design, mathematics, finite element, boundary element and computer-aided manufacturing software, including PRO-ENGINEER, Solid Works, LS-DYNA, ABAQUS, MathCAD, MATLAB, Mathematica, FLUENT, NASTRAN-4D and MasterCAM.

A modern Computer-Aided Manufacturing (CAM) Laboratory facility contains four CNC machining centers and a computer-integrated manufacturing (CIM) system, together with industrial grade robots: two articulate arm types and one SCARA.

Somewhat more specialized laboratories, established to facilitate advanced experimental research work, provide specific concentrations of apparatus and equipment to allow the study of various phenomena in such fields as solid mechanics, composites, turbomachinery, environmental and fluid sciences, aero-sciences, and microchip heat transfer engineering.

The machine shop is well equipped for fabricating and maintaining all experimental facilities, both undergraduate and research.

Research

In recent years, several million dollars in grants per year have been awarded to City College Grove School of Engineering faculty for conducting research projects that have attracted international attention. These faculty members are an integral part of the undergraduate teaching team. The grant agencies include NSF, NASA,

ONR, U.S. Army, AFOSR, EPA, USDOT, NYCDOT, DOE, ARPA, and NIH. City College is also connected to ARPANET.

A brief sampling of the ongoing research activities follows.

In the area of Electrical Engineering: digital slow-scan video, packet voice video systems, spread spectra, semiconductors, integrated circuits, digital signal processing, image processing, material characterization, digital optical computing, machine vision, identification and control, microwave engineering, parallel processing, knowledge-based engineering, robotics, computer communications, and local area networks.

In Biomedical Engineering: fluid and mass transfer aspects of arterial disease, microcirculatory heat and mass transfer, and orthopedic mechanics.

In the area of Chemical Engineering: turbulence, low Reynolds number hydrodynamics, two- and three-phase bubble flow in capillaries, arterial fluid flow, cholesterol metabolism models, drug release polymers, tissue engineering, fluidized and trickle beds, coal liquefaction, conversion catalysis and hydrolysis, low-temperature electromagnetic properties of semiconductors and coal chars, extraction with mixtures of critical solvents, dynamic process simulation systems, dynamic modeling and control of FCC, coal gasification, municipal waste incineration and power generation systems, control of complex processing systems.

In the area of Computer Science: computer graphics, image processing, multimedia, virtual reality, computational geometry, mathematics of computation, cryptography, artificial intelligence, neural networks, mathematical fluid dynamics and simulation, networks, distributed computing, information management and virtual organization, economics of information, and social issues in computing.

In the area of Mechanical Engineering: fracture mechanics and crack propagation, composite materials characterization and ultrasound microscopy, random vibrations, turbomachinery, aerodynamic turbulence, gas dynamics and shock waves,

aerostructures, microelectronic cooling, moving phase change boundaries.

In the area of Civil Engineering: earthquake effects of structures and soil/structure interaction, fracture mechanics, creep effects in concrete, probabilistic methods in structural design, seepage of pollutants through soil/water systems, solid waste disposal, modeling and simulation in travel demand forecasting, value capture financing techniques in transportation, highway maintenance systems and load analysis for highways.

INSTITUTES AND CENTERS

Institute for Biomedical Engineering

The Institute is a uniquely integrated endeavor dedicated to providing students in the Chemical, Civil, Electrical and Mechanical Engineering departments with access to a diverse faculty, unique research opportunities, and encouragement to pursue graduate studies in biomedical engineering. It is part of the New York Center for Biomedical Engineering, NYCBE, a multi-institutional consortium of the Grove School of Engineering at City College, the CUNY Medical School, the Hospital for Special Surgery/Cornell University Medical College, and Mount Sinai School of Medicine. Since its founding in 1994, faculty and staff from more than a dozen health care institutions in the New York area have either taught courses in the center or have served as research advisors for student projects.

Benjamin Levich Institute for Physicochemical Hydrodynamics

The Benjamin Levich Institute is an internationally recognized research center for the study of fundamental problems of flow and transport in complex fluid, fluid-like media and interface systems. Faculty members participating in the Institute are from Chemical Engineering, Mechanical Engineering, and Physics. With the Institute's excellent laboratory and computational facilities, their current scope of research is in five major areas: granular flows, low Reynolds number hydrodynamics, non-Newtonian fluid mechanics,

computational fluid mechanics, and transport along interfaces.

Institute for Municipal Waste Research

The principal objective of the Institute is to mobilize the excellent intellectual resources of the CUNY faculty to assist in solving the urgent problem of effective, economical, and efficient disposal of municipal waste in New York City. The research program entails development of innovative technologies to treat municipal wastewaters in order to safeguard the quality of the surrounding natural waters and new disinfection methods that will protect the quality of drinking water. The Institute's research is funded in part by New York City and State agencies.

Institute for Ultrafast Spectroscopy and Lasers (IUSL)

The IUSL is a multidisciplinary research laboratory devoted to conducting basic and applied research in the frontiers of photonic science and technology; to help develop a skilled workforce for academic and industrial sectors by providing unique educational and training opportunities for students and scholars; to provide a core for major photonic initiatives, as well as to identify and participate in the development of emerging technology areas. Faculty members, researchers and students from the Physics, Electrical Engineering, Earth and Atmospheric Sciences Departments of CCNY, and visiting scholars from abroad participate in various IUSL research projects.

CUNY Institute for Transportation Systems

The CUNY Institute for Transportation Systems has been established at The City College in cooperation with other units of the City University of New York. The mission of the Institute is to carry out interdisciplinary research on all modes of transportation and to train transportation professionals.

CUNY Institute for Urban Systems (CIUS)

CIUS is a multi-campus CUNY institute that investigates urban infrastructure using the themes of new technology, infrastructure, institutions and finance.

The Institute combines engineering and social science research in addressing major problems of urban areas.

Center for Advanced Engineering Design and Development (CAEDD)

The primary mission of CAEDD is to conduct, coordinate, and promote design-oriented, applied research and development for industry. It also encourages and fosters interdisciplinary engineering design and manufacturing education by the academic departments in the School of Engineering. CAEDD is an interdepartmental unit which transfers faculty research and expertise in the Grove School of Engineering into advanced technology needed in industry. It also serves as an outreach and referral service for small and large industrial firms seeking assistance with technical problems.

International Center for Environmental Resources and Development (ICERD)

This Center was established to bring together multidisciplinary teams of scientists and engineers to help tackle the diverse problems of water resources and environmental issues. It focuses on water resources and environmental research; air and water pollution crisis management; remote sensing and global change impact; environmental technology; and research, education and training programs.

University Transportation Research Center (UTRC)

UTRC is a federally supported center that conducts research, training and technology transfer on issues of surface transportation, including road systems, public transportation and multi-modal systems. It is a consortium of twelve major universities, with the lead at CCNY.

Center for Algorithms and Interactive Scientific Software (CAISS)

CAISS is a research center where mathematicians and computer scientists come together to collaborate on different projects. It grew out of work on a graphically driven, easy to use, software package called MAGNUS, designed to answer questions about and

to carry out experiments with finitely presented groups. This work has led to the development of a general platform, which can house a host of zero learning curve software packages. The first of these packages, one for statistics called Caiss-Stat, is now nearing completion. This is only one of the many projects being undertaken by CAISS which include continued work on MAGNUS, new cryptographic protocols to ensure electronic security, work on a universal password, all of which make use of the complexity of finitely presented groups. In addition, CAISS is developing new games or puzzles, based on group theory. CAISS also manages the New York Group Theory Cooperative, which organizes the NY Group Theory Seminar at the Graduate Center. The facilities of CAISS include a 132 node Beowulf cluster, which is being used for work in computational biology and group theory and a small computer lab equipped with CAISS developed software.

HONORS, AWARDS, AND PROFESSIONAL SOCIETIES

Awards and Prizes

Awards and prizes presented by the Grove School of Engineering are listed below. For detailed information on these and on many other award opportunities, contact Dr. Ruth Sinton, 212-650-8040, Chair of the Honors and Awards Committee.

Association of Old Crows Award
Engineering Alumni Awards
Engineering SEEK Scholars Award
Engineering Student Support Award
American Institute of Chemical Engineers Award
American Institute of Chemists Award
A.S.C.E. Associate Member Forum Prize
A.S.C.E. Robert Ridgway Student Chapter Prize
A.S.M.E. Gas Turbine Award
Babcock and Wilcox Award
Seymour and Ruth Brown Graduate Scholarship
Theodore Charros Scholarship
Con Edison Scholarship
Eliza Ford Prize
GEM Fellowships
Donald Griff Scholarships

Grove Foundation Scholarship

Steven L. Heller Award
Heymann Scholarship Award
Paul A. Karmel Memorial Award in Electrical Engineering
Stanley Katz Memorial Award
Samuel and Stella Kaufman Scholarship
Rose Lederman Scholarship
Sam and Clara Linder Scholarship
Gerard and Doris Lowen Machine Design Scholarship
Ernest and Edith Macklin Award
Leo Macklin Scholarships
Charles A. Marlies Award
Benjamin and Beluah Massey Award
F.O.X. McLaughlin Awards
Mechanical Engineering Department Awards
Merck and Company Fellowship
Henry S. Myers Memorial Award
NACME Corporate Scholar Award
NASA/NACE USAR Scholarship
NSF CSEM Scholarship Sandor I. Oesterreicher Prize
Patell Memorial Award in Chemical Engineering
Pope, Evans, and Robbins Scholarships
J. Charles Rathbun Awards
Judith Resnick Award
Samuel Rudin Scholarships
Harry Schwartz Scholarship
Harold Shames Award in Biomedical Engineering
Elaine and Harold Shumel Scholarship
Society of Military Engineers (SAME) Scholarship
David B. Steinman Awards
Bayram Vural Memorial Prize
Leonard S. Wegman Co., Inc. Scholarship

Honor Societies

Tau Beta Pi is the United States Engineering Honor Society. Seniors and juniors in the top fifth and top eighth of their respective classes are eligible for election under rigorous standards of scholarship, character, leadership, and service to the School. Honor societies for individual disciplines have chapters in all our Engineering departments.

Eta Kappa Nu is the national electrical engineering honor society, which has for its purpose the reward and stimulation of high scholarship and professional achievement. Outstanding senior and junior students are eligible

for membership; election is based on unimpeachable character and undoubted ability, as evidenced by scholarship.

Pi Tau Sigma is the national mechanical engineering honor society. Election is limited to the top quarter of the junior class and top third of the senior class, and is based on standards of character, service to the School, and promise of future success in the field of mechanical engineering.

Chi Epsilon is the national civil engineering honor society. Juniors and seniors in the top third of their respective classes are eligible for membership; election is also based on character, practicality, and sociability.

Omega Chi Epsilon is the national chemical engineering honor society. Membership is limited to students who have completed a substantial number of chemical engineering credits and have demonstrated a high level of scholastic achievement and excellent character.

Golden Key International Honor Society is an academic honors organization recognizing scholastic achievement and excellence in all undergraduate fields of study.

Professional Societies and Organizations

Student chapters of the following societies have been formed: American Society of Civil Engineers (ASCE), American Institute of Chemical Engineers (AIChE), American Society of Mechanical Engineers (ASME), Biomedical Engineering Society (BMES), Institute of Electrical and Electronic Engineers (IEEE), Society of Automotive Engineers (SAE), Society of Manufacturing Engineers (SME), American Society of Heating, Refrigeration, and Air-conditioning Engineers (ASHRAE), American Institute of Aeronautics and Astronautics (AIAA), and Association for Computing Machinery (ACM). Broad-based engineering organizations on campus include the National Society of Black Engineers (NSBE), Latin American Engineering Students Association-Society of Hispanic Professional Engineers (LAESA-SHPE),

Society of Women Engineers (SWE), and Korean-American Scientists and Engineers Association (KSEA). During each semester, lectures are delivered before these societies by prominent professionals; students are also encouraged to present their own papers. In addition to these professional and technical societies, the Grove School of Engineering sponsors a Concrete Canoe Club, open to all SOE students.

National engineering societies offer students substantial competitive awards for papers, oral and poster presentations, and design competitions on certain specified topics. Other competitive awards for research are offered to graduates by these societies.

OVERVIEW OF THE UNDERGRADUATE CURRICULA

The undergraduate curricula in engineering and computer science are designed to prepare the student for practice in the field of choice. Courses in the major provide a firm grounding in the principles of the various disciplines; these basic principles are applied and expanded in a series of design or similar courses. All of these courses emphasize the development of engineering viewpoints, attitudes, and methods of approach to problems.

The Undergraduate curricula offered by the Grove School of Engineering also provide a background in written and oral English and the humanities. The Grove School of Engineering offers programs that start from the freshman level and continue to the highest academic levels, up to and including the doctorate.

Transferring Between Programs

Though non-major courses in the computer science and engineering curricula are similar, many courses are unique to each program. Students are strongly advised to consult with an advisor when choosing a new major program to ensure that credits are not lost when transferring. Thus, it is usually possible to transfer from one field to another during the first few semesters with little or no loss of credit. Students who initially pursue a degree

other than those offered by the Grove School of Engineering are likely to lose some credits if they transfer to engineering or computer science, and must satisfy the same course and grade entrance criteria required of students transferring from other institutions, as described in the Admissions section.

English and Liberal Arts Courses (General Education)

English and Liberal Arts (General Education) requirements for the Bachelor of Science degree in computer science and for the Bachelor of Engineering degrees in the engineering programs are listed below:

Writing Requirements

English 11000: Freshman

Composition (3 cr.)

English 21007: Writing for Engineering (3 cr.)

General Education/Liberal Arts Requirements

Eligible courses that can be used to fulfill the General Education requirement are only those listed as meeting the objectives of the following four clusters: Professional and Ethical Responsibilities Cluster (outcome f); Communication Cluster (outcome g); Global and Societal Cluster (outcome h); and Contemporary Issues Cluster (outcome j). A list of approved courses is posted on the Grove School of Engineering web site and can be viewed at the Office of Undergraduate Affairs (ST 209) or the Office of Student Development (ST 2M-7). These courses may not include courses in creativity, design, language skills, performance, professional, studio, and technical courses such as statistics, neuroscience, experimental psychology, etc. This list is subject to periodic review and updates.

BME students must take five approved courses and Engr 30000 (Social, Economic, and Cultural Impact of Biomedical Technology) for a total of 18 credits of which at least 6 credits must be at the 20000 level or higher. The six courses must satisfy at least three of the four approved general education clusters.

ChE students must take six approved courses for a total of 18 credits of which at least 6 credits must be at the 20000 level or higher. The six courses must satisfy at least three of the four approved general education clusters.

CE students must take six approved courses for a total of 18 credits of which at least 6 credits must be at the 20000 level or higher. The six courses must satisfy at least three of the four approved general education clusters.

CpE students must take six approved courses for a total of 18 credits, of which at least 6 credits must be at the 20000 level or higher. The six courses must satisfy at least three of the four approved general education clusters.

CSc students CSc students must take five approved courses, of which at least two must be at the 20000 level or higher. The five courses must satisfy at least three of the four approved general education clusters. CSc students must also take Speech 11100 (Foundations of Speech Communication) and Engr 27600 (Engineering Economics) for a total of 21 credits. Students may be exempted from Speech 11100 by passing a speech proficiency examination, in which case they must take another speech course.

EE students must take five approved courses and Engr. 27600 (Engineering Economics) for a total of 18 credits of which at least 6 credits must be at the 20000 level or higher. The six courses must satisfy at least three of the four approved general education clusters.

ESE students must take six approved courses for a total of 18 credits of which at least 6 credits must be at the 20000 level or higher. The six courses must satisfy at least three of the four approved general education clusters (f, g, h, j). Engr 27600 (Engr. Eco) is an accepted 20000 level course.

ME students must take six approved courses for a total of 18 credits of which at least 6 credits must be at the 20000 level or higher. The six courses

must satisfy at least three of the four approved general education clusters.

Credit Requirements

The Bachelor of Engineering degree and the Bachelor of Science in Computer Science degree require the satisfactory completion of 126–134 credits. In the School of Engineering, not all credits passed or transferred count toward the degree. Students with non-degree courses, whether remedial or otherwise, will accumulate more credits than students whose total credits count toward their degree.

Except for special cases, the maximum number of credits allowed per semester is eighteen. Students who wish to take more than eighteen credits in any one semester must obtain permission from the Office of Undergraduate Affairs (ST 209; 212-650-8020). If permission is granted, the student will not be allowed to drop any Grove School of Engineering courses.

Residency Requirement

Residency requirements specify the minimum number of credits that students must take at City College in the department(s) of their major to obtain a degree, and must be met regardless of the number of transfer credits that a student may claim in the major area. Only courses offered by the major department(s) and prefixed by the department initials (e.g., ChE, CE), and at the 30000 level or higher, count toward residency requirements.

Residency requirements are based on the total credit in major courses in the department's curriculum, excluding pilot and experimental courses, and are listed below.

| | Credits |
|--|---------|
| Biomedical Engineering (BME) | 30 |
| Chemical Engineering (ChE) | 33* |
| Civil Engineering (CE) | 33 |
| Computer Engineering (CpE) | 30 |
| Computer Science (CSC) | 33 |
| Earth System Science and Environmental Engineering (ESE) | 33 |
| Electrical Engineering (EE) | 36 |
| Mechanical Engineering (ME) | 36 |

*A maximum of 6 credits may be in non-ChE technical elective courses.

Curricular Guidance

Engineering majors need academic advising assistance to ensure that their academic and career goals are met. The overall goal of the academic advising process is to help students develop meaningful educational plans that are consistent with their academic, personal and professional goals.

Freshmen students interested in engineering who placed below Math 19500 will receive academic advising from professional staff in the CCNY Gateway Program (NA 1/220).

All engineering students are assigned to an academic advisor (either an engineering faculty member or professional staff depending on their credit level). These are your PRIMARY advisors.

Engineering majors with 0-44 credits receive academic advising from professional staff through the Office of Student Development (OSD). An academic advising session must be scheduled at least once per semester with a staff member from this office (ST 2M-7, 212-650-8040).

Engineering majors who have earned 45 or more credits receive academic advising from faculty members in their departments. An academic advising session must be scheduled at least once per semester with a faculty advisor from the department. To find the name of a faculty advisor, students should consult the list posted in the office of the department chair (e.g., CE, ChE, BME). Additional advising throughout the year is handled by the professional staff in the Office of Undergraduate Affairs (OUA).

Each semester, an engineering advisement stop code (**EA**) will be placed on the student's record until the student has completed the required once per semester advising session. Students will then be permitted to register.

COMMITTEE ON COURSE AND STANDING

The Committee enforces academic standards and graduation requirements. It monitors the academic performance of students and serves as an

arbiter in evaluating transfer credits, second degree candidates' programs, petitions for substitution of courses, and other problems related to grades, attendance, guidance, and graduation.

All requests to the Committee must be in writing. The Committee is the final authority on questions of courses and standing.

In many cases, the Associate Dean of Undergraduate Affairs can act for the Committee or advise more appropriate action, so students may discuss their problems with him/her before filing a formal appeal to the Committee. Any decision of the Associate Dean when he/she acts for the Committee may be appealed to the full Committee.

ACADEMIC STANDARDS

Grade Point Average (GPA)

One requirement for graduating is an average of C (GPA of 2.0) or better. Calculation of the GPA is described in the Academic Requirements section of this *Bulletin*.

Quality Point Accumulation (QPA)

Another requirement for graduation is a Quality Point Accumulation (QPA) of zero or better in the student's major courses. Unless stated otherwise, major courses include only courses offered by the student's department and no other courses. For example, computer science courses, although required for the civil, electrical, and mechanical engineering degrees, are not included in QPA calculations for those majors. QPA calculation in the computer engineering degree counts all computer science and electrical engineering courses. Engr. 20400 is counted in the QPA for both Computer and Electrical Engineering.

Computing the QPA

In calculating QPA, the following weighting factors apply:

- A = +2
- B = +1
- C = 0
- D = -1
- F = -2

Pluses and minuses following the grade letter are ignored. F represents

here all failing grades including F, FAB, FIN, FPN, WF, and WU. The weighting factors are multiplied by the number of credits for each applicable course, and the results of all multiplications are added together. A includes A+ and A-, B includes B+ and B-, etc. A final score of zero is equivalent to a C average in the major. Negative scores are equivalent to averages lower than C; positive scores are equivalent to averages higher than C.

One advantage of this method is that it allows failing or marginal students to easily determine the grades required in their remaining major courses to graduate.

Note that the CUNY-wide "F" Repeat policy, described in the front of this *Bulletin*, by which certain failing grades are omitted from the GPA, does not apply to Engineering QPA calculations.

Use of Graduate Courses

Permission to substitute a graduate course for an undergraduate course requires a GPA of 2.75 or better plus the approval of the Associate Deans of Undergraduate Affairs and Graduate Studies and the departmental graduate advisor.

Retaking Engineering Courses

On application by the student, the Associate Dean of Undergraduate Affairs will allow students in their senior year to repeat courses in order to improve their major QPA. Only five such retakes will be allowed (not more than two per semester) and these must be courses for which the previous grade was D. Courses with grades of C or better may not be retaken, and no course, once passed with a grade of D, may be retaken more than once. If a student is permitted to retake a course, both the new grade and the original grade of D will be counted in the major QPA.

Pass-Fail Option

Students enrolled in the Grove School of Engineering must take all courses for a qualitative letter grade. That is, they are not allowed to take the pass-fail option except when it is the only grade option for a course.

College-Wide Examinations

All City College students, including those majoring in Engineering, are required to pass a number of college-wide examinations including the CUNY/ACT Basic Skills Tests in Reading and Writing, the Mathematics Placement Test, and the CUNY Proficiency Examination (CPE). Descriptions of these examinations, including their applicability to second degree students, are located in the Academic Requirements section of this *Bulletin*.

Probation and Dismissal

Students who do not maintain a C average overall or a minimum QPA of zero in their major will be placed on academic probation. As long as they are on academic probation they will not be allowed to take more than twelve credits per semester. Students on academic probation whose grades do not improve will be dismissed from the School of Engineering. Definitions of probation and satisfactory academic progress are located in the Academic Requirements section of this *Bulletin*.

SUMMARY OF GRADUATION REQUIREMENTS

In order to be eligible for graduation, the student must meet the following criteria:

- Achieve a minimum overall average of C (GPA of 2.0).
- Achieve a minimum quality point accumulation (QPA) of zero.
- Obtain a grade of C or better in all the relevant mathematics, science and major courses specified in the program.
- Satisfy the credit distribution requirements of the degree.
- Fulfill the residency and credit requirements of the degree.
- Pass the CUNY/ACT Basic Skills Tests in Reading and Writing.
- Pass the Mathematics Placement Test.
- Pass the CUNY Proficiency Examination (CPE).

COOPERATIVE EDUCATION PLANS IN ENGINEERING

COOP/ENG is an optional educational plan offered to Grove School of Engineering students. The plan involves alternating periods of full-time academic study with periods of full-time career-related employment. Assignment locations are not only in the New York metropolitan area, but out of town as well. Participation is voluntary.

Students who participate in COOP/ENG can expect to benefit by the experience in many ways, among the more important of which are:

- Learning to put theory into practice.
- Earning financial support for college.
- Increasing motivation and stimulation to continue academic studies.
- Growing in maturity, practicality, and responsibility.
- Greatly enhancing job opportunities upon graduation.

To participate in COOP/ENG, the student must have completed at least 30 credits toward the degree and meet the required academic standards. The student must also submit a report on progress and accomplishment for each work period. It is important to note the following:

- No academic credits are given for the work experience; and COOP/ENG normally extends the time needed to complete the degree requirements.
- Work periods are not just summer jobs, although the summer may be included in a fall or spring work assignment.

In the past, cooperative education employers have included governmental agencies such as US Army Corps of Engineers and NASA, as well as large private organizations such as IBM and GE. The COOP/ENG program is administered by the Office of Student Development in the School of Engineering.

STUDENT RESPONSIBILITIES

For academic matters, students are responsible for the material covered in the Academic Requirements section of this Bulletin, in the introductory section of the Grove School of Engineering portion, and in their specific department write-ups. For matters related to conduct, students are responsible for the disciplinary material covered in Appendix B of this Bulletin.

DEPARTMENT PROGRAMS

Prescribed curricula for the eight Grove School of Engineering programs are presented in the following pages. Mathematics and science subjects upon which long sequences depend are of prime importance and should be taken as soon as the student is ready for them. If a section in one of these subjects is closed the student should, if possible, select a different section of the same subject and rearrange other subjects as necessary. Freshmen and sophomores should pay particular attention to early completion of the prescribed work in mathematics, physics, chemistry, and computer science.

It is the student's responsibility to meet with a faculty advisor each semester for program planning and advisement. Students who have not taken any courses in their major will meet with an advisor in Steinman rooms 209 or 2M-7. Once a student has begun taking major courses, he or she will meet with a department advisor in the advisor's office. Students with specific problems may always consult with an advisor in the Office of Undergraduate Affairs, St 209.

Students who are behind in completing prerequisite courses should consider attending one or more summer sessions. The basic science courses and many liberal arts non-science courses are generally offered during the summer, as are some Grove School of Engineering courses.

Curricula in engineering and computer science are designed so that the full-time day student, sustaining no failures, may complete the bachelor's curriculum in four calendar years.

Often, however, because of the timing of courses or schedule conflicts, a student will have to attend one or two additional semesters. In addition, because certain courses in all curricula are considered difficult, students may elect to take fewer total credits during the semesters in which they take those courses. This might also lengthen their stay at the College. Finally, students who must hold a job, even a part-time job, should reduce their course loads below those recommended in the program descriptions. Most math, science, and engineering courses are sufficiently challenging to require a full measure of the student's energy and attention; the longer stay in the College that this delay entails is almost always compensated for by higher grades.

Evening students should select math and science courses in preference to humanities courses on beginning their college work, since the humanities courses will round out programs in later years when schedule difficulties might prevent the selection of a full program of technical courses.

Where courses have prerequisites, the prerequisite must be taken before registering for the desired course. Exceptions must be approved in writing by the department chair and approved by the Associate Dean of Undergraduate Affairs. Students who register without such permission will be dropped from the course.

The Grove School of Engineering reserves the right to change curricular requirements for matriculated students at any time if such changes are necessary to remain in compliance with the guidelines of the Accreditation Board for Engineering and Technology. Also, courses will not be given unless warranted by enrollment levels.

Every effort has been made to ensure that the material in this section of the *Bulletin* is consistent with the material presented in the Academic Requirements section of the *Bulletin* and in the individual program sections. If there are inconsistencies, students are strongly advised not to attempt their own interpretation but to consult with the Office of Undergraduate

Affairs, ST 209. An erroneous interpretation of the requirements by a student may not be accepted by the College.

ENGINEERING COURSE DESCRIPTIONS

10100: Engineering Design

An introduction to engineering practice through hands-on investigations, computer applications, design projects and student presentations in the fields of structures and robotics/electronics. The first segment of the course consists of a structural design module. In this module, the behavior of materials and structural members is explored. Concepts of structural safety and equilibrium are developed and students are introduced to structural analysis of a steel truss bridge and build a model bridge. The second portion of the course consists of a robotics or electronics module. The robotics module focuses on basic mechanisms, kinematics, feedback, and computer control by considering the operation of several robotic devices. Students then engage in a robotic design which may include software or hardware or both. The electronics module introduces student to Boolean algebra, number bases and binary arithmetic, logic circuits, timing diagrams, counters and display services. The students then design and construct a digital clock. All investigations and design projects are performed in groups and presented in oral and/or written form. Computers are used for documentation, data analysis and robot control. Pre- or coreq.: Math 19500 (min. C grade). Open only to transfer students who have not completed Math 20200 (or 20202). 3 hr./wk.; 1 cr.

10300: Computer-Aided Analysis Tools for Engineers

An introduction to computer aided analysis techniques necessary for the study of electrical engineering and the design of electrical systems. Concepts introduced through short lectures are examined thoroughly during computer workstation-based workshops. Among the topics studied are: functions of real variables and their graphs, complex numbers and phasors, linear algebra, difference equations with applications to signal processing, and an introduction to system analysis. Prereq.: Math 20100 (min. C grade). 3 hr./wk.; 2 cr.

20400: Electrical Circuits

Basic circuit laws. Methods of circuit analysis. Circuit theorems. Operational amplifiers. Capacitors and inductors. Sinusoids and phasors. Sinusoidal steady state analysis. Frequency response. Pre- or coreq.:

Phys 20800 (min. C grade); pre- or coreq.: Math 20300 (min. C grade). 3 hr./wk.; 3 cr.

23000: Thermodynamics

Introductory concepts and definitions. Zeroth Law and absolute temperature. Work and Heat. First Law and applications. Second Law, Carnot theorems, entropy, thermodynamic state variables and functions and reversibility. Power and refrigeration cycles, ideal gas mixtures, gas-vapor mixtures and the psychrometric chart. Introduction to statistical thermodynamics. Prereq.: Chem 10301 (min. C grade). Pre- or coreq.: Phys 20800 (min. C grade), Math 20300 (min. C grade). 3 hr./wk.; 3 cr.

27600: Engineering Economics

History of economic thought from the engineering point of view of modeling and control: Adam Smith to Keynes to Krugman and Thurow. Nature of the corporation. Balance sheet analysis. Time value of money: simple and compounded interest, annuities and loans, cash flow, profitability analysis and DCF rate of return. Cost estimation, cost benefit analysis. Risk analysis: forecasting, cash flow, simple probability theory, decision trees. Prereq.: Math 20100. (min. C grade). 3 hr./wk.; 3 cr.

30000: Social, Economic and Cultural Impact of Biomedical Technology

This course emphasizes community health care concerns in an urban environment. It has two central themes: (a) assessment of biomedical technology in the context of urban health needs, and (b) social and cultural impact of biomedical technology. Prereq.: Soc 10500 or Anth 10100 or Eco 10000 or Phil 34903 or any honors program liberal arts course. 3 hr./wk.; 3 cr.

30100: Introduction to Satellite Remote Sensing and Imaging

This introductory remote sensing course covers different environments where remote sensing can be applied, including discussion about a variety of space platforms and selected sensors that orbit the Earth. Emphasis is placed on the application of remote sensing on the interactions between the hydrosphere, biosphere, geosphere and atmosphere as well as bioproductivity and geophysical/geochemical processes in the oceans. Prereq.: Phys 20800 and Engr 10300. 3 hr./wk.; 3 cr.

GROVE SCHOOL OF ENGINEERING



Department of Biomedical Engineering

CUNY and Wallace Coulter Distinguished Professor John M. Tarbell, Chair • Office: ST 404C • Tel: 212-650-6707

GENERAL INFORMATION

The City College offers the following undergraduate degree in Biomedical Engineering:

B.E. (BME)

PROGRAMS AND OBJECTIVES

Biomedical engineering (BME) is the application of engineering principles and physical and mathematical concepts to solve problems in medicine and biology. Biomedical engineering has been a critical component of the technological advances in medicine and health care delivery that has dramatically transformed the prevention, diagnosis, and treatment of disease in the last few decades. Whether in the area of biomedical imaging, biosignal processing, medical instrumentation, biomechanics, biomaterials and implants, drug delivery, or cell and tissue engineering, these advances are continuing to accelerate.

Our undergraduate biomedical engineering program consists of an innovative, interdisciplinary curriculum that will produce critical thinkers with effective problem-solving skills. We believe a biomedical engineer with a bachelor's degree should be well grounded in the basic engineering principles found in traditional mechanical, chemical, and electrical engineering subjects. We also believe the BME graduate should possess a solid background in biology and physiology, and develop an appreciation for the complexity of living systems. By combining this background with both breadth and depth in biomedical engineering topics, our biomedical engineering graduates will be prepared for

work in industry or for entrance into medical school or graduate school.

ASPIRATION

The Biomedical Engineering Department of The City College of The City University of New York aspires to provide exciting educational programs of superior quality at the undergraduate and graduate levels. We want to inspire our students, faculty and staff and nurture their dreams.

MISSION

We strive to establish an enduring national urban model for Biomedical Engineering programs and a legacy of excellence in public higher education for future generations of students and faculty.

VALUES

This Department subscribes completely to the mission and purpose of The City College of New York, especially its commitment to making a superior education available to the most diverse possible group of students. Our Department believes in, and thus teaches, directly and by example, mutual respect and caring for each of its students, faculty and staff.

EDUCATIONAL OBJECTIVES

Graduates of the program should demonstrate:

1. A broad background in mathematics, science, and engineering fundamentals that enables them to function effectively in the field of biomedical engineering.
2. An ability to use their multidisciplinary background to communicate effectively to audiences of

diverse backgrounds, demonstrating professional and ethical responsibility at all times.

3. The preparation for a successful career in industry, medicine, and biomedical research.

PROGRAM OUTCOMES

Graduates of the CCNY BME undergraduate program are expected to demonstrate:

- a) an understanding of biology and physiology along with the capability to apply advanced mathematics (including differential equations and statistics), science, and engineering to solve the problems at the interface of engineering and biology
- b) an ability to design and conduct experiments, as well as to make measurements on, analyze and interpret data from living and non-living systems
- c) an ability to design a biomedical engineering system, component, or process to meet desired needs within realistic constraints such as economic, environmental, ethical, health and safety, manufacturability, and sustainability, and addressing the problems associated with the interaction between living and non-living materials and systems
- d) an ability to function on multidisciplinary teams
- e) an ability to identify, formulate, and solve biomedical engineering problems
- f) an understanding of professional and ethical responsibility
- g) an ability to communicate effectively

- h) the broad education necessary to understand the impact of biomedical engineering solutions in a global, economic, environmental, and societal context
- i) a recognition of the need for, and an ability to engage in life-long learning
- j) a knowledge of contemporary biomedical engineering issues
- k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

ADVISEMENT

Dr. Phillip Payton, Administrative Director
ST 403A, 212-650-5283

TRANSFER CREDITS

The Biomedical Engineering Department grants transfer credits for legitimate biomedical engineering courses having engineering/science content that matches City College courses. Note that only courses with grades of C or better are accepted for transfer credits.

REQUIREMENTS FOR MAJORS

Biomedical Engineering majors must complete the following:

Math and Science Requirements

Required Courses (* Minimum grade of "C" required.)

Mathematics:

| | |
|--|---|
| 20100: Calculus I* | 3 |
| 20200: Calculus II* | 3 |
| 20300: Calculus III* | 4 |
| 39100: Methods of Differential Equations* | 3 |
| 39200: Linear Algebra and Vector Analysis for Engineers* | 3 |

Biology:

| | |
|-----------------------------------|---|
| 10100: Biological Foundations I | 4 |
| 22900: Cell and Molecular Biology | 4 |
| 32100: Physiological Processes | 3 |

Physics:

| | |
|-------------------------------|---|
| 20700-20800: General Physics* | 8 |
|-------------------------------|---|

Chemistry:

| | |
|---|---|
| 10301-10401: General Chemistry * | 8 |
| 21000: Applied Chemistry for Biomedical Engineering | 3 |

Total Math and Science Credits 46

English and Liberal Arts Requirements

Required Courses

| | |
|--|---|
| ENGL 11000: Freshman Composition | 3 |
| ENGL 21007: Writing for Engineering | 3 |
| ENGR 30000: Social, Economic, and Cultural Impact of Biomedical Technology | 3 |

Liberal Arts Electives

Refer to the Grove School of Engineering section for details. 15

Total English and Liberal Arts 24

GENERAL REQUIREMENTS FOR MAJORS

Required Courses

| | |
|-----------------------------|---|
| Engineering: | |
| 10100: Engineering Design I | 1 |

Chemical Engineering:

| | |
|--|---|
| 22900: Chemical Engineering Thermodynamics I | 3 |
| 34100: Transport Phenomena I | 3 |

Mechanical Engineering:

| | |
|-------------------------------|---|
| 24600: Engineering Mechanics | 3 |
| 33000: Mechanics of Materials | 3 |

Total General Engineering Credits 13

Biomedical Engineering Requirements

Required Courses

| | |
|---|---|
| Engineering: | |
| 10100: Introduction to Biomedical Engineering | 1 |
| 20500: Bioelectrical Circuits with Laboratory | 4 |
| 22000: Biostatistics and Research Methods | 3 |
| 30500: Dynamical Systems and Modeling | 3 |
| 31000: Experimental Methods in BME | 3 |
| 40500: Biomedical Transducers and Instrumentation | 4 |

| | |
|---|---|
| 45000: Biomedical Engineering Senior Design I | 3 |
| 46000: Biomedical Engineering Senior Design II | 3 |
| 50100: Cell and Tissue Mechanics | 3 |
| 50200: Cell and Tissue Transport | 3 |
| 50300: Cell and Tissue - Biomaterial Interactions | 3 |
| 50500: Image and Signal Processing in Biomedicine | 3 |

Biomedical Engineering Electives
Select two of the following: 6

Biomedical Engineering:

| | |
|--|--|
| 50400: Cell and Tissue Engineering (3 cr.) | |
| 51000: Microfluidic Devices in Biotechnology (3 cr.) | |
| 59000: Biomedical Engineering Independent Study (3 cr.) | |
| Chemical Engineering: | |
| 51200: Pharmaceutical Applications of Chemical Engineering (3 cr.) | |
| 58000: Bioprocess Engineering (3 cr.) | |

Physics:

42200: Biophysics (3 cr.)
Any graduate BME course where prerequisites are satisfied

Total Biomedical Engineering Credits 42

Other Technical Electives

Select one of the following*: 3-5

Biology:

| | |
|--|--|
| 40100: Physiological Transport Systems I | |
| 46400: Introduction to Neurobiology | |
| 48200: Molecular Biology of the Gene | |
| 48300: Laboratory in Biotechnology | |

Chemistry:

| | |
|---------------------------------------|--|
| 26100: Organic Chemistry I | |
| 26200: Organic Chemistry Laboratory I | |
| 26300: Organic Chemistry II | |
| 33000: Physical Chemistry I | |

Chemical Engineering:

| | |
|---|--|
| 33000: Chemical Engineering Thermodynamics II | |
|---|--|

Computer Science:

| | |
|---|--|
| 10200: Introduction to Computing | |
| 10400: Discrete Mathematical Structures I | |
| 22100: Software Design Lab | |
| 30100: Numerical Issues in Scientific Programming | |

Electrical Engineering:

| | |
|---|--|
| 33000: Electromagnetics Mechanical Engineering: | |
|---|--|

32200: Computer Methods in Engineering

Mathematics:

37500: Elements of Probability Theory

39500: Complex Variables for Scientists and Engineers

Any course from BME Technical Electives

* *Pre-med students must take the Organic Chemistry sequence (Chem 26100, 26200, 26300) in place of the Technical Elective and one BME Elective. This will increase the pre-med total credits by 2.*

Total Credits for Major: 128-130

ADDITIONAL REQUIREMENTS FOR GRADUATION

Apply for graduation during registration for the last semester. Minimum GPA of 2.00. Minimum QPA of zero. Pass CUNY Proficiency Exam (CPE). Residency Requirement: 30 credits of 30000-level or higher Biomedical Engineering courses.

RECOMMENDED SEQUENCE OF COURSES

First Semester

Math 20100: Calculus I (3 cr.)

Chem 10301: General Chemistry I (4 cr.)

Bio 10100: Foundations of Biology I (4 cr.)

BME 10100: Introduction to BME (1 cr.)

Eng 11000: Freshman Composition (3 cr.)

One Liberal Arts course (3 cr.)

Second Semester

Math 20200: Calculus II (3 cr.)

Chem 10401: General Chemistry II (4 cr.)

Phys 20700: General Physics I (4 cr.)

Engr 10100: Engineering Design I (1 cr.)

Eng 21007: Writing for Engineering (3 cr.)

One Liberal Arts course (3 cr.)

Third Semester

Math 20300: Calculus III (4 cr.)

Chem 21000: Applied Chemistry for BME (3 cr.)

Phys 20800: General Physics II (4 cr.)

BME 22000: Biostatistics and Research Methods (3 cr.)

One Liberal Arts course (3 cr.)

Fourth Semester

Math 39100: Differential Equations (3 cr.)

ChE 22900: Chemical Engineering Thermodynamics I (3 cr.)

ME 24600: Engineering Mechanics I (3 cr.)

BME 20500: Bioelectrical Circuits with Laboratory (4 cr.)

One Liberal Arts course (3 cr.)

Fifth Semester

Math 39200: Linear Algebra/Vector Analysis (3 cr.)

ChE 34100: Transport Phenomena I (3 cr.)

BME 30500: Dynamical Systems and Modeling (3 cr.)

Bio 32100: Physiological Processes (3 cr.)

ME 33000: Mechanics of Materials (3 cr.)

Sixth Semester

BME 31000: Experimental Methods in BME (3 cr.)

BME 40500: Biomedical Transducers and Instrumentation (4 cr.)

Bio 22900: Cell and Molecular Biology (4 cr.)

BME 50100: Cell and Tissue Mechanics (3 cr.)

BME 50300: Cell and Tissue Biomaterial Interactions (3 cr.)

Seventh Semester

One BME Technical elective (3 cr.)

BME 50200: Cell and Tissue Transport (3 cr.)

BME 50500: Image and Signal Processing in Biomedicine (3 cr.)

BME 45000: BME Senior Design I (3 cr.)

Engr 30000: Impact of Biomedical Technology (3 cr.)

Eighth Semester

One BME Technical elective (3 cr.)

Technical elective (1 course) (3-5 cr.)

BME 46000: BME Senior Design II (3 cr.)

One Liberal Arts course (3 cr.)

COURSE DESCRIPTIONS

10100: Introduction to Biomedical Engineering

An overview of the field of biomedical engineering designed to acquaint the students with its interdisciplinary nature; research areas presented by the biomedical engineering faculty. Prereq.: BME majors only. 1 hr./wk.; 1 cr.

20500: Bioelectrical Circuits with Laboratory

Electric and bioelectric concepts. Electrical components, circuit laws, theorems and analysis. Biological tissues resistivity, capacitance and inductance. Complex algebra, sinusoids and phasors. Impedance and admittance of biological tissues. Operational and instrumentation amplifiers. Bioinstrumentation. Frequency response of biological tissues. Includes PSpice numerical simulation and hands-on laboratory. Pre- or coreq: Phys 20800 (min. C grade) and Math 20300 (min. C grade). 2 lect., 2 lab hrs./wk; 2 cr.

Chem 21000: Applied Chemistry for Biomedical Engineers

Introduces students to organic chemistry and biochemistry principles relevant to the study of the human body. Topics covered include hydrocarbons, functional groups, and structure and function of biomolecules (lipids, carbohydrates, proteins, and nucleic acids), along with their interactions; and introduction to molecular genetics. Prereq.: Chem 10401 (min. C grade); engineering majors only. 3 hr./wk.; 3 cr.

22000: Biostatistics and Research Methods

Development of tools necessary in biomedical engineering, including gathering information from online and library sources, reading and understanding research articles, understanding experimental design (prospective vs. case-controlled study, correlation vs. causality etc.), graphing 1D and 2D data, computing basic statistics (mean, variance, histogram), evaluating hypothesis tests (t-test, ANOVA), estimating measurement error and propagating errors, computing linear regression coefficients, writing technical reports and giving oral presentations. All visualization and numerical methods will use MATLAB, which will be introduced from the beginning. All methods will be discussed in the context of real-world biomedical problems. Prereqs.: Math 20300; pre-or coreq: BME 10100. 3 hr./wk.; 3 cr.

30500: Dynamical Systems and Modeling

This course addresses the development and analysis of mathematical models for time varying systems. The dynamical systems employed as examples will be of mechanical, electrical and chemical origin and will include those associated with physiological control, dynamics and vibrations, electrical circuits and chemical reactions. Topics include systems of ordinary differential equations, Laplace transforms, transfer functions, frequency response analysis, dynamics of feedback systems. Prereq.: Phys 20800, ME 24600; pre- or coreq.: Math 39200. 3 hr./wk.; 3 cr.

31000: Experimental Methods in BME

The laboratory course focuses on the principles of experimental design, application of statistics, interpretation of data, and technical writing. Students will perform modular hands-on laboratory experiments in biotransport, biological control, signal analysis, imaging, biomechanics, biomaterials, and cell and tissue engineering. Prereq.: BME 22000, ME 33000, ENGL 21007; pre- or coreq.: Bio 22900. 1 class, 4 lab hr./wk.; 3 cr.

40500: Biomedical Transducers and Instrumentation

Basic principles of biomedical electronics and measurements including sensors, transducers, amplifiers, filters, data acquisition and analysis, signal-to-noise ratio, artifacts; display of biological data using digital computers; design and analysis of biomedical instrumentation; laboratory applications of digital signal processing and real-time analysis of physiological signals. Prereq.: ENGR 20400, BME 30500. 3 class, 1 lab hr./wk.; 4 cr.

45000: Biomedical Engineering Senior Design I

The first course of a two-course sequence in which a year-long group project will be undertaken to design and construct a biomedical engineering device or system. Course topics include project planning and management as well as the regulatory, ethical, and legal aspects of medical device systems. Prereq.: BME 31000. 3 hr./wk.; 3 cr.

46000: Biomedical Engineering Senior Design II

The second course of a two-course sequence in which a year-long group project will be undertaken to design and construct a biomedical engineering device or system. Course topics include project planning and management as well as the regulatory, ethical, and legal aspects of medical device systems. Prereq.: BME 45000. 3 hr./wk.; 3 cr.

50100: Cell and Tissue Mechanics

The application of mechanics to the functioning of the human body at all levels from the cellular to the tissue, organ and whole body. The applications of rigid object mechanics to ergonomics, orthopaedic and sports biomechanics are considered with analysis of the knee, hip, and spine. Introductory continuum mechanics is used to describe the models of hard tissues such as bone and dentin and soft tissues such as skin, muscle, blood vessels, articular cartilage, tendons and ligaments. Prereq.: CE 33200 or ChE 31000 or EE 33000 or ME 33000. 3 hr./wk.; 3 cr.

50200: Cell and Tissue Transport

Modeling and interpretation of transport in living tissue. Topics include momentum and mass transport in arteries, water and solute exchange in the microcirculation, active transport and exchange mechanisms in epithelia with application to the kidney, water movement in cartilage and bone, gas exchange in the lungs, and bioheat transfer. Prereq.: CE 35000 or ChE 34100 or EE 33000 or ME 35600. 3 hr./wk.; 3 cr.

50300: Cell and Tissue-Biomaterial Interactions

This course is concerned with the reaction and interaction of both inert and bioactive foreign materials placed in the living human body. Topics to be discussed include biocompatibility; characterization of non-living biomaterials; reaction of biological molecules with biomaterial surfaces; host response to implants; effects of degradation on implant materials; bioactive surfaces; resorbable implant materials; standardization and regulation of implant materials; in vitro and in vivo biomaterial testing methods; orthopaedic and other specific applications of biomaterials; and introduction to tissue engineering. Prereq.: CE 33200 or ChE 31000 or EE 30600 or ME 33000 3 hr./wk.; 3 cr.

50400: Cell and Tissue Engineering

Applications and design of cellular and biomaterial microstructures for use in biomedical engineering applications. This course begins with an introduction to the structure, function and biosynthesis of cell surface macromolecules, followed by the discussion of current methods and applications in cell and tissue engineering. Topics include matrix molecules and their ligands, construction of biomimetic environments, biomaterials for tissue engineering, genetic approaches in cell and tissue engineering, and tissue engineering applications. Pre- or coreq.: BME 31000. 3 hr./wk.; 3 cr.

50500: Image and Signal Processing in Biomedicine

This course introduces basic medical imaging and biomedical signal processing methods. It will present medical imaging modalities such as computed tomography (CT), magnetic resonance imaging (MRI), and positron emission tomography (PET). Students will gain understanding in the basic physics of image acquisition and the algorithms required for image generation. In biomedical signal processing the emphasis is on bio-potentials such as electroencephalograms (EEG) and electrocardiograms (ECG). Basic image enhancement and image analysis will be presented in the context of x-ray imaging and microscopy. The course will include linear systems, random processes, and estimation theory. Students will gain hands-on experience in image

and signal processing through Matlab programming in class and in assignments. Prereq.: BME 40500 or (EE 25900 and EE 30600 and EE 33000). 3 hr./wk.; 3 cr.

51000: Microfluidic Devices in Microtechnology

Fundamentals of microfluidic devices with application to medical measurements, e.g., electrophoretic systems, flow cytometers, and immunoassays. Review of fundamental properties of microfluidic systems including the effects of fluid mechanics, heat transfer, and electromagnetic phenomena on biological systems. Critical overview of design, manufacture, and operation of micrometer scale systems that use photolithographic and surface treatment techniques for device development. Special projects will also be used to analyze biomedical inventions on the horizon. Prereq.: ChE 34100. 3 hrs./wk.; 3 cr.

59000: Biomedical Engineering Independent Study

An independent research and/or design project performed under the direction of a faculty mentor. At the conclusion of the project a written project report must be submitted to the undergraduate advisor. Prereq.: Formal (written) commitment of a faculty member submitted to the undergraduate advisor. Variable cr.

59100: Special Projects in Biomedical Engineering

An independent project that enables students to perform BME technical and/or professional service to the College and/or neighboring community. Students will assist faculty conducting studies related to BME education and/or training. Faculty sponsor is required. A written project report must be submitted to the sponsor at the project's conclusion. Prereq.: Written permission of instructor. 1 cr.

ENGR 30000: Social, Economic, and Cultural Impact of Biomedical Technology

This course emphasizes community health care concerns in an urban environment. It has two central themes: (a) Assessment of biomedical technology in the context of urban health needs, and (b) Social and cultural impact of biomedical technology. Prereq.: Soc 10500 or Anth 10100 or Eco 10000 or Phil 34903 or honors liberal arts course. 3 hr./wk.; 3 cr.

FACULTY

Marom Bikson, Associate Professor
B.S. (BME), Johns Hopkins Univ.; Ph.D. (BME), Case Western Reserve

Luis Cardoso, Assistant Professor

B.E. (BME), National Polytechnic Institute (Mexico); Ph.D. (ME), Univ. of Paris

Stephen C. Cowin, Distinguished Professor

B.S.E. (CE), Johns Hopkins Univ., M.S. (CE); Ph.D. (Eng. Mech.), Pennsylvania State Univ.

Susannah P. Fritton, Associate Professor

B.S. (BME), Tulane Univ., M.S., Ph.D. (BME)

Bingmei Fu, Associate Professor

B.S., Univ. of Science and Technology (China), M.Eng.; Ph.D. (BME), CUNY

Steven Nicoll, Associate Professor

B.S. (BME) Univ of Penn.; Ph.D. (BME) Univ. of California (Berkeley & San Francisco)

Lucas Parra, Professor

B.S. (Physics), Ludwig Maximilian Univ. (Germany), Ph.D. (Physics)

Mitchell B. Schaffler, Wallace Coulter and Presidential Professor

B.S. (Bio), Stony Brook Univ.; Ph.D. (Orthopaedics), West Virginia Univ.

John M. Tarbell, CUNY and Wallace Coulter Distinguished Professor and Chair

B.S. (ChE), Rutgers Univ.; Ph.D. (ChE) Univ. of Delaware

Maribel Vazquez, Associate Professor

B.S. (ME), Cornell Univ.; M.S. (ME), Massachusetts Inst. of Tech., Sc.D. (ME)

Sihong Wang, Assistant Professor

B.S. (BME), Shanghai (China); Ph.D. (BME), Univ. of Texas (Austin)

Department of Chemical Engineering

Professor Alexander Couzis, Chair • Department Office: ST 322 • Tel: 212-650-8135

GENERAL INFORMATION

The City College offers the following undergraduate degree in Chemical Engineering:

B.E. (Ch.E.)

PROGRAMS AND OBJECTIVES

Chemical engineering is a field of broad scope, encompassing many activities of immense benefit to society. It is also a field that is currently developing rapidly in many new challenging and exciting areas such as biotechnology, electronics, materials, nanotechnology, biomedical engineering, materials discovery and development, and energy sustainability to name just a few. The pace of global competition is rapidly changing the ways in which chemical engineers must carry out their traditional tasks of process research, development, design, and plant operations.

What sets chemical engineering apart from the other engineering professions is the key role played by chemistry. Chemical engineers use chemistry to transform less desirable forms of matter into those that are more desirable. Examples are transforming natural gas into ammonia and this into fertilizer and many other products or converting a residual oil in a refinery into gasoline, kerosene, and heating oil. Many of the products that we use today such as plastics, synthetic fibers, medicines, soaps, and paints are the result of these transformations. Biochemical transformations are becoming increasingly important in the production of a wide range of useful products such as antibiotics.

Transformations by chemical or biochemical reaction are not the whole

story. Products must be purified and unwanted byproducts separated for safe disposal. So separation technology is also an important aspect of chemical engineering. And both reaction systems and separations must be combined into processes in order to carry out the overall goal of converting feed materials into desirable products. This will require additional operations such as mixing, heat transfer, and materials transfer. To do this chemical engineers must have a strong background in basic science and mathematics; a thorough mastery of the relevant engineering science such as thermodynamics, heat and mass transfer, materials science, and reaction kinetics; as well as engineering economics, process safety, and process design.

A degree in chemical engineering prepares one to pursue any number of career paths. These include process research and development, product discovery and development, plant design and operation, sales and customer support, and for those so inclined, management. Chemical engineering also prepares the graduate for many other career paths such as medicine, biomedical engineering, law, government, and environmental protection.

PROGRAM EDUCATIONAL OBJECTIVES

Consistent with the mission, the following Program Educational Objectives are established to provide a quality education in chemical engineering:

- A. All graduates of the program will have a broad background in:
- (a) the principles and practice of chemical engineering,

- (b) the mathematics and science underlying these principles, and
 - (c) the history, culture, and affairs of the world that they will encounter upon graduation;
- B. All graduates will be prepared to enter the traditional areas of chemical engineering practice and related fields;
- C. All graduates of the program will have the interpersonal skills required to perform their professional duties as well as be prepared to assume leadership roles at appropriate times in their careers.

PROGRAM OUTCOMES

We expect that our students at the undergraduate level will have:

- a. an ability to apply knowledge of mathematics, science and engineering;
- b. an ability to design and conduct experiments, as well as to analyze and interpret data;
- c. an ability to design a system, component, or a process to meet desired needs;
- d. an ability to function on multidisciplinary teams;
- e. an ability to identify, formulate, and solve chemical engineering problems;
- f. an understanding of professional and ethical responsibility;
- g. an ability to communicate effectively;
- h. the broad education necessary to understand the impact of engineering solutions in a global and societal context;

- i. a recognition of the need for, and an ability to engage in, life-long learning;
- j. a knowledge of contemporary issues;
- k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

| | |
|---|-----------|
| 22900: Chemical Engineering Thermodynamics I | 3 |
| 31000: Introduction to Materials Science | 3 |
| 33000: Chemical Engineering Thermodynamics II | 3 |
| 34100: Transport Phenomena I | 3 |
| 34200: Transport Phenomena II | 3 |
| 34500: Separation Operations | 3 |
| 34600: Transport Operations | 3 |
| 34900: Probability, Statistics, and Design of Experiments | 2 |
| 36000: Chemical Engineering Science Laboratory | 2 |
| 43200: Chemical Reaction Engineering | 3 |
| 46000: Unit Operations Laboratory 2 | 2 |
| 46200: Separation Operations and Control Lab | 2 |
| 49500: Techniques of Chemical Engineering Design | 3 |
| 47900: Process Control | 3 |
| 49600: Chemical Engineering Design Project | 3 |
| Total Required Engineering Credits | 51 |

Approved Technical Electives

Except for students in the Biomedical Engineering Concentration, no more than one Biomedical Engineering course (the group denoted by ***) can be selected:

Chemical Engineering:

| | |
|--|--|
| 45200: Powder Science and Technology (3 cr.) | |
| 46700: Polymer Science and Engineering (3 cr.) | |
| 49803: Honors Research in Chemical Engineering I (3 cr.) | |
| 49903: Honors Research in Chemical Engineering II (3 cr.) | |
| 51200: Pharmaceutical Applications of Chemical Engineering (3 cr.) | |
| 54800: Computational Methods in Chemical Engineering (3 cr.) | |
| 57700: Advanced Materials Engineering (3 cr.) | |
| 58000: Bioprocess Engineering (3 cr.) | |
| 59000: Nanotechnology (3 cr.) | |
| 59802: Fluidization (3 cr.) | |

Civil Engineering:

| | |
|--|--|
| 38000: Environmental Engineering (3 cr.) | |
|--|--|

Mechanical Engineering

| | |
|----------------------------------|--|
| 53600: Energy Conversion (3 cr.) | |
|----------------------------------|--|

Engineering:

| | |
|--------------------------------------|--|
| 27600: Engineering Economics (3 cr.) | |
|--------------------------------------|--|

Biology:

| | |
|--|--|
| 32100: Introduction to Human Physiology and Biophysics (4 cr.) | |
|--|--|

Biomedical Engineering:***

| | |
|--|--|
| 50100: Cell and Tissue Mechanics (3 cr.) | |
| 50200: Cell and Tissue Transport (3 cr.) | |
| 50300: Cell and Tissue: Biomaterial Interactions (3 cr.) | |
| Other technical electives with approval of the department. | |

Total Elective Credits

9

**New transfer students who have successfully completed Calculus II (Math 20200 or 20202) should not take Engr 10300. They are required to complete an additional ChE Technical Elective course.*

***Departmental approval required.*

****Students in the Biomedical Engineering Option must take 16 Technical Elective credits (including Bio 32100, ME 50100, 50200 and 50300) for a total of 131 degree credits.*

Total Credits for Major

129–130

Additional Requirements for Graduation

Refer to the Grove School of Engineering section for details.

RECOMMENDED SEQUENCE OF COURSES

First Semester*

| |
|---|
| Math 20102: Calculus I (3 cr.) |
| Chem 10301: General Chemistry I (4 cr.) |
| Eng 11000: Freshman Composition (3 cr.) |
| Two Liberal Arts electives (6 cr.) |
| 16 Credits |

Second Semester

| |
|---|
| Math 20202: Analytical Geometry and Calculus II (3 cr.) |
| Phys 20700: General Physics I (4 cr.) |
| Chem 10401: General Chemistry II (4 cr.) |
| Engr 10300: Analysis Tools for Engineers (2 cr.) |
| One Liberal Arts elective (3 cr.) |
| 16 Credits |

Third Semester

| |
|--|
| Math 20300: Analytical Geometry and Calculus III (4 cr.) |
| Phys 20800: General Physics (4 cr.) |
| Chem 26100: Organic Chemistry I (3 cr.) |

REQUIREMENTS FOR MAJORS

All Chemical Engineering majors are required to take the following courses:

Math and Science Requirements

Chemistry:

| | |
|---------------------------------------|---|
| 10301-10401: General Chemistry* | 8 |
| 24300: Quantitative Analysis | 4 |
| 26100: Organic Chemistry I | 3 |
| 26200: Organic Chemistry Laboratory I | 2 |
| 26300: Organic Chemistry II | 3 |
| 33200: Physical Chemistry II | 3 |

Mathematics:

| | |
|---|---|
| 20102: Calculus I* | 3 |
| 20202: Calculus II* | 3 |
| 20300: Calculus III* | 4 |
| 39100: Methods of Differential Equations* | 3 |
| 39200: Linear Algebra | 3 |

Physics:

| | |
|-------------------------------|---|
| 20700-20800: General Physics* | 8 |
|-------------------------------|---|

*Minimum grade of "C" required.

Total Math and Science credits 54

English and Liberal Arts Requirements

Refer to the Grove School of Engineering section for details.

Total English and Liberal Arts credits 24

Engineering Requirements

| | |
|-------------------------------------|---|
| 10000: New Freshman Seminar | 0 |
| Engineering: | |
| 10300: Analysis Tools for Engineers | 2 |

Chemical Engineering:

| | |
|---|---|
| 22800: Introduction to Chemical Engineering Principles and Practice | 4 |
|---|---|

ChE 22800: Introduction to Chemical Engineering Principles and Practice (4 cr.)
One Liberal Arts elective (3 cr.)
18 Credits

Fourth Semester

Math 39100: Methods of Differential Equations (3 cr.)
Chem 26200: Organic Chemistry Lab I (2 cr.)
Chem 26300: Organic Chemistry II (3 cr.)
Chem 24300: Quantitative Analysis (4 cr.)
ChE 22900: Chemical Engineering Thermodynamics I (3 cr.)
One Liberal Arts elective (3 cr.)
18 Credits

Fifth Semester

Math 39200: Linear Algebra and Vector Analysis (3 cr.)
Chem 33200: Physical Chemistry II (3 cr.)
ChE 34100: Transport Phenomena I (3 cr.)
ChE 33000: Chemical Engineering Thermodynamics II (3 cr.)
ChE 34900: Probability, Statistics, and Design of Experiments (2 cr.)
Engl 21007: Writing for Engineers (3 cr.)
17 Credits

Sixth Semester

ChE 31000: Introduction to Materials Science (3 cr.)
ChE 36000: Chemical Engineering Science Lab (2 cr.)
ChE 34200: Transport Phenomena II (3 cr.)
ChE 34500: Separation Operations (3 cr.)
ChE 34600: Transport Operations (3 cr.)
14 Credits

Seventh Semester

ChE 43200: Chemical Reactions (3 cr.)
ChE 46000: Transport Operations Lab (2 cr.)
ChE 47900: Process Control (3 cr.)
ChE 49500: Techniques of Chemical Engineering Design (3 cr.)
One Technical elective (3 cr.)
One Liberal Arts elective (3 cr.)
17 Credits

Eighth Semester

ChE 46200: Separation Operations and Control Lab (2 cr.)

ChE 49600: Chemical Engineering Design Project (3 cr.)
Three Technical electives (9 cr.)
14 Credits

ADVISEMENT

All full-time faculty serve as undergraduate advisors. The department also maintains a permanent staff member with responsibility to facilitate the advisement process.

COURSE DESCRIPTIONS

22800: Introduction to Chemical Engineering Principles and Practices

Introduction to the techniques of chemical engineering. Basic calculations. Conservation of mass and the use of material balances. Major equipment types: functionality and linear models. Linear material balances for recycle processes. First law of thermodynamics and the use of energy balances. Reaction stoichiometry and energetics. Prereq.: Chem 10401; pre- or coreq.: Math 20300.4 hr./wk.; 3 cr.

22900: Chemical Engineering Thermodynamics I

Basic concepts and definitions. Energy and the first law. Entropy and the second law. Pure component thermodynamics and the fundamental property relation. Thermodynamics of processes. Availability. Physical Equilibrium. Introduction to microscopic thermodynamics. The third law. Prereq.: ChE 10401, Phys 20700, Math 39100. 3 hr./wk.; 3 cr.

31000: Introduction to Materials Science

Basic concepts in the behavior of solid materials. Atomic bonding; crystal structure; crystal defects; alloys; insulators; metals. Mechanisms of corrosion; selection of materials of construction. Prereq.: ChE 22900; pre- or coreq.: Chem 34100. 3 hr./wk.; 3 cr.

33000: Chemical Engineering Thermodynamics II

Partial molar quantities. Thermodynamics of solutions. Activities and fugacities. Modeling of thermodynamic parameters. Chemical reaction equilibrium. The free energy minimization procedure for complex chemical reactions. Prereq.: ChE 22900, Math 39100. 2 hr./wk.; 2 cr.

34100: Transport Phenomena I

Introduction to the continuum theories of the transport of momentum, energy, and matter. Equations of continuity, motion, and energy for steady and unsteady state. Fluid mechanics, Navier-Stokes equations, boundary-layer theory, integral methods.

Turbulent flow. Prereq.: ChE 22900, Math 39100 (min. C grade). 3 hr./wk.; 3 cr.

34200: Transport Phenomena II

Applications of the equations of change to heat and mass transport. Analytical and numerical methods in the analysis of heat conduction. Diffusion in binary and multi-component mixtures. Heat and mass transfer in laminar and turbulent flow. Radiant heat transfer. Interphase transfer. Prereq.: ChE 34100, Math 39200. 3 hr./wk.; 3 cr.

34500: Unit Operations I

Principles of single-stage and multi-stage contacting equipment. Phase equilibrium and phase diagrams. Analytical and graphical solutions to steady and unsteady state problems applied to liquid extraction, distillation, gas absorption, stripping, and other stage operations for binary and multi-component systems. Prereq: ChE 22800; pre- or coreq.: ChE 33000; ChE 34200. 3 hr./wk.; 3 cr.

34600: Unit Operations II

Flow through pipes, packed and fluidized beds, and filtration equipment. Design of flow systems with non-Newtonian fluids and compressible flows. Design of continuous contacting equipment for heat and mass transfer; heat exchangers, packed towers. Prereq.: ChE 34100; pre- or coreq.: ChE 34200. 3 hr./wk.; 3 cr.

34900: Probability, Statistics, and Design of Experiments

The concept of probability. Probability distributions. Sampling. Testing of hypotheses. Linear regression. Analysis of variance. Design of experiments. Application to process modeling, reliability theory, and interpretation of experimental data. Prereq.: Phys 20800, coreq.: Math 39200. 3 hr./wk.; 3 cr.

36000: Chemical Engineering Science Laboratory

Quantitative laboratory studies and measurements of a heat of combustion; gas, liquid and solid physical and transport properties and vapor-liquid equilibrium. The development of technical report writing skills, including the presentation and interpretation of experimental data, are stress. Prereq.: Chem 33000 or ChE 33000; coreq.: ChE 34600. 5 hr./wk.; 2 cr.

43200: Chemical Reaction Engineering

Reaction kinetics, order of reaction, theory of absolute reaction rates. Reactor analysis and design, homogeneous batch, flow, and semibatch reactors. Catalysis, reactions of heterogeneous systems, heat- and mass-transfer effects. Examples from chemical and petrochemical industries. Prereq.: ChE 34200, ChE 33000. 3 hr./wk.; 3 cr.

45200: Powder Science and Technology

Characterization of particles and particle assemblies; packing of granular solids; powder mechanics and the design of hoppers; inter-particle forces and tribology in particulate systems. Bulk powder processing: mixing, separation, agglomeration, comminution, conveying and storing. Prereq.: ChE 34200, ChE 34600. 3 hr./wk.; 3 cr.

46000: Unit Operations Laboratory I

Quantitative laboratory studies of fluid flow, mixing, filtration, heat transfer. Steady and unsteady state studies using bench scale and plant equipment. Required reports include interpretation of experimental data and analysis of errors. Prereq.: ChE 34600; ChE 36000. 5 lab hr./wk.; 2 cr.

46200: Unit Operations and Process Control Laboratory II

A continuation of ChE 46000. Diffusional processes; absorption, distillation, drying; advanced heat transfer; process control. Reports emphasize proper presentation and interpretation of laboratory data. Prereq.: ChE 34500, ChE 34600, ChE 46000, ChE 47900. 5 lab hr./wk.; 2 cr.

46700: Polymer Science and Engineering

The chemistry and physics of polymeric materials. The kinetics and control of polymerization reactions. Analysis of the mechanical and flow behavior of polymeric solids and melts. Thermodynamics of polymer solutions. Prereq.: Chem 26300, ChE 33200. 3 hr./wk.; 3 cr.

47900: Chemical Process Dynamics and Control

Process dynamics and modeling. Measurement instrumentation, final control elements, and controllers. Linearization, Laplace transforms, and transfer functions. Frequency response. Stability analysis. Design of single-input, single-output controllers. Dynamic simulation. Interaction and multivariable control. Plant-wide control. Prereq.: ChE 34500, ChE 34600; pre- or coreq.: ChE 43200. 3 hr./wk.; 3 cr.

49500: Techniques of Chemical Engineering Design

Cost estimation and profitability analysis. Douglas' hierarchical decision approach to conceptual design. Economic evaluation of process alternatives. Flowsheet simulation using ASPEN. Process operability analysis of the impact of control strategy, hazard and safety considerations, environmental constraints, and startup and operations on plant design. Prereq.: ChE 22800, ChE 33000, ChE 34500, ChE 34600; pre- or coreq.: ChE 43200, ChE 47900. 4 design hr./wk.; 3 cr.

49600: Chemical Engineering Design Project

Design of a chemical plant as the capstone design project. Students select process routes for the manufacture of a designated product and carry the design from the conceptual stage through a developmental design and an operability analysis. CAD. Professional ethics. Prereq.: ChE 43200, ChE 47900, ChE 49500. 4 design hr./wk.; 3 cr.

49803: Honors Research in Chemical Engineering I

Topics chosen for their particular or current interest to undergraduate students who wish to prepare for graduate studies. Each student works with a single professor. Prereq.: approval of the department. 3 cr.

49808: Nanomaterials

Basic concepts and definitions of nanomaterials. Synthesis of nanoparticles and carbon nanotubes. Properties of nanomaterials based on quantum-confinement and surface-to-volume ratio. Scanning and electron probe technology for nanomaterials characterization. Application of nanomaterials. Societal impact of nanotechnology. Prereq.: Chem 10301, Phys 20800. 3 hr./wk.; 3 cr.

49812: Energy Systems Engineering for Global Sustainability

This course is intended to provide students with the background and tools to analyze energy choices for the future. World energy supplies, demand, and trends. The politics of energy. The scientific basis for anthropogenic global warming and its impact on climate and planetary ecosystems. Characterization and analysis of conventional sources of energy and fuels production including combined-cycle systems from both thermodynamic and environmental points of view. Alternate sources of power including nuclear, wind farms, solar (both photovoltaic and thermal), and biomass. Energy consumption by the transportation, manufacturing, and space heating and cooling segments of the economy. Societal barriers such as denial, lock-in, and NIMBY. Prereq.: ChE 22900 or Engr 23000 or CHEM 33000. 3 hr./wk.; 3 cr.

49903: Honors Research in Chemical Engineering II

A continuation of ChE 49802-49803. Prereq.: Approval of the department. 3 cr.

51200: Pharmaceutical Applications of Chemical Engineering

Topics in controlled drug delivery: design of devices, commercial successes and failures, mechanisms of release devices as well as relevant background in mass transfer, structure and design of materials, electrical devices, and pharmacokinetics are also

addressed. Prereq.: at least one junior level course in one of the engineering disciplines. 3 hr./wk.; 3 cr.

54800: Computational Methods in Chemical Engineering

Concept of error; roots of implicit equations; interpolation of data; approximation of functions; numerical quadrature: Newton-Cotes, Gaussian extrapolation methods; numerical solution of ODE's: Lipschitz condition. Euler, Multistep, Runge-Kutta methods; numerical solution of simultaneous linear equations; calculation of eigenvalues. Issues of convergence, stability, and error. Prereq.: Math 39200, ChE 33000, ChE 34200 and ChE 43000. 3 class, 1 rec. hr./wk.; 3 cr.

57700: Advanced Materials Engineering

The "structure-property-processing" interrelationship. Review of the crystal structures of metals, ceramics, semiconductors and polymers. Thermodynamics of materials. Rate processes in solids. Materials properties: thermal, electromagnetic, optical and dielectric. Material synthesis; basis of nanotechnology, semiconductor processing, and polymer synthesis. Prereq.: ChE 31000 or Chem 33200 or Phys 32100 and/or permission of instructor. 3 hr./wk.; 3 cr.

58000: Bioprocess Engineering

Introduction to the production of chemicals by microorganisms. Basics of biochemistry and cell structure with emphasis on prokaryotic microbes. Enzymes and their biotechnological uses. Introduction to recombinant DNA technology and genomics. Operation, design and scale-up of bioreactors. Selection, design and scale-up of separation and purification equipment. Safety considerations. Prereq.: ChE 34500, ChE 34600, Chem 26100; Pre- or coreq.: ChE 49500, 3 hr./wk.; 3 cr.

59000: Nanotechnology

Introduction to nanotechnology and its applications in the development and synthesis of soft materials. Prereq.: ChE 33000, ChE 34600, Chem 33200. 3 hr./wk.; 3 cr.

59802: Fluidization

The theory and practice of fluidization; general behavior of fluidized beds both static and flowing, mass transfer and heat transfer, modeling of chemical reactions in fluidized beds. Prereq.: ChE 34100, ChE 34200, ChE 34600. 3 hr./wk.; 3 cr.

FACULTY**Sanjoy Banerjee, Distinguished Professor**

B.S. (Ch. E.), Indian Institute of Technology; Ph.D., (Ch.E.) University of Waterloo (Canada)

**Alexander Couzis, Herbert G. Kayser
Professor and Chair**

B.S. (Ch.E.), National Technical Univ. (Greece); M.S., (Ch.E.) Univ. of Michigan, Ph.D (Ch.E.)

**Morton Denn, Distinguished
Professor and Albert Einstein
Professor of Science and Engineering**

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**M. Lane Gilchrist, Jr., Assistant
Professor**

B.Ch.E., Louisiana State Univ.; Ph.D., Univ. Of California (Davis)

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Diploma (Chemistry), Technical Univ. of Berlin, Sc.D.

Jae W. Lee, Assistant Professor

B.S. (Ch.E.), Seoul National Univ.; Ph.D., Carnegie Mellon Univ.

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B.S. (Ch.E.), Columbia Univ., M.S.(Ch.E.), D.Eng.Sc.(Ch.E.)

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PROFESSORS EMERITI**Andreas Acrivos, Albert Einstein
Professor Emeritus**

Robert A. Graff

Morris Kolodney

Harvey L. List

Robert Pfeffer

Reuel Shinnar

Herbert Weinstein

Department of Civil Engineering

Professor John Fillos, Chair • Department Office: ST 119 • Tel: 212-650-8000

GENERAL INFORMATION

The City College offers the following undergraduate degree in Civil Engineering:

B.E. (C.E.)

PROGRAMS AND OBJECTIVES

Civil engineers design, build, and manage the infrastructure of civilization, which includes buildings, bridges, highways, water supply systems, and other public works. These services are the cornerstone of the discipline, although no longer the limiting scope.

A civil engineering background provides a broad-based education that can be applied to many areas of interest within both the private and public sectors. In addition to the traditional engineering practice involving the design and construction of buildings and bridges using conventional materials, experience in new construction technology has led many civil engineers to obtain employment in areas as varied as the aerospace, computer and biomedical fields. No longer a matter of simply building roadways, transportation engineering now develops systems to move people and products with previously unforeseen efficiency using advanced computer and monitoring technology. Environmental engineering, once limited to the construction and maintenance of water quality and waste management systems, is now an integral part of world-wide efforts to preserve and restore the health and welfare of our air, land and water resources.

Civil engineers start their professional employment in any number of positions at organizations ranging from small consulting firms to large

contractors and government agencies. It is not uncommon for the civil engineer to begin at the analysis and design level, and achieve in time managerial positions overseeing projects with enormous regional and national economic impact. Alternatively, the civil engineering curriculum enables graduates to pursue careers in other fields such as medicine, law and business administration.

To pursue any of these objectives, the curriculum offers three options: Environmental/Water Resources; Structural and Construction Engineering; and Transportation Engineering.

MISSION

The mission of the Department of Civil Engineering at The City College of New York, inspired by a tradition of access and excellence, is to educate and prepare students to be leaders in the civil engineering profession as practicing engineers, researchers, or educators. The Department will continue its tradition of educating students of diverse backgrounds, including traditionally underrepresented minorities and women. The Department also commits itself to maintaining a diverse faculty of scholastic excellence and dedication to the highest quality education.

PROGRAM EDUCATIONAL OBJECTIVES

Consistent with the Civil Engineering mission, the following educational objectives are proposed to provide a quality education in Civil Engineering, balancing practice and theory. The graduate of the Civil Engineering Program should have:

- a. The technical, scientific, and analytical skills necessary to succeed in the civil engineering profession.
- b. The critical thinking and effective communication skills necessary to succeed professionally.
- c. An understanding of ethical, economic, social, and environmental issues including how the civil engineering practice affects them.
- d. The capability and desire to pursue advanced degrees and lifelong learning.
- e. Consistent with its broader mission, the Civil Engineering Department has the following additional objectives:
- f. To develop instructional and research collaborations with stakeholders.
- g. To conduct research in areas of local, national, and global importance.
- h. To serve the community and the civil engineering profession.
- i. To improve access for an increasingly diverse student body.

PROGRAM OUTCOMES

The Program Educational Objectives listed above are the basis for the following Program Outcomes expected of all graduates receiving the B.E. (C.E.) degree:

- a. an ability to apply knowledge of mathematics, science and engineering;
- b. an ability to design and conduct experiments, as well as to analyze and interpret data;
- c. an ability to design a system, component, or a process to meet desired needs within realistic

- constraints such as economic, environmental, social, political, ethical, health and safety, constructability, and sustainability;
- an ability to function on multi-disciplinary teams;
 - an ability to identify, formulate, and solve civil engineering problems;
 - an understanding of professional and ethical responsibility;
 - an ability to communicate effectively;
 - the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context;
 - a recognition of the need for, and an ability to engage in life-long learning;
 - a knowledge of contemporary issues;
 - an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

GENERAL REQUIREMENTS

Prerequisite to any Civil Engineering course is a passing grade in CUNY/ACT Basic Skills tests in Reading and Writing and CUNY Skills Assessment Test (SKAT) in Mathematics. Students wishing to take Engineering Electives other than those listed below must obtain permission in writing from the department advisor and the Associate Dean for Undergraduate Affairs.

REQUIREMENTS FOR MAJORS

All Civil Engineering majors must complete the following:

Math and Science Requirements

Chemistry:
10301-10401: General Chemistry* 8

Computer Science:

10200: Introduction to Computing 3

Mathematics:

20100: Calculus I* 3

20200: Calculus II* 3

20300: Calculus III* 4

39100: Methods of Differential Equations* 3

39200: Linear Algebra and Vector Analysis for Engineers 3

Physics:

20700-20800: General Physics* 8

Science: 3

Choose one of the following:

EAS 32800: Global Environmental Hazards (3 cr.)

BIO 35000: Microbiology (3 cr.)

Other elective (with permission of advisor)

Total Math and Science Credits 38

*Minimum grade of "C" required.

English and Liberal Arts (General Education) Requirements

Refer to the Grove School of Engineering section for details.

Total English and Liberal Arts (General Education) Credits 24

Engineering Requirements

Engineering:

10100: Engineering Design I 1

One of the following two: 3

20400: Electrical Circuits (3 cr.)

23000: Thermodynamics (3 cr.)

Civil Engineering:

20900: Structural and Site Plans 3

23100: Introduction to Structural Mechanics** 3

26400: Civil Engineering Data Analysis 3

31600: Civil Engineering Decision and Systems Analysis 3

32600: Transportation Planning 3

32700: Transportation Systems Engineering 3

33200: Mechanics of Deformable Bodies 4

33500: Computational Methods in CE 3

34000: Structural Analysis 3

34500: Soil Mechanics 3

35000: Fluid Mechanics** 3

36500: Hydrology and Hydraulic Engineering 3

37200: Environmental Impact Assessment 3

40100: Review of Engineering Fundamentals 1

40500: Civil Engineering Management 3

43500: Dynamics of Civil

Engineering Systems 3

44100: Reinforced Concrete 3

47400: Environmental Engineering 3

50900: Senior Design Project 3

Total Required Engineering Credits 60

*New Transfer students who have successfully completed Calculus II (Math 20200) should not take Engr 10100. They are required to complete an additional CE course.

**Minimum grade of "C" required.

Fields of Specialization

All Civil Engineering majors must complete 12 credits in one of the fields of specialization.

Environmental/Water Resources

Specialization Core 6

Civil Engineering:

45100: Environmental Water Resources (3 cr.)

48200: Environmental Engineering II (3 cr.)

Specialization Electives 6

Civil Engineering:

51003: Independent Study* (3 cr.)

57100: Water Quality Analysis (3 cr.)

Biology:

35000: Microbiology (3 cr.)

Chemistry:

26100: Organic Chemistry I (3 cr.)

Structural and Construction Engineering

Specialization Core 6

Civil Engineering:

44000: Finite Element Analysis of Structures (3 cr.)

44200: Structural Design (3 cr.)

Specialization Electives 6

Civil Engineering:

51003: Independent Study* (3 cr.)

53000: Advanced Strength of Materials (3 cr.)

55000: Advanced Reinforced Concrete (3 cr.)

59000: Foundation Engineering (3 cr.)

Mechanical Engineering:

46100: Engineering Materials (3 cr.)

Transportation Engineering

Specialization Core 6

Civil Engineering:

52000: Traffic Engineering (3 cr.)

54000: Highway Engineering (3 cr.)

Specialization Design Electives 6

Civil Engineering:

50500: Construction Project Management (3 cr.)
 51003: Independent Study* (3 cr.)
 52500: Geometric Design of Facilities (3 cr.)
 52600: Rail System Design (3 cr.)
 54100: Highway and Airport Construction (3 cr.)
 59000: Foundation Engineering (3 cr.)
 54500: Urban Transportation (3 cr.)
 Earth and Atmospheric Science:
 34500: Hydrology (3 cr.)

*Departmental approval required.

Total Credits for Major 134

Additional Requirements for Graduation

Refer to the Grove School of Engineering section for details.

RECOMMENDED SEQUENCE OF COURSES**First Semester***

Math 20100: Calculus I (3 cr.)
 Chem 10301: General Chemistry I (4 cr.)
 Engr 10100: Engineering Design I (1 cr.)
 Eng 11000: Freshman Composition (3 cr.)
 Two Liberal Arts courses (6 cr.)
17 Credits

Second Semester

Math 20202: Calculus II (3 cr.)
 Phys 20700: General Physics I (4 cr.)
 Chem 10401: General Chemistry II (4 cr.)
 CSc 10200: Introduction to Computing (3 cr.)
 Engl 21007: Writing for Engineering (3 cr.)
17 Credits

Third Semester

Math 20300: Calculus III (4 cr.)
 CE 23100: Introduction to Structural Mechanics (3 cr.)
 CE 26400: Civil Engineering Data Analysis (3 cr.)
 Phys 20800: General Physics II (4 cr.)
 CE 20900: Structural and Site Plans (3 cr.)
17 credits

Fourth Semester

Math 39100: Methods of Differential Equations (3 cr.)
 CE 33200: Mechanics of Deformable Bodies (4 cr.)

CE 35000: Fluid Mechanics (3 cr.)
 CE 37200: Environmental Impact Assessment (3 cr.)
 Science Elective (3 cr.)

16 Credits**Fifth Semester**

Math 39200: Linear Algebra and Vector Analysis for Engineers (3 cr.)
 CE 33500: Computational Methods in CE (3 cr.)
 CE 34000: Structural Analysis (3 cr.)
 CE 36500: Hydrology and Hydraulic Engineering (3 cr.)
 CE 32600: Transportation Planning (3 cr.)
 Liberal Arts course (3 cr.)

18 Credits**Sixth Semester**

CE 31600: Civil Engineering Decision and Systems Analysis (3 cr.)
 CE 34500: Soil Mechanics (3 cr.)
 CE 32700: Transportation Systems Engineering (3 cr.)
 CE 44100: Reinforced Concrete (3 cr.)
 Engineering Science Elective (3 cr.)
 Liberal Arts course (3 cr.)

18 Credits**Seventh Semester**

CE 40500: Civil Engineering Management (3 cr.)
 CE 43500: Dynamics of Civil Engineering Systems (3 cr.)
 CE 47400: Environmental Engineering (3 cr.)
 Two Specialization Elective courses (6 cr.)
 Liberal Arts course (3 cr.)

18 Credits**Eighth Semester**

CE 50900: Senior Design Project (3 cr.)
 CE 401: Review of Engineering Fundamentals (1 cr.)
 Two Specialization Elective courses (6 cr.)
 Liberal Arts course (3 cr.)

13 Credits**ADVISEMENT**

All full-time faculty serve as undergraduate advisors. In particular the following faculty serve as program advisors and transfer credit evaluators:

Professor V. Diyamandoglu

Environmental/Water Resources

Professor M. Ghosn

Structural and Construction Engineering

Professor C. McKnight

Transportation Engineering

COURSE DESCRIPTIONS**20900: Structural and Site Plans**

Graphical methods of conveying ideas and information related to civil engineering projects. Functional planning. Structural plans and details in steel and concrete. Topographic mapping. Earthwork projects. Prereq.: CSc 10200 and passing grades in all three CUNY/ACT; pre- or coreq.: Math 20300 (min. C grade). 4 hr./wk.; 3 cr.

23100: Introduction to Structural Mechanics

Laws of motion and equilibrium. Elements of vector algebra. Equilibrium of rigid bodies. Constraints, and reactions. Equilibrium of machines and hinged frames. Internal forces in trusses and beams. Shear and bending moment diagrams. Analysis of cable systems. Friction. Centroid and centers of gravity. Moments of inertia. Work and virtual work. Stability of equilibrium. Prereq.: Physics 20700 (min. C grade), CSc 10200 and passing grades in all three CUNY/ACT; Math 20200 (min. C grade). 3 hr./wk.; 3 cr.

26400: Civil Engineering Data Analysis

Role of statistics and probability in civil engineering. Measurability and variability. Data collection. Descriptive analysis. Presentation of data in the context of civil engineering. Numerical descriptive statistics. Probability distributions and their application to civil engineering. Introduction to inferential statistics. Applications of civil engineering quality control. Linear correlation and regression analysis. Prereq.: CSc 10200 and passing grades in all three CUNY/ACT; pre- or coreq.: Math 20300 (min C grade), Engl 21007. 2 class, 3 lab hr./wk.; 3 cr.

31600: Civil Engineering Decision and Systems Analysis

Civil Engineering systems analysis. Modeling and optimization of large scale CE systems, including structural, hydraulic, environmental and transportation systems, and construction projects. Economic evaluation of engineering projects. Decisions under uncertainty. Design as multi-dimensional resource allocation. Scheduling models. Applications to management and planning. Computer applications. Prereqs: CE 26400, 33500, Math 39200. 3 hr./wk.; 3 cr.

32600: Transportation Planning

Introduction to transportation planning concepts and methods. Travel demand

forecasting. Transportation economics. Quantitative techniques in transportation planning: discrete choice models, regression methods and optimization techniques. Societal impacts including environmental, land use, safety and quality of life issues. Project evaluation. Prereq: CE 26400; Pre- or co-req: CE 33500. 3 hr./wk.; 3 cr.

32700: Transportation Systems Engineering

Principles and practice of transportation engineering. Introduction to traffic engineering. Design, constructibility and maintenance needs of highways, streets, rails, airports, transit, waterways and intermodal facilities. Introduction to latest technologies in transportation systems. Pre-req: CE 26400; Pre- or co-req: CE 34500. 3 hr./wk.; 3 cr.

33200: Mechanics of Deformable Bodies

Stresses and strains in elastic and inelastic materials subjected to axial, torsional, and flexural loads and combinations of loads for statically determinate and indeterminate configurations. Deformations and deflections due to loads and temperature. Combined stresses. Mohr circles and principal stresses. Introduction to energy methods. Castigliano's theorem. Stability of columns and critical loads. Testing of engineering materials. Stress-strain characteristics, including creep, shrinkage and hysteresis effects. Effects of temperature and impact loading on material properties. Prereq.: CE 23100 (min. C grade); pre- or coreq.: CE 26400, Math 39100 (min. C grade). 3 class, 2 lab hr./wk.; 4 cr.

33500: Computational Methods in Civil Engineering

Algorithmic formulation of the solution to civil engineering problems. Flowcharts. Solutions to algebraic and differential equations common to civil engineering. Matrix problems. Differentiation and integration. Optimization problems. Students will primarily use microcomputers and a programming language, spreadsheets and "macros" and symbolic calculations software. Prereq.: CSc 10200, CE 26400, Math 39100 (min. C grade); pre- or coreq.: CE 33200, Math 39200. 2 class, 3 lab hr./wk.; 3 cr.

34000: Structural Analysis

Loading systems. Structural determinacy, indeterminacy and stability. Analysis of two and three dimensional trusses and frames. Influence lines. Structural deflections. Methods of solving statically indeterminate structures. Introduction to structural safety and redundancy. Computer applications. Prereq.: CE 20900, CE 33200; pre- or coreq.: CE 33500, Math 39200. 2 class, 3 design hr./wk.; 3 cr.

34500: Soil Mechanics

Introduction to geotechnical engineering. Index properties and classification of soils. Compaction. Mohr circles and failure theories of soils. Permeability, seepage and effective stresses. Consolidation. Drained and undrained shear strength. Stresses due to surface loads. Bearing capacity of footings. Lateral earth pressure. Introduction to slope stability. Testing of soils. Prereq.: CE 26400, CE 33200, CE 35000 (min. C grade). 2 class, 3 lab hr./wk.; 3 cr.

35000: Fluid Mechanics

Study of behavior of viscous and non-viscous fluids at rest and in motion through development and application of the principles of fluid statics, continuity, energy, momentum, similitude, and dimensional analysis. Applications include flow in open and closed conduits, the boundary layer, dynamics of drag and measurement of velocity and discharge. Prereq.: CE 23100 (min. C grade), CSc 10200; pre- or coreq.: Math 39100 (min. C grade). 3 hr./wk.; 3 cr.

36500: Hydrology and Hydraulic Engineering

Conservation of mass, energy, and momentum in hydraulic systems. Pipe networks and reservoir systems. Pumps and turbines. Uniform and non-uniform flow principles. Hydraulic jump. Introduction to hydrology, hydrograph, peak discharges, and runoff computation and design. Computer applications in hydraulics and hydrology. Prereq: CE 35000 (minimum grade of C), 2 class, 3 lab hr./wk.; 3 cr.

37200: Environmental Impact Assessment

Human and environmental impact assessment of engineering projects. Structure of the natural environment: atmosphere, soil, surface and ground water. Environmental pollutants: air, noise, water, solid waste. Effects of pollutants on humans and ecology. Federal regulations. Transport and transformation of pollutants in the environment. Prereq: CE 26400, Chem 10401 (minimum grade of C), Pre- or coreq: CE 35000. 3 hrs./wk.; 3 cr.

40100: Review of Engineering Fundamentals

Review of core requirements including: engineering math, chemistry, computational methods, economics and ethics. Review of civil engineering fundamentals including statics, dynamics, strength of materials and fluid mechanics. General engineering fundamentals including: Material science, thermodynamics and electrical circuits. Testing of student competence in all these topics. The course will be offered on a Pass/Fail basis. Prereq.: upper junior or senior standing. 4.5 hr./wk for 10 weeks.; 1 cr.

40500: Civil Engineering Management

Introduction to civil engineering management. Development of a project team for effective delivery; project delivery roles. Roles, rights and obligations of civil engineers. Ethical and professional responsibilities of civil engineers. Project life cycle analysis Project costs and financing. Project administration; change orders, claims and dispute resolution. Group project. Prereqs: CE 34000, 31600. 3 hr./wk.; 3 cr.

43500: Dynamics of Civil Engineering Systems

Kinematics and kinetics of particles. Work-energy and impulse momentum principles. Systems of particles. Kinematics of rigid bodies. Plane motion of rigid bodies. Introduction to vibration of structures: Free and forced vibration, undamped and damped motion. Response to harmonic and arbitrary loading. Earthquake response spectra. Equivalent lateral load analysis and design using Uniform Building Code criteria. Prereq.: CE 33200, CE 33500, Math 39200. 3 hr./wk.; 3 cr.

44000: Finite Element Analysis of Structures

Review of basic concepts of structural analysis. Energy methods. Stiffness & flexibility methods. Fundamentals of Finite Element Method. Uniaxial and beam elements. Analysis of trusses and frames. Plane stress and plane strain elements. Computer applications. Prereq.: CE 33500, CE 34000, Math 39200. 2 class, 3 design hr./wk.; 3 cr.

44100: Reinforced Concrete

Principles of reinforced concrete design. Proportioning concrete mixes. Safety factors as influenced by uncertainties in the design and construction processes and as they relate to public safety. Design of singly and doubly reinforced beams, T-beams, and one-way slabs. Cracking, deflection and serviceability criteria. Design of columns subjected to combined axial load and bending. Prereq.: CE 26400, CE 34000. 2 class, 3 design hr./wk.; 3 cr.

44200: Structural Design

Analysis and design of beams, girders, tension and compression members, and other components of structural frames. Rational basis of safety factors and specifications and their public safety ramifications. Load and Resistance Factor Design. Prereq.: CE 26400, CE 34000. 2 class, 3 design hr./wk.; 3 cr.

45100: Environmental Water Resources

Water and water pollution in the natural world. The hydrologic cycle. Atmospheric, surface and subsurface water. Hydrographs, unit hydrographs and flow routing. Mechanisms of contaminant transport.

Sources and remediation of water pollution. Pollution in surface and groundwater. Design problems. Prereq.: CE 35000 (min. C grade), CE 36500. 3 hr./wk.; 3 cr.

47400: Environmental Engineering

Physical, chemical and microbiological characterization of water, wastewater and air quality. Remediation objectives and regulatory constraints. Conventional unit operations and processes for potable water, domestic wastewater and air quality control. Handling of process sidestreams. Prereq: CE 36500 and CE 37200. 2 lect. hrs, 3 lab hr./wk.; 3 cr.

48200: Environmental Engineering II

Determination of design parameters and preliminary design of conventional water and wastewater treatment operations and processes using bench-scale experiments and commercially available computer software. The topics include aeration, sedimentation (flocculant and hindered), disinfection chemistry and kinetics, activated carbon adsorption for removal of soluble organics, precipitation and ion-exchange for hardness removal of domestic wastewaters for carbon removal. Prereq.: CE 47400. 2 class, 3 design hr./wk.; 3 cr.

50500: Construction Project Management

Overview of the project management cycle; anatomy of a project from briefing and conception to commissioning and operations; phase out. Project funding and cash flow. Construction planning, project scheduling and site control. The construction management process; interactive roles of promoter, engineer/architect and builder/contractor. Computer applications using Primavera Project Planning software. Prereq.: CE 33500. 3 hr./wk.; 3 cr.

50900: Senior Design Project

Major culminating design experience emphasizing multi- and interdisciplinary collaboration, and incorporating engineering standards and realistic constraints that include the following considerations: economic, financial, environmental, sustainability, constructability, ethical, health and safety, social and political. Prereq.: CE 32600, CE 32700, CE 47400 and CE 44100. 5 design hrs/3 cr.

51000: Independent Study

The student will pursue a program of independent study under the direction of a full-time faculty member of the department with the approval of the undergraduate advisor. The program may consist of an extensive design project, an experimental investigation, or an analytical study. A final engineering report describing the work done and the outcomes must be submitted to the Department at the end of the study. Prereq.: departmental approval. 3 cr.

52000: Traffic Engineering

Analysis of road user, vehicle and roadway characteristics as they affect the traffic engineering function. Traffic studies, capacity and level of service analysis, traffic control and intersection design. Prereq.: CE 32600 and CE 32700. 3 hr./wk.; 3 cr.

52500: Geometric Design of Facilities

Functional design of traffic facilities including plans and profiles, intersection and other interchange areas, parking, etc. Computer aided design methods and procedures using Eagle Point and PDS interfacing AUTOCAD. Prereq.: CE 32700. 3 hr./wk.; 3 cr.

52600: Rail System Design

Design of light and heavy rail facilities for passenger and freight operations. Track structure. Alternative technologies for construction, guidance and communications. Maintenance of way. Prereq.: CE 32700. 3 hr./wk.; 3 cr.

53000: Advanced Strength of Materials

Introduction to elements of elasticity including basic ideas of stress, strain, and constitutive relations. Theories of failure and fracture. Analysis of unsymmetrical bending. Shear center and shear flow. Torsion. Twisting of thin-walled sections. Buckling criteria. Prereq.: CE 33200, CE 33500, Math 39200. 3 hr./wk.; 3 cr.

54000: Highway Engineering

The design of highway alignment and route location. Basic elements of highway design, including pavement type, earthwork and drainage. Importance and consequences of maintenance and engineering economics; life-cycle cost analysis. Prereq.: CE 32600 and CE 32700. 3 hr./wk.; 3 cr.

54100: Highway and Airport Construction

Overview of highway and airport engineering and construction; highways vs. airports; urban vs. rural highways. Construction planning, organization and cost estimating; construction scheduling using computer packages, e.g., Primavera; construction tracking. Construction operations: mobilization, removal, disposal, placement; management of equipment, material, labor, money; cash flow accounting. Construction specifications: quality assurance/quality control (QA/QC); investigation of environmental impacts and mitigation measures. Site investigation and project preparation. Prereq.: CE 32600 and CE 32700. 3 hr./wk.; 3 cr.

54500: Urban Transportation

Historical development of urban transportation. Alternative modal operating characteristics, capacity and productivity. Societal goals, costs, financing, and current issues. Conventional public transit

for hire modes, U.S. and other countries. Prereq.: CE 32600. 3 hr./wk.; 3 cr.

55000: Advanced Reinforced Concrete

Mechanical properties of reinforced concrete materials including shrinkage, and creep. Ultimate load theory and ultimate strength design. Moment-curvature and load-deflection relationships. Columns subjected to biaxial bending. Combined shear and torsion. Design of flat plates and two-way slabs. Yield line theory. Prereq.: CE 33500, CE 44100. 3 hr./wk.; 3 cr.

57100: Water Quality Analysis

Acid-base titration curves and acid-base indicators, alkalinity and the carbonate system, buffer intensity and design, optical methods of analysis, the spectrophotometer and Beer's law, colorimetric analysis of phosphate, colorimetric analysis of ammonia, chelation analysis of iron, calcium carbonate equilibria, solubility product determination, Chemical Oxygen Demand, determination of forms of aqueous chlorine, reactions of aqueous chlorine with ammonia, adsorption on activated carbon, kinetics of ferrous iron oxidation. Prereq.: CE 474000. 2 class, 2 lab hr./wk.; 3 cr.

59000: Foundation Engineering

Soil exploration and sampling. Engineering properties of soils. Bearing capacity and settlement of foundations. Beams on elastic foundation. Design of footings and mats. Bearing capacity and settlement of piles and pile groups. Analysis of pile-raft foundations. Design of retaining structures. Slope stability. Prereq.: CE 33500, CE 34500. 3 hr./wk.; 3 cr.

59800: Topics in Civil Engineering*

Topics chosen for their particular or current interest to undergraduate students. Prereq.: departmental approval. 3 hr./wk.; 3 cr.

59900: Topics in Civil Engineering Design*

Topics chosen for their particular or current interest to undergraduate students. Prereq.: departmental approval. 2 class, 3 design hr./wk.; 3 cr.

**Various courses designated CE 59800 and CE 59900 will be offered whenever there is sufficient student demand as evidenced by pre-registration forms or petitions.*

FACULTY

Anil Agrawal, Professor

B.Tech. (C.E.), IIT (India); M.Eng. (C.E.), Univ. of Tokyo; Ph.D. (C.E.), Univ. of California (Irvine); P.E. (New York)

Vasil Diyamandoglu, Assistant Professor

B.S.(C.E.), Bogazici Univ. (Istanbul, Turkey), M.S.(C.E.); Ph.D.(C.E.), Univ. of California (Berkeley)

John Fillos, Professor and Chair

B.E. (C.E.), CCNY; M.S. (C.E.), New York Univ., Ph.D.; P.E. (New York)

Michel Ghosn, Professor

B.S. (C.E.), Case Western Reserve Univ., M.S. (C.E.), Ph.D. (C.E.)

Mumtaz Kassir, Professor and Associate Dean of Engineering

B.S. Tech., Univ. of Manchester (England); M.S., Stanford Univ.; Ph.D., Lehigh Univ.

Reza M. Khanbilvardi, Professor

B.S.C.E., Pahlavi Univ. (Iran); M.S., Pennsylvania State Univ., Ph.D.; P.E. (New York, Connecticut)

Feng-Bao Lin, Associate Professor

B.S. (C.E.), National Taiwan Univ., M.S. (C.E.); Ph.D., Northwestern Univ.; P.E. (New York, Connecticut)

Huabei Liu, Assistant Professor

B.E. (C.E.) Hohai Univ.; M.S. (C.E.) Tsinghua Univ.; Ph.D. Columbia Univ.

Shayesteh E. Mahani, Assistant Professor

B.Sc. (Surveying and Math), Univ. of Toosi (Iran), (M.S. Surveying); Ph.D., Univ. of Arizona

Claire E. McKnight, Associate Professor

B.Arch., Univ. of Illinois, M.U.P., Ph.D. (Public Policy Analysis)

Robert E. Paaswell, Distinguished Professor

B.A., Columbia Univ., B.S., M.S.; Ph.D., Rutgers Univ.; P.E. (New York)

Neville A. Parker, Herbert Kayser Professor

B.E. (C.E.), CCNY; M.E. (Civil), Cornell Univ., Ph. D. (Env. Systems Engrg.); P.E. (D.C.); R. Eng. (Tanzania).

Kolluru Subramanian, Associate Professor

B.Tech. (C.E.), Indian Inst. of Technology (New Delhi); M.S. (Struct. Engrg.), Univ. of Toledo; Ph.D. (Struct. Engrg. and Materials) Northwestern Univ.

Hansong Tang, Assistant Professor

B.S. (M.E.) Wuhan Univ., M.S. (C.E.); D.Sc. (Math), Peking Univ.; Ph.D. (C.E.), Georgia Tech.

Charles Vörösmarty, Professor

B.S. (Biological Sciences), Cornell Univ; M.S. (C.E.), Univ. of New Hampshire; Ph.D. (Engineering Systems Design)

Ann E. (Beth) Wittig, Assistant Professor

B.S., Univ. of California (L.A.); Ph.D., Univ. of Texas (Austin)

Fan Yang, Assistant Professor

B.S. (A.E.) Tsinghua Univ.; M.S. (C.E.) Univ. of Wisconsin, Ph.D.

PROFESSORS EMERITI**J. E. Benveniste****G. Donald Brandt****Carl J. Costantino****Norman C. Jen****Norbert Oppenheim****Gerald Palevsky****George Papoulas****Ming L. Pei****Joseph Pistrang****Eli Plaxe****Morris D. Silberberg****James R. Steven**

Computer Engineering Program

(A JOINT PROGRAM OF THE DEPARTMENTS OF COMPUTER SCIENCE AND ELECTRICAL ENGINEERING)

Professor Roger Dorsinville, Co-Director • Department Office: ST 602 • Tel: 212-650-7248

Professor Douglas Troeger, Co-Director • Department Office: NA 8/206 • Tel: 212-650-6631

Dr. Samuel Fenster, Administrative Director • ST 617 • Tel: 212-650-6594

GENERAL INFORMATION

The City College offers the following undergraduate degree in Computer Engineering:

B.E. (Cp.E.)

OVERVIEW

Computer engineering is the study of the design, analysis, and application of computer systems. It involves a balanced view of hardware, software, hardware-software tradeoffs, and the basic modeling techniques used to represent the computing process. Computer engineers design computer systems that include a wide range of embedded systems, consumer products, telecommunication systems, parallel processors and many others. Besides design work, computer engineers find many openings in such service fields as financial and information systems, network administration, and many others.

The undergraduate curriculum includes a year of English and six Liberal Arts courses, along with appropriate mathematics and sciences. Topics integrated in the computer engineering curriculum include many of the core subjects in both electrical engineering and computer sciences. Through a variety of elective courses students are then able to pursue special interests in a number of focused areas such as computer architecture, software engineering, digital signal processing, VLSI (very large-scale integrated circuits), networks, image analysis, databases, embedded systems, etc.

Computer Engineering at City College is a discipline jointly administered by the Departments of Computer Science and Electrical Engineering. The

faculty of these departments enhance their teaching activities with a number of active research programs in such areas as digital signal processing, computer architecture, computer communications, computer security, pattern recognition, image analysis, software engineering, verification and testing, VLSI, and CAD. Advanced undergraduate students are encouraged to participate in these research efforts.

MISSION

The mission of the CCNY Computer Engineering program, in conformity with the mission of the School of Engineering, is:

- I. To educate well-rounded and conscientious computer engineers capable of becoming leaders in their profession.
- II. To carry out basic and applied research leading to new ideas, systems, and devices in computer engineering and related interdisciplinary areas.
- III. To offer advice, service, and support to industry, government agencies, schools, community groups and professional societies.
- IV. To ensure that the above is carried out in appropriate and modern facilities that are conducive to learning.

PROGRAM EDUCATIONAL OBJECTIVES

In order to achieve the above mission, the stakeholders of the Computer Engineering program have established the following Program Educational Objectives:

- A. To provide the fundamental knowledge of scientific foundations,

rigorous analysis, engineering principles and creative design necessary for the application of computer engineering to real world problems that meet the needs of society;

- B. To impart the skills necessary for clear communication, responsible teamwork, and leadership roles;
- C. To enable active contributions to the field through participation in professional societies, publishing, attending conferences and seeking patents;
- D. To instill in our students an understanding of their ethical and professional responsibilities.

PROGRAM OUTCOMES

The Program Educational Objectives above are the basis for the following Program Outcomes expected of all Computer Engineering program graduates upon receipt of the B.E. degree:

- a. an ability to apply knowledge of mathematics, science and engineering;
- b. an ability to design and conduct experiments, as well as to analyze and interpret data;
- c. an ability to design a system, component or a process to meet desired needs;
- d. an ability to function on multi-disciplinary teams;
- e. an ability to identify, formulate and solve real world computer engineering problems;
- f. an understanding of professional and ethical responsibility;
- g. an ability to communicate effectively, including the use of

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| information technology tools when appropriate; | | | |
| h. the broad education necessary to understand the impact of engineering solutions in global and societal context; | | | |
| i. a recognition of the need for, and an ability to engage in, life-long learning; | | | |
| j. a knowledge of contemporary issues; an appreciation of environmental, economic and technological issues and their impact on society; | | | |
| k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice; | | | |
| l. competence in computational and simulation tools; | | | |
| m. competence in engineering probability; | | | |
| n. competence in software engineering; | | | |
| o. competence in hardware design. | | | |
| REQUIREMENTS FOR MAJORS | | | |
| All Computer Engineering majors must complete the following: | | | |
| Math and Science Requirements | | | |
| Chemistry: | | | |
| 10301: General Chemistry I* (or 31606: General Chemistry for Engineers*) | 3-4 | | |
| Mathematics: | | | |
| 20100: Calculus I* | 3 | | |
| 20200: Calculus II* | 3 | | |
| 20300: Calculus III* | 4 | | |
| 39100: Methods of Differential Equations* | 3 | | |
| 39200: Linear Algebra and Vector Analysis for Engineers* | 3 | | |
| Physics: | | | |
| 20700-20800: General Physics* | 8 | | |
| Total Math and Science Credits | 27-28 | | |
| <i>*Minimum grade of "C" required.</i> | | | |
| English and Liberal Arts Requirements | | | |
| English: | | | |
| 11000: Freshman Composition | 3 | | |
| 21007: Writing for Engineering | 3 | | |
| General Education: | | | |
| Four approved courses* | 12 | | |
| Two approved courses, 20000-level or higher* | 6 | | |
| <i>*Refer to the Grove School of Engineering section for details.</i> | | | |
| Total English and Liberal Arts Credits | 24 | | |
| Engineering Requirements | | | |
| Engineering: | | | |
| 10100: Engineering Design I* | 1 | | |
| 10300: Computer-Aided Analysis Tools for Electrical Engineers | 2 | | |
| 20400: Electrical Circuits | 3 | | |
| Computer Science: | | | |
| 10200: Introduction to Computing | 3 | | |
| 10400: Discrete Mathematical Structures | 3 | | |
| 21000: Computers and Assembly Language Programming | 3 | | |
| 21200: Data Structures | 3 | | |
| 22000: Algorithms | 3 | | |
| 22100: Software Design Laboratory | 3 | | |
| 33200: Operating Systems | 3 | | |
| 34200 & 34300: Computer Organization and Laboratory | 4 | | |
| Electrical Engineering: | | | |
| 20500: Linear Systems Analysis I | 3 | | |
| 21000: Switching Systems | 3 | | |
| 22100: Electrical Engineering Laboratory I | 1 | | |
| 24100: Electronics I | 3 | | |
| 30600: Linear Systems Analysis II | 3 | | |
| 31100: Probability and Statistics | 3 | | |
| 31200: Communication Theory | 3 | | |
| 32200: Electrical Engineering Laboratory II | 1 | | |
| 33000: Electromagnetics | 3 | | |
| 42500: Computer Engineering Laboratory | 1 | | |
| 45700: Digital Integrated Circuits | 3 | | |
| Total Required Engineering Credits | 58 | | |
| <i>*New transfer students who have successfully completed the equivalent of Calculus II (Math 20200) should not take Engr 10100. They are required to complete an additional 1 credit advanced laboratory elective course from Computer Science or Electrical Engineering.</i> | | | |
| Electives | | | |
| The elective course requirements include 3 credits of Practice/Ethics Issues, 3 credits from Engineering Science Electives, and 3 credits each from the CSc and EE Elective Lists. | | | |
| Practice/Ethics Issues: | | | |
| One of the following courses: | 3 | | |
| Computer Science: | | | |
| 37500: Social Issues in Computing (3 cr.) | | | |
| Electrical Engineering: | | | |
| 43800: Management Concepts for Engineers (3 cr.) | | | |
| Engineering: | | | |
| 27600: Engineering Economics (3 cr.) | | | |
| 30000: Social, Economic and Cultural Impact of Biomedical Technology (3 cr.) | | | |
| Philosophy: | | | |
| 34902: Computer Ethics (3 cr.) | | | |
| Engineering Science: | | | |
| One of the following courses: | 3 | | |
| Electrical Engineering: | | | |
| 33900: Semiconductor Materials & Devices* (3 cr.) | | | |
| Engineering: | | | |
| 23000: Thermodynamics (3 cr.) | | | |
| Computer Science: | | | |
| One of the following courses: | 3 | | |
| 30100: Numerical Issues in Scientific Programming (3 cr.) | | | |
| 30400: Introduction to Theoretical Computer Science (3 cr.) | | | |
| 32200: Software Engineering (4 cr.) | | | |
| 33500: Programming Language Paradigms (3 cr.) | | | |
| 33600: Introduction to Database Systems (3 cr.) | | | |
| 41200: Computer Networks (3 cr.) | | | |
| 42000: Compiler Construction (3 cr.) | | | |
| 42200: Computability (3 cr.) | | | |
| 42800: Formal Languages and Automata (3 cr.) | | | |
| 43000: Distributed Computing (3 cr.) | | | |
| 43500: Concurrency in Operating Systems (3 cr.) | | | |
| 43800: Real-Time Computing Systems (3 cr.) | | | |
| 44000: Computational Methods in Numerical Analysis (3 cr.) | | | |
| 44200: Systems Simulation (3 cr.) | | | |
| 44600: Mathematical Optimization Techniques (3 cr.) | | | |
| 44800: Artificial Intelligence (3 cr.) | | | |
| 45000: Combinatorics and Graph Theory (3 cr.) | | | |
| 45400: Topics in Computer Architecture (3 cr.) | | | |
| 47000: Image Processing (3 cr.) | | | |
| 47100: Computer Vision (3 cr.) | | | |
| 47200: Computer Graphics (3 cr.) | | | |
| 47300: Web Site Design (3 cr.) | | | |
| 47900: Digital Libraries (3 cr.) | | | |
| 48000: Computer Security (3 cr.) | | | |

48600: Introduction to Computational Complexity (3 cr.)
51003: Independent Study ** (3 cr.)

Electrical Engineering:

One of the following courses: 3
33300: Introduction to Antennas, Microwaves and Fiber Optics (3 cr.)
33900: Semiconductor Materials & Devices* (3 cr.)
34200: Electronics II (3 cr.)
35700: Electric Power Engineering (3 cr.)
37100: Linear Feedback Systems (3 cr.)
44100: Electronic Devices and Semiconductor Materials (3 cr.)
45100: Communication Electronics (3 cr.)
45200: Fiber Optic Communications (3 cr.)
45300: Digital Signal Processing (3 cr.)
45400: Physical Electronics (3 cr.)
45600: Elements of Control Theory (3 cr.)
45800: Introduction to Lasers (3 cr.)
45900: Microprocessors (3 cr.)
46000: Computer Communications Systems (3 cr.)
46200: Photonic Engineering (3 cr.)
46300: Wireless Communications (3 cr.)
46400: VLSI Design (3 cr.)
51003: Independent Study** (3 cr.)
BME 50500: Image and Signal Processing in Biomedicine (3 cr.)

Total Elective Credits 12

Senior Design Course

Choose *one* of the following sets of courses:

CSc 59866 and CSc 59867: Senior Project I and II (6 cr.)

EE 59866 and EE 59867: Senior Design I and II (6 cr.)

Total Senior Design Credits 6

Total Credits for Major 127–128

*Can be counted as either an Engineering Science or an Electrical Engineering Elective.

**Departmental approval required.

ADDITIONAL REQUIREMENTS FOR GRADUATION

These include minimum GPA and QPA; the CUNY Basic Skills and Proficiency Exams; and the Residency Requirement. Refer to the Grove

School of Engineering section for details.

RECOMMENDED SEQUENCE OF COURSES**First Semester**

Math 20100: Calculus I (3 cr.)
Chemistry 10301: General Chemistry (4 cr.)
Engr 10100: Engineering Design I (1 cr.)
Engl 11000: Freshman Composition (3 cr.)
Two Liberal Arts courses (6 cr.)

17 credits

Second Semester

Math 20200: Calculus II (3 cr.)
Phys 20700: General Physics I (4 cr.)
Engr 10300: Computer-Aided Analysis Tools for Electrical Engineers (2 cr.)
CSc 10200: Introduction to Computing (3 cr.)
CSc 10400: Discrete Mathematical Structures I (3 cr.)
Engl 21007: Writing for Engineering (3 cr.)

18 credits

Third Semester

Math 20300: Calculus III (4 cr.)
Phys 20800: General Physics II (4 cr.)
Engr 20400: Electrical Circuits (3 cr.)
CSc 21200: Data Structures (3 cr.)
EE 21000: Switching Systems (3 cr.)

17 credits

Fourth Semester

Math 39100: Methods of Differential Equations (3 cr.)
Math 39200: Linear Algebra and Vector Analysis for Engineers (3 cr.)
CSc 22100: Software Design Lab (3 cr.)
EE 20500: Linear Systems Analysis I (3 cr.)
EE 24100: Electronics I (3 cr.)
EE 31100: Probability and Statistics (3 cr.)

18 credits

Fifth Semester

CSc 21000: Computers and Assembly Language Programming (3 cr.)
CSc 22000: Algorithms (3 cr.)
EE 22100: Electrical Engineering Laboratory I (1 cr.)
EE 30600: Linear Systems Analysis II (3 cr.)

EE 31200: Communication Theory (3 cr.)
EE 33000: Electromagnetics (3 cr.)
16 credits

Sixth Semester

CSc 33200: Operating Systems (3 cr.)
CSc 34200: Computer Organization (3 cr.)
CSc 34300: Computer Organization Laboratory (1 cr.)
EE 32200: Electrical Engineering Laboratory II (1 cr.)
EE 45700: Digital Integrated Circuits (3 cr.)
Liberal Arts course (3 cr.)

14 credits

Seventh Semester

EE 42500: Computer Engineering Laboratory (1 cr.)
Senior Design I (3 cr.)
Computer Engineering elective (from CSc elective list) (3 cr.)
Engineering Science elective (3 cr.)
Liberal Arts course (3 cr.)

13 credits

Eighth Semester

Computer Engineering elective (from EE elective list) (3 cr.)
Senior Design II (3 cr.)
Practice/Ethics Issues elective (3 cr.)
Two Liberal Arts courses, 20000 or higher (6 cr.)

15 credits

Advisement

Students majoring in Computer Engineering are advised by the administrative director of Computer Engineering, and by an assigned faculty member in either Computer Science or Electrical Engineering.

FACULTY

The following faculty of the Computer Science and Electrical Engineering Departments are on the Computer Engineering program faculty:

COMPUTER SCIENCE:

Izidor Gertner, Professor
Irina Gladkova, Associate Professor
Michael D. Grossberg, Assistant Professor
Akira Kawaguchi, Associate Professor
Daniel McCracken, Professor
Kaliappa Ravindran, Professor

Jie Wei, Associate Professor
George Wolberg, Professor
Jianting Zhang, Assistant Professor
Zhigang Zhu, Professor

ELECTRICAL ENGINEERING:

Michael Conner, Professor
Ibrahim W. Habib, Professor
Myung Jong Lee, Professor
Truong-Thao Nguyen, Associate
Professor
Norman Scheinberg, Professor
YingLi Tian, Associate Professor
M. Umit Uyar, Professor
Jizhong Xiao, Associate Professor

Department of Computer Science

Professor Douglas R. Troeger, Chair • Department Office: NA 8/206 • Tel: 212-650-6632

GENERAL INFORMATION

The City College offers the following undergraduate degree in Computer Science:

B.S. (C.Sc.)

PROGRAMS AND OBJECTIVES

Computer Science deals with information: its efficient representation and transformation; its communication and security; its storage, retrieval, analysis and display. This relatively new discipline is concerned with computers and computational processes -- their design, the theory that underlies them, their application, and their interaction with each other, with devices, and with humans.

Computer scientists must acquire expertise in the core areas of the field: theory of computation, algorithms and data structures, programming methodology and languages, communications and security, and computer systems and architecture. In addition to general knowledge in the discipline, computer scientists must achieve proficiency in one or more areas of specialization, such as software engineering, artificial intelligence, computer vision, networking, database systems, computer-human interaction, computer graphics, or numerical and symbolic computation. Computer scientists need as well a solid foundation in mathematics and science, and an understanding of the societal implications of computer technology based on a broad background in the humanities and social sciences.

The field has experienced exceptional growth since its beginning. Opportunities in professional practice, as well as research and teaching,

are numerous. The Department of Computer Science, established in 1968, offers a broad curriculum in this branch of knowledge.

MISSION

The mission of the department of Computer Science at The City College, in conformity with the mission of the School of Engineering, is:

- I. To educate well-rounded and conscientious computer scientists capable of becoming leaders in their profession.
- II. To conduct basic and applied research in computer science and engineering.
- III. To offer advice, service, and support to industry, government agencies, schools, community groups and professional societies.

PROGRAM EDUCATIONAL OBJECTIVES

In order to achieve the mission the stakeholders of the Department of Computer Science have established the following Program Educational Objectives:

- A. To provide students with the fundamental knowledge of scientific foundations, rigorous analysis, and creative design necessary for the practice of computer science and for advanced study in computer science;
- B. To provide students with the broad education necessary for successful careers and life-long learning;
- C. To develop the skills necessary for clear communication and responsible teamwork;

- D. To infuse in our students an understanding of their ethical and professional responsibilities.

PROGRAM OUTCOMES

Upon graduation, our students are expected to have:

- a. An ability to apply knowledge of computing and mathematics appropriate to the discipline.
- b. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
- c. An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
- d. An ability to function effectively on teams to accomplish a common goal.
- e. An understanding of professional, ethical, legal, security and social issues and responsibilities.
- f. An ability to communicate effectively with a range of audiences.
- g. An ability to analyze the local and global impact of computing on individuals, organizations, and society.
- h. Recognition of the need for and an ability to engage in continuing professional development.
- i. An ability to use current techniques, skills, and tools necessary for computing practice.
- j. An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension

- of the tradeoffs involved in design choices.
- k. An ability to apply design and development principles in the construction of software systems of varying complexity.
- l. Experience in theoretical computer science or its application in related areas such as artificial intelligence or computer security.
- m. Experience in computational techniques for science and engineering such as those used in image generation and processing, pattern recognition, numerical analysis, systems simulation, and optimization.
- n. Experience in implementing computer systems such as networked and Internet systems, compilers, and modern operating systems.

REQUIREMENTS FOR MAJORS

The satisfactory completion of 126 credits of prescribed and elective courses is required for the Bachelor of Science degree. The work comprises twenty-seven liberal arts credits, twenty-five math and science credits, fifty credits of required Computer Science courses, twelve credits of Computer Science elective courses, six credits of technical electives, and six credits of free electives.

Mathematics

| | |
|------------------------------------|---|
| 20100: Calculus I * | 3 |
| 20200: Calculus II * | 3 |
| 20300: Calculus III * | 4 |
| 34600: Elements of Linear Algebra* | 3 |

Science

12

Students are required to take at least twelve credits of science. These credits must include one of the following year-long sequences:

Biology:

10100-10200: Biological Foundations (8 cr.)*

Chemistry:

10301-10401: General Chemistry (8 cr.)*

Physics:

20700-20800: General Physics (8 cr.)*

and at least one additional course in Biology, Chemistry, or Physics.

Total Math and Science Credits

25

*Minimum grade of "C" required.

English and Liberal Arts (General Education) Requirements

27

Refer to the Grove School of Engineering section for details.

Computer Science Requirements

| | |
|--|---|
| 10200: Introduction to Computing | 3 |
| 10400: Discrete Mathematical Structures 3 | 3 |
| 21100: Fundamentals of Computer Systems | 3 |
| 21200: Data Structures | 3 |
| 21700: Probability and Statistics for Computer Science | 3 |
| 22000: Algorithms | 3 |
| 22100: Software Design Laboratory | 3 |
| 30100: Numerical Issues in Scientific Programming | 3 |
| 30400: Introduction to Theoretical Computer Science | 3 |
| 32200: Software Engineering | 4 |
| 33200: Operating Systems | 3 |
| 33500: Programming Language Paradigms | 3 |
| 33600: Introduction to Database Systems | 3 |
| 34200: Computer Organization | 3 |
| 34300: Computer Systems Design Laboratory | 1 |
| 59866: Senior Project I | 3 |
| 59867: Senior Project II | 3 |

Total Required Credits

50

Electives

I. Computer Science Electives:

12

Take one course in each of three elective groups and then one additional course in one of the three groups.

A. Theory and Applications

| | |
|---|--|
| 42200: Computability (3 cr.) | |
| 42800: Formal Languages and Automata (3 cr.) | |
| 44800: Artificial Intelligence (3 cr.) | |
| 45000: Combinatorics and Graph Theory (3 cr.) | |
| 48000: Computer Security (3 cr.) | |
| 48600: Introduction to Computational Complexity (3 cr.) | |

B. Computational Techniques for Science and Engineering

| | |
|--|--|
| 44000: Computational Methods in Numerical Analysis (3 cr.) | |
| 44200: Systems Simulation (3 cr.) | |
| 44600: Mathematical Optimization Techniques (3 cr.) | |
| 47000: Image Processing (3 cr.) | |

| | |
|----------------------------------|--|
| 47100: Computer Vision (3 cr.) | |
| 47200: Computer Graphics (3 cr.) | |
| 47900: Digital Libraries (3 cr.) | |

C. Computer Systems

| | |
|---|--|
| 31800: Internet Programming (3 cr.) | |
| 41200: Computer Networks (3 cr.) | |
| 42000: Compiler Construction (3 cr.) | |
| 43000: Distributed Computing (3 cr.) | |
| 43500: Concurrency in Operating Systems (3 cr.) | |
| 43800: Real-Time Computing Systems (3 cr.) | |
| 47300: Web Site Design (3 cr.) | |

II. Technical Electives

6

Technical electives for Computer Science majors may be either Computer Science electives (except CSc 10000 and CSc 31700) or advanced courses in the following areas: Biology, Chemistry, Earth and Atmospheric Sciences (EAS), Mathematics, Physics, and Chemical, Civil, Electrical, and Mechanical Engineering. Within these fields, the following courses are not acceptable:

1. Courses at the 10000 level.
2. Courses that have no prerequisites.
3. "Professional" courses, such as actuarial math.
4. Project and seminar courses.
5. Courses that substantially duplicate material covered in other courses for which credit has been granted.

III. Free Electives

6

Acceptable free electives are any courses offered by the College except the following:

1. Remedial courses, including pre-calculus math.
2. Courses at a lower level than required courses.
3. Courses that substantially duplicate material covered in other courses for which credit has been granted.
4. Worker education and independent study courses.

Any substitutions require written permission of both the department chair and Associate Dean of Undergraduate Affairs. Computer Science majors may use CSc 10000

only as a free elective, as long as the course is taken before the semester in which CSc 10200 is taken.

Total Elective Credits 24

RECOMMENDED SEQUENCE OF COURSES

A four-year path to graduation might be as follows.

First Semester

Math 20100: Calculus I (3 cr.)
Eng 11000: Freshman Composition (3 cr.)
Speech 11100: Foundations of Speech Communication (3 cr.)
Chem 10301: General Chemistry I (4 cr.)
Free Elective (3 cr.)

16 Credits

Second Semester

Math 20200: Calculus II (3 cr.)
CSc 10200: Introduction to Computing (3 cr.)
CSc 10400: Discrete Mathematical Structures (3 cr.)
Liberal Arts course (3 cr.)
Chem 10401: General Chemistry II (4 cr.)

16 Credits

Third Semester

Math 20300: Calculus III (4 cr.)
CSc 21100: Fundamentals of Computer Systems (3 cr.)
CSc 21200: Data Structures (3 cr.)
CSc 21700: Probability and Statistics for Computer Science (3 cr.)
Liberal Arts course (3 cr.)

16 Credits

Fourth Semester

Math 34600: Elements of Linear Algebra (3 cr.)
CSc 30400: Introduction to Theoretical Computer Science (3 cr.)
CSc 22000: Algorithms (3 cr.)
CSc 22100: Software Design Laboratory (3 cr.)
Eng 21007: Writing for Engineering (3 cr.)

15 Credits

Fifth Semester

Science Elective (4 cr.)
CSc 30100: Numerical Issues in Scientific Programming (3 cr.)
CSc 33500: Programming Language Paradigms (3 cr.)

CSc 32200: Software Engineering (4 cr.)
Engr 27600: Engineering Economics (3 cr.)

17 Credits

Sixth Semester

CSc 33200: Operating Systems (3 cr.)
CSc 34200: Computer Organization (3 cr.)
CSc 34300: Computer Organization Lab (1 cr.)
CSc 33600: Introduction to Database Systems (3 cr.)
CSc Elective (3 cr.)
Liberal Arts Course (3 cr.)

16 Credits

Seventh Semester

Two CSc Electives (6 cr.)
Technical Elective (3 cr.)
Liberal Arts course – 20000-level or higher (3 cr.)
CSc 59866: Senior Project I (3 cr.)

15 Credits

Eighth Semester

CSc Elective (3 cr.)
Technical Elective (3 cr.)
Free Elective (3 cr.)
Liberal Arts course – 20000-level or higher (3 cr.)
CSc 59867: Senior Project II (3 cr.)

15 Credits

MINOR IN COMPUTER SCIENCE

The minor in Computer Science is open to all students who meet the Grove School of Engineering admission criteria including a GPA of 2.50 and a grade of "C" or better in Math 20100.

| | |
|--|---|
| CSc 10200: Introduction to Computing | 3 |
| CSc 10400: Discrete Mathematical Structures | 3 |
| CSc 21200: Data Structures | 3 |
| CSc 22000: Algorithms | 3 |
| CSc 22100: Software Design Laboratory | 3 |
| One CSc course 30000-level or above for which students have prerequisites. | 3 |

Total Credits 18

ADVISEMENT

All students are assigned a faculty advisor and a general advisor. Students must attend an advisement session with their faculty advisor each semester before registering for the subsequent semester. A list of faculty advisors and office hours can be found in the department office. The general advisor assists students with administrative matters, registration, and academic planning.

COURSE DESCRIPTIONS

10000: Introduction to Programming and Computer Science

A breadth-first introduction to computer programming and computer science. Elementary programming in a modern object-oriented language such as C++ or Java; introduction to algorithms; brief overview of operating systems, computer networks, and databases; introduction to artificial intelligence. Free elective for CSc majors if taken before CSc 10200. 4 hr./wk.; 3 cr.

10200: Introduction to Computing

The structure and operation of a computer; concepts and properties of an algorithm and a programming language. Introduction to procedural programming in a modern programming language, such as C/C++, control structures, functions, recursion, arrays, pointers, strings, structures, and file I/O. Prereq.: Math 20100 (min. C grade). 2 class, 2 rec. hr./wk.; 3 cr.

10400: Discrete Mathematical Structures

Introduction to the mathematics fundamental to all phases of computer science, from the formulation of problems to the understanding of their underlying structure, to the comparative analysis of the complexity of algorithms that can be used to solve these problems. The course introduces combinatorics, first-order logic, induction, set theory, relations and functions, graphs, and trees. Prereq: Math 20100 (min. C grade). 2 class, 2 rec. hr./wk.; 3 cr.

21000: Computers and Assembly Language Programming

Computer structure, machine representation of data, addressing and indexing, computation and control instructions, assembly language and assemblers; procedures (subroutines) and data segments, linkages and subroutine calling conventions, loaders; practical use of an assembly language for computer implementation of

illustrative examples. Prereq.: CSc 10200. 3 hr./wk.; 3 cr.

21100: Fundamentals of Computer Systems

Fundamentals of computer organization and digital logic. Boolean algebra, number systems and codes, combinational logic design principles, basic gates and components, flipflops and latches, counters and state machines. Assembly language and assemblers; procedures and data segments, linkages and subroutine calling conventions, loaders; practical use of an assembly language. Prereq.: CSc 10200. 2 lect., 2 lab. hr./wk.; 3 cr.

21200: Data Structures

Extension of the knowledge of algorithm design and programming gained in CSc 10200 with continued emphasis on the logic underlying the transition from specification to program. Particular attention is paid to issues arising in the implementation of larger programs: introduction of data structures and data abstraction; the basics of object-oriented programming. Introduction of recursion as a design tool. Introduction of complexity analysis. Prereq.: CSc 10200 and 10400. 2 class, 2 rec. hr./wk.; 3 cr.

21700: Probability and Statistics for Computer Science

Overview of applicable discrete and stochastic foundations: combinatorics, probability, and Monte Carlo methods. Descriptive statistics for data analysis. Random variables, mathematical expectation. Study of the constant density and random number generator, normal, exponential, as well as Bernoulli, Binomial and Poisson distributions. Limit theorems and sample statistics. Foundations of discrete event simulation, computational examples. CSc 10200, CSc 10400, and Math 20100 (min. C grade). 3 hr./wk.; 3 cr.

22000: Algorithms

Measuring algorithmic complexity (O-Notation); searching and sorting algorithms and their complexity; tree and graph algorithms and their complexity; classes of algorithms, such as divide-and-conquer, backtracking, greedy, probabilistic, etc. Computational complexity; the classes P and NP. Prereq.: CSc 21200. 3 hr./wk.; 3 cr.

22100: Software Design Laboratory

Object-oriented programming in a software engineering context. Design patterns. Event-driven programming. Building an application with a graphical user interface: specifications; design; programming; accessing a database with a java program; unit and user testing. Projects done in teams; oral and written presenta-

tions. Prereq.: CSc 21200 and Engl 21007. 3 hr./wk.; 3 cr.

30100: Numerical Issues in Scientific Programming

Numerical issues: roundoff error, truncation error, overflow and underflow errors. Numerical integration; solution of simultaneous equations; curve fitting. A thorough introduction to scientific programming, using a modern version of the Fortran or Matlab language. Written reports and oral presentation of projects. Prereq.: CSc 21700, CSc 22000, Math 20300 (min. C grade) and Math 34600 (min. C grade). 3 hr./wk.; 3 cr.

30400: Introduction to Theoretical Computer Science

Finite state automata, pushdown automata, Turing Machines, and the languages they can recognize. Church's Thesis. Compatibility. The classes P and NP; NP-complete problems and intractable problems. Prereq.: CSc 10400. 3 hr./wk.; 3 cr.

31700: Introduction to the Internet

This course is intended to provide students with the background necessary for understanding the Internet. Discussed are the underlying technology, applications, and social implications of the World Wide Web. Cannot be used to fulfill CSc technical elective requirement. Prereq.: CSc. 10200 and at least junior standing. 3 hr./wk.; 3 cr.

31800: Internet Programming

This course provides advanced CSc/engineering majors with an understanding of web-based application development. Prereq.: CSc 22100 or EE 25900. 3 hr./wk.; 3 cr.

32200: Software Engineering

The software development life cycle from feasibility study to turnover to client. Documentation of design, program, and training materials. Rapid prototyping languages. Software development management: team roles and organization, the version control problem, maintenance issues. Use of CASE tools emphasized and illustrated in projects. Written reports and oral presentation of projects. Prereq.: CSc 22000 and CSc 22100. 3 class, 2 lab hr./wk.; 4 cr.

33200: Operating Systems

Overview of computer organization. Interrupts. Operating systems objectives and functions. Hardware protection mechanisms, dual mode operation. System calls. The evolution of operating systems. Process representation and control. Uniprocessor scheduling. Process synchronization: critical section problem, synchronization mechanisms, algorithms, language constructs, classical synchronization problems: issues of safety, liveness, and

fairness. Deadlocks. Memory management and virtual memory. File management. I/O management and disk scheduling. Prereq.: CSc 22000 and (CSc 21700 or EE 31100). 3 hr./wk.; 3 cr.

33500: Programming Language Paradigms

Aspects of the design and implementation of declarative and imperative programming languages, presented via a sequence of interpreters. Topics include abstraction, objects and inheritance, parameter passing, type-checking and continuations. Substantial programming assignments. Prereq.: CSc 22000 and CSc 22100. 3hr./wk., 3 cr.

33600: Introduction to Database Systems

An introduction to database architecture. Levels of abstraction in a database system; physical database organization: abstract data models; relational databases and their query languages. Database design assignments. Prereq.: CSc 22000 and CSc 22100. 3 hr./wk.; 3 cr.

34200: Computer Organization

This course provides computer science and computer engineering students with an in-depth look at computer architecture and the hardware/software interface. The major topics are: computer abstractions and technology; the role of performance and measuring performance; SPEC. computer arithmetic; machine language: a comparative analysis of instruction sets of current processors using debuggers, simulators and by the partial reverse engineering of executables. The processor: datapath and control; RISC versus CISC; design, implementation (using VHDL), and verification (in simulation) of a simplified RISC processor using CAD tools. Enhancing performance with pipelining. Memory hierarchy, cache, virtual memory, performance issues. interfacing processors and peripherals; PCI chipset. Overview of multiprocessors, grid computing. Prereq.: CSc 21100 or (CSc 21000 and EE 21000). 3 hr./wk.; 3 cr.

34300: Computer Systems Design Laboratory

Introduction to FPLD technology, logic synthesis, and rapid prototyping of digital systems using commercial CAD tools. Topics: Programmable Logic Technology. Sequential Design and Hierarchy. Synthesis of Digital Hardware using VHDL. State Machine Design, CPU Controller. A Simple Processor Design. Video Graphics Adapter (VGA) video display generation. Design PS/2 Keyboard interface. Design of PS/2 Mouse interface. Synthesis of a RISC processor as covered in CSc 34200. Students are required to prepare written reports and demonstrate their design. Corequisite: CSc 34200. 3 hr./wk.; 1 cr.

37500: Social Issues in Computing

A systematic and comprehensive overview of the social implications of computers. Public policy questions and the responsibility of computer professionals will be stressed. Topics include computers in the economy, in politics and government, in social institutions and in contemporary culture. Prereq.: at least sophomore standing. 3 hr./wk.; 3 cr.

41200: Computer Networks

Layer approach to understanding networks using the ISO model: physical layer, data link layer, network layer, and, as time permits, the transport, session, presentation, and application layers. Prereq.: CSc 33200. 3 hr./wk.; 3 cr.

42000: Compiler Construction

Formal description of programming languages and techniques used in their compilation. Study of syntax, semantics, ambiguities, procedures replication, iteration, and recursion in these languages. Syntactic decomposition and the theory of compilers that are syntax-directed or recursively controlled. Prereq.: CSc 30400. 3 hr./wk.; 3 cr.

42200: Computability

Shepherdson-Sturgis machines. Elements of recursive function theory. The equivalence of the class of computable and recursive functions. Church's thesis; other models of computation: Post machines, Turing machines, semi-Thue systems, etc. Unsolvable problems and introduction to their classification. Subrecursive formalism. Prereq.: CSc 22000, CSc 30400, and (CSc 21700 or EE 31100). 3 hr./wk.; 3 cr.

42800: Formal Languages and Automata

Classes of languages; their description in terms of grammars and their recognition by automata. The Chomsky hierarchy; regular, context-free, context-sensitive and recursively enumerable languages. Application to parsing and compiler construction. Prereq.: CSc 30400. 3 hr./wk.; 3 cr.

43000: Distributed Computing

Basic model of distributed computing. Asynchronous and synchronous message passing. Algorithms for distributed termination detection and their correctness proofs. The correctness requirements of safety, liveness, and fairness in distributed computations. Synchronization algorithms. Communicating Sequential Processes. Higher level language constructs for synchronization algorithms. Verification methods. Several seemingly correct but actually incorrect algorithms will be shown for the above problems to appreciate the subtle correctness problems in distributed algorithms. Prereq.: CSc 33200. 3 hr./wk.; 3 cr.

43500: Concurrency in Operating Systems

Mutual exclusion-software and hardware approaches. The correctness requirements of safety, liveness, and fairness. Semaphores, monitors and other concurrent programming constructs. Classical synchronization problems. Axiomatic verification of concurrent algorithms. Models of distributed computation. Distributed termination detection. Time clocks, and ordering of events. Distributed Mutual Exclusion. Deadlocks in distributed systems. Prereq.: CSc 33200. 3 hr./wk.; 3 cr.

43800: Real-Time Computing Systems

Operating systems and architectural concepts of real-time systems. Review of I/O programming and basic machine language programming. Interrupt processes. Coding of specific device drivers using absolute addressing status registers, command signals, buffering. Timing considerations and applications. Concurrent processes, wait-send phenomena, and the use of semaphores. Prereq.: CSc 34200. 3 hr./wk.; 3 cr.

44000: Computational Methods in Numerical Analysis

Introduction to numerical algorithms for scientific computation. Basic concepts of numerical error. Interpolation, quadrature, solution of linear systems of equations, non-linear equations, ordinary differential equations. Some discussion of partial differential equations and numerical methods of solving them. Computer implementation aspects. Prereq.: CSc 30100. 3 hr./wk.; 3 cr.

44200: Systems Simulation

Simulation of dynamic stochastic systems using models involving numerical and logical processes. Modeling concepts, description in terms of entities, attributes, and activities, time flow mechanisms, queues, event-oriented vs. particle-oriented models. Generation of stochastic variates, collection and evaluation of statistics. Simulation languages. Computer projects using a general purpose language (e.g. Fortran or Matlab) and at least one simulation language (e.g. GPSS) will be assigned. Prereq.: CSc 30100. 3 hr./wk.; 3 cr.

44600: Mathematical Optimization Techniques

Maximization and minimization of functions of several variables, with and without constraints. Convex sets and functions, linear and dynamic programming, network flows. Prereq.: CSc 30100. 3 hr./wk.; 3 cr.

44800: Artificial Intelligence

State-space and problem-induction representations of problems. Heuristic methods. Mechanical theorem proving. Application of these techniques to artificial intelligence problems. Prereq.: CSc 30400. 3 hr./wk.; 3 cr.

45000: Combinatorics and Graph Theory

An introduction to combinatorial analysis and graph theory. Sample topics: principle of inclusion and exclusion, recurrence relations, zero-one matrices, partitions, Polya's Theorem, directed graphs, Prereq.: CSc 22000 and (CSc 21700 or EE 31100). 3 hr./wk.; 3 cr.

45400: Topics in Computer Architecture

Current developments in computer architecture chosen from: superscalar parallel/pipelined architectures: speculative execution; branch prediction; register renaming techniques. Students develop software for superscalar processors, both real and simulated. Prereq.: CSc 34200 and CSc 34300. 3 hr./wk.; 3 cr.

47000: Image Processing

An intensive introduction to digital image processing. Image enhancement, digital filtering theory. Fourier transforms, image reconstruction, resampling, antialiasing, geometric transformations, scanline algorithms, warping, and morphing. Emphasis is on computational techniques. Substantial programming assignments. Prereq.: CSc 30100 and CSc 32200. 3 hr./wk.; 3 cr.

47100: Computer Vision

An intensive introduction to algorithms that recover information from images, motion sequences, multiple views, and 3D volumes. Topics include edge and region recovery, perspective, texture, object recognition, and 3D shape from shading/stereo/motion. Substantial programming assignments. Prereq.: CSc 30100 and CSc 32200. 3 hr./wk.; 3 cr.

47200: Computer Graphics

An intensive study of computer graphics. Graphics hardware, OpenGL API, raster scan conversion, clipping, geometric transformations, 3D viewing, visible surface determination, illumination, shading, splines, ray tracing and animation. Substantial programming assignments. Prereq.: CSc 30100 and CSc 32200. 3 hr./wk.; 3 cr.

47300: Web Site Design

The design and implementation of web sites from a Human-Computer Interaction viewpoint, with emphasis on user testing. Navigation design. Accessibility by persons with limitations in vision or motor ability is stressed and must be addressed in the final project. Prereq.: CSc 22100. 3 lab hr./wk.; 3 cr.

47800: Topics in Multimedia and Image Processing

Topics of current interest in image processing, computer vision, computer graph-

ics, and multimedia. Prereq.: CSc 47000. 3 hr./wk.; 3 cr.

47900: Digital Libraries

An introduction to the principles and practice of digital libraries. Algorithms are drawn from computer vision, pattern recognition, image processing, and document processing. Topics include low-level image processing, texture, color constancy, shape from X, supervised and unsupervised training, and implementation issues regarding content based multimedia database. Programming assignments will be implemented in C++ or Java. Prereq.: CSc 32200 and Math 34600 (min. C grade). 3 hr./wk.; 3 cr.

48000: Computer Security

An introduction to the principles and practices of computer security in various computing environments. Conventional encryption systems and classical cryptography. Confidentiality using conventional encryption. Public key cryptography and protocols for authentication and digital signatures. Recent cryptanalytic attacks on conventional and public key systems. Intruders, worms, viruses and trusted systems. Firewalls and internetwork security. A survey of applications and problems arising in contemporary computer security. Prereq.: CSc 22000, CSc 30400, and (CSc 21700 or EE 31100). 3 hr./wk.; 3 cr.

48600: Introduction to Computational Complexity

An introduction to the performance and limitations of computer algorithms through a study of selected algorithms. Topics include primality testing and integer factorization, algorithms for integer programming and knapsack problems, reductions and NP-completeness, randomized algorithms, and experimental algorithms arising from new technologies such as molecular, neural, and quantum computing. Prereq.: CSc 21700 and CSc 30400. 3 hr./wk.; 3 cr.

51001-51004: Independent Study

Independent study and research under the supervision of a mentor. Prereq.: departmental approval. Hours vary; 1-4 cr.

59800: Senior Project

Senior projects under the supervision of a mentor. Prereq.: departmental approval. Hours vary; 3 cr.

59866 and 59867: Senior Project I & II

This is a two semester capstone course. The student is required to complete a significant project in computer science or engineering under the mentorship of a faculty member. In addition to technical material required for successful completion of a specific project, topics include

identification of a problem, background research, social, ethical and economic considerations, intellectual property and patents and proposal writing, including methods of analysis and theoretical modeling. A detailed project proposal is formulated in the first semester, and the project is completed in the second semester. Each student is required to write an in-depth report, and to make an oral presentation to the faculty. Senior year students only, or permission of the department. 3 class and 3 design hr./wk.; 3 cr. per semester for two consecutive semesters.

59900: Selected Topics in Computer Science

Topics of current interest in the field. Independent study and seminars. Prereq.: departmental approval. Variable hr./ cr.

FACULTY

Michael Anshel, Professor

B.A. (Math), Adelphi Univ., M.S., Ph.D.

Octavio Betancourt, Professor

B.S. (Engr.), Univ. of Chile, M.S. (Math); Ph.D. (Math), New York Univ.

Peter Brass, Associate Professor

Dipl. Math, Dr. Rer. Nat. (Math), Technical Univ. of Braunschweig

Nelly Fazio, Assistant Professor

Laurea (CSc), Universita di Catania (Italy); M.Sc. (CSc), Ph.D. (CSc) New York University

Izidor Gertner, Professor

M.S. (E.E.), KPI, Kaunas, Lithuania; Ph.D. (ECE), Technion (Israel)

Irina Gladkova, Associate Professor

B.S. (Mathematics), Donetsk State Univ.; Ph.D. (Mathematics) CUNY

Michael D. Grossberg, Assistant Professor

B.A., Univ. of Penn.; Ph.D., MIT

Akira Kawaguchi, Associate Professor

B.S. (Admin. Engr.), Keio Univ. (Japan), M.S.; M.S., Columbia Univ., Ph.D.

Devendra Kumar, Associate Professor

B.Tech. (E.E.), Indian Institute of Technology (Kanpur); M.A. (C.Sc.), Univ. of Texas at Austin, Ph.D.

Stephen Lucci, Associate Professor

B.S. (Math), SUNY (Stony Brook); M.S. (C.Sc.), The City College; Ph.D. (C.Sc.), CUNY

Daniel McCracken, Professor

B.A. (Math), Central Washington Univ., B.A. (Chem); M.Div., Union Theological Seminary

Abbe Mowshowitz, Professor

B.S. (Math), Univ. of Chicago; M.S. (Math), Univ. of Michigan, Ph.D. (C.Sc.)

Janos Pach, Distinguished Professor

M.S. (Math), Eotovis Univ. (Hungary); Ph.D.; Doctorate, Hungarian Academy of Sciences

Kaliappa Ravindran, Professor

B.E. (E.E.), Indian Institute of Science, M.E. (C.Sc.); Ph.D. (C.Sc.), Univ. of British Columbia

George G. Ross, Professor

B.S. (Ch.E.), Cooper Union; M.S. (Ch.E.), New York Univ., M.S. (Math), Ph.D.

William E. Skeith, Assistant Professor

B.S. (Math), Pepperdine Univ., BA (CSc); Univ. of Los Angeles, MA (Math), Ph.D.

Douglas R. Troeger, Associate Professor and Chair

A.B. (Phil), Brown Univ., Sc. B. (Chem); M.Sc., Ph.D. (Math), Stevens Inst. of Tech.

Michael Vulis, Associate Professor

B.S. (Math), Leningrad State Univ. (Russia); M.S. (C.Sc.), CUNY, Ph.D. (Math)

Jie Wei, Associate Professor

B.S. (C.Sc.), Univ. of Sci. & Tech. of China (China); M.S. (C.Sc.), Chinese Academy of Sciences (China); Ph.D. (C.Sc.), Simon Fraser Univ. (Canada)

George Wolberg, Professor

B.E. (EE), Cooper Union, M.E. (EE); Ph.D. (C.Sc.), Columbia Univ.

Jianting Zhang, Assistant Professor

B.S. (Water Resources and Environment), Nanjing Univ. (China); M.S. (Physical Geography), Nanjing Univ. (China); M.S. (CSc), Univ. of Oklahoma; Ph.D. (CSc), Univ. of Oklahoma

Zhigang Zhu, Professor

B.S., (CSc.), Tsinghua Univ., M.E., Ph.D.

PROFESSORS EMERITI

Gilbert Baumslag

Stefan A. Burr

Stanley Habib

Valentin F. Turchin

Earth System Science and Environmental Engineering Program

(INTERDISCIPLINARY PROGRAM OF THE SCHOOL OF ENGINEERING AND THE DIVISION OF SCIENCE)

Professor Fred Moshary, Director • T417 • Tel: 212-650-7251

Dr. Meg Krudysz, Program Administrator • Program Office: ST-416 • Tel: 212-650-8299

GENERAL INFORMATION

The City College offers the following undergraduate degree in Earth System Science and Environmental Engineering:

B.E.

PROGRAMS AND OBJECTIVES

Human activity is increasingly perturbing environmental systems. Deterioration of the environment through depletion of natural resources such as air, water and soil results in the destruction of ecosystems and climate change. Environmental issues are emerging as matters of major policy interest in the 21st century. Issues such as emission control, climate change and global warming, resource management, public health, and environmental remediation are already taking center stage in the public policy arena and will continue to do so in the coming decades, driving scientific and engineering research in these cross disciplinary areas. It is now clear that sustainable development will hinge on engineering and science solutions that take into account interactions between human activity and the Earth system. A sustainable planet requires engineers and scientists to understand the impact of their decisions on built and natural systems.

Earth System Science and Environmental Engineering (ESE) is an interdisciplinary degree program through the Grove School of Engineering and the Science Division of CCNY. The program has been established to satisfy the requirements of government and private industry to address 21st century environmental and climate problems. Through

carefully selected courses in both Engineering and Science, the ESE curriculum provides a well-rounded foundation in both engineering design and applications and the scientific basis for environmental issues. Flexibility is achieved by requiring each student to focus on a set of electives tailored to an approved specialization within ESE.

MISSION

The mission of the Program in Earth System Science and Environmental Engineering at The City College of New York, in conformity with the mission of the School of Engineering, is:

- I. To provide students with both a broad multidisciplinary education on interacting environmental systems and a targeted in-depth exposure to specialized and emerging areas.
- II. To educate a diverse student body to carry out basic and applied research leading to new ideas, systems and solutions in the environmental engineering, earth systems science and related fields.
- III. To offer advice, service, and support to industry, government agencies, schools, community groups and professional societies.
- IV. To insure that the above is carried out in appropriate and modern facilities that are conducive to learning.

PROGRAM EDUCATIONAL OBJECTIVES

The faculty and students of the Earth System Science and Environmental Engineering Program have established the following educational objectives:

- A. Perform effectively and ethically in a global multicultural environment.
- B. Contribute actively to assist decision-makers in the formulation of public policy by participating in professional societies, actively publishing and attending and presenting at local and national conferences and meetings.
- C. Function effectively in multidisciplinary endeavors especially between engineering and the sciences.
- D. Provide a foundation for students to be well situated to progress to positions of leadership
- E. Apply sound scientific knowledge and engineering principles to real world problems to meet the needs of society.

PROGRAM OUTCOMES

Students receiving a B.E. in Earth System Science and Environmental Engineering are expected to have attained the following set of outcomes:

- A. an ability to apply knowledge of mathematics, science, and engineering;
- B. an ability to design and conduct experiments, as well as to analyze and interpret data;
- C. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability;
- D. an ability to function on multidisciplinary teams;
- E. an ability to identify, formulate, and solve engineering problems;

- F. an understanding of professional and ethical responsibility;
- G. an ability to communicate effectively;
- H. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context;
- I. a recognition of the need for, and an ability to engage in life-long learning;
- J. a knowledge of contemporary issues; an appreciation of environmental, economic, and technological issues and their impact on society;
- K. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice;
- L. preparation for pursuing advanced degrees;
- M. Competence in computational and simulation tools;
- N. Competence in engineering probability and statistics.

TRANSFER CREDITS

The Earth System Science and Environmental Engineering Program grants transfer credits for relevant engineering and science courses that have content that match City College courses. All cases must be accompanied by documentation at the evaluation session. Such documentation include:

- complete, official transcript;
- complete class notes;
- textbooks used;
- reports written;
- homework;
- professionally executed, detailed engineering drawings if applicable.

Only grades of C or better will be accepted for transfer credits.

CURRICULUM

The driving concept behind the curriculum is to provide students with a rigorous and yet flexible program. At the same time, the program seeks to integrate existing related courses at CCNY into a coherent course of study in Earth System Science and Environmental Engineering.

To ensure students develop a coherent course of study, every student will be required to prepare a Program of Study in their sophomore year together with their assigned faculty advisor. The program of study will then be submitted by the faculty advisor to the Earth System Science and Environmental Engineering Curriculum Committee for approval.

A student will be able to make changes in the program, but any future changes in the program will require the same approval procedure. The approved program will be submitted to the office of the Undergraduate Associate Dean to be used as the blueprint for the graduation requirement for each student.

REQUIREMENTS FOR MAJORS

| | |
|---|---|
| Math and Science Requirements | |
| Biology: | |
| Approved Course (from list below) | 4 |
| Chemistry: | |
| Chem 10301 and 10401: General Chemistry (with lab)* | 8 |
| Computer Science: | |
| CSC 10200: Introduction to Computing | 3 |
| Earth and Atmospheric Sciences: | |
| EAS 21700: Systems Analysis of Earth | 4 |
| Mathematics: | |
| Math 20100: Calculus I* | 3 |
| Math 20200: Calculus II* | 3 |
| Math 20300: Calculus III* | 4 |
| Math 39100: Methods of Differential Equations* | 3 |
| Math 39200: Linear Algebra and Vector Analysis* | 3 |

| | |
|--|---|
| Physics: | |
| Phys 20700 and 20800: General Physics* | 8 |
| <i>*Minimum grade of "C" required</i> | |

Total Math and Science credits 43

Total English and Liberal Arts 24

Refer to the School of Engineering section for details. Engr 27600: Engineering Economics (3 cr.) may be taken as one of the six General Education/Liberal Art electives.

| | |
|---|---|
| Major Engineering Requirements | |
| Engr 10100: Engineering Design I | 1 |
| Engr 10300: Computer-Aided Analysis Tools for Engineers | 2 |
| Engr 10610: Earth System Science & Engineering | 4 |

Restricted Engineering Elective (Select One): 3

| | |
|--|---|
| Engr 20400: Electrical Circuits (3 cr.) | |
| CE 23100: Introduction to Structural Mechanics (3 cr.) | |
| Engr 30100: Intro to Remote Sensing | 3 |
| Engr 59910: Geographical Information Systems* | 3 |
| Engr 59869: Earth System Science and Environmental Engineering Design I | 2 |
| Engr 59870: Earth System Science and Environmental Engineering Design II | 3 |

| | |
|---|--|
| Fluid Mechanics option (Select one): 3 | |
| CE 35000: Fluid Mechanics (3 cr.) | |
| ME 35600: Fluid Mechanics (3 cr.) | |
| ChE 34100: Transport Phen I (3 cr.) | |

| | |
|--|--|
| Thermodynamics option (Select one from a, b, or c): 3 | |
| a. ChE 22900: Thermodynamics I (3 cr.) | |
| b. Chem 33000: Physical Chemistry I (3 cr.) | |
| c. Engr 23000: Thermodynamics (3 cr.) | |

| | |
|---|---|
| Restricted Advanced Elective (Select one from a, b, c corresponding to above or select d): 3 | |
| a. ChE 33000: Thermodynamics II (3 cr.) | |
| b. Chem 33200: Physical Chemistry II (3 cr.) | |
| c. ME 43000: Thermal Systems Analysis (3 cr.) | |
| d. Chem 26100: Organic Chemistry I (3 cr.) | |
| CE 26400: CE Data Analysis | 3 |

| | |
|---|---|
| CE 36500: Hydraulics and Hydrology | 3 |
| CE 37200: Environmental Impact Assessment | 3 |
| CE 47400: Environmental Engineering | 3 |

Total Major Engineering Requirements 41**Technical Electives 18**

These are to be selected from the list of approved engineering and science courses below. An appropriate sequence of courses will be selected based on student interest and with the approval of the student's academic advisor.

| | |
|-------------------------------------|---------|
| Engr 5100X: Special Projects in ESE | (3 cr.) |
| CE 40100: Fundamentals of Engr. | (3 cr.) |

Remote Sensing

| | |
|----------------------------------|---------|
| EAS 31700: Satellite Meteorology | (3 cr.) |
| Engr 55680: Special Topics in RS | (3 cr.) |
| EE 42800: Photonics Lab | (3 cr.) |
| EE 46200: Photonics Engineering | (3 cr.) |
| Phys 45200: Optics | (3 cr.) |

Water Resources

| | |
|----------------------------------|---------|
| CE45100: Water Resources | (3 cr.) |
| CE 57100: Water Quality Analysis | (3 cr.) |
| EAS 34500: Hydrology | (3 cr.) |
| EAS 44600: Groundwater Hydrology | (3 cr.) |

Energy

| | |
|-------------------------------------|---------|
| ChE 59812: Energy Systems Engr. | (3 cr.) |
| EE 35700: Power Engineering | (3 cr.) |
| EE 45500: Elements of Power Sys | (3 cr.) |
| ME 43300: Heat Transfer | (3 cr.) |
| ME 47100: Energy Systems Design | (3 cr.) |
| ME 53600: Energy Conversion | (3 cr.) |
| ME 54700: Environmental Control | (3 cr.) |
| EAS 43900: Mineral/Energy Resources | (3 cr.) |

Earth Systems/Geosciences

| | |
|--|---------|
| EAS 30800: Earth Systems Modeling | (3 cr.) |
| EAS 31800: Fundamentals of Atmospheric Science | (3 cr.) |
| EAS 36500: Coastal & Ocean Processes | (3 cr.) |
| EAS 41300: Environmental Geochemistry | (3 cr.) |
| EAS 48800: Climate Change | (3 cr.) |
| EAS 56100: Geophysics | (3 cr.) |

Environmental

| | |
|---|---------|
| Engr 59803: Industrial Ecology | (3 cr.) |
| CE 48200: Environmental Eng II | (3 cr.) |
| EAS 32800: Global Environmental Hazards | (3 cr.) |
| Chem 24300: Quantitative Analysis | (3 cr.) |
| Chem 6100: Organic Chemistry I | (3 cr.) |
| Chem 26200: Organic Chemistry Lab I | (2 cr.) |
| Chem 26300: Organic Chemistry II | (3 cr.) |
| Chem 27200: Organic Chemistry Lab | (2 cr.) |
| Chem 40600: Environmental Chemistry | (3 cr.) |
| Chem 40601: Environmental Chemistry Lab | (2 cr.) |
| Chem 40700: Environmental Organic Chemistry | (3 cr.) |

Engineering/Science

| | |
|---|---------|
| ChE 34200: Transport Phenomena II | (3 cr.) |
| EE 20500: Linear Systems I | (3 cr.) |
| EE 33000: Electromagnetics | (3 cr.) |
| ME 55600: Advanced Fluid Mechanics | (3 cr.) |
| Chem 33100: Physical Chemistry Lab I | (2 cr.) |
| Chem 33200: Physical Chemistry II | (3 cr.) |
| Chem 43400: Physical Chemistry/Chem Instrumentation Lab | (2 cr.) |
| Phys 32100: Modern Physics | (3 cr.) |
| Phys 32300: Quantum Mechanics | (3 cr.) |
| Phys 35100: Mechanics | (3 cr.) |
| Phys 45100: Thermal & Statistical Physics | (3 cr.) |
| Bio 10100: Biological Foundations I | (4 cr.) |
| Bio 10200: Biological Foundations II | (4 cr.) |
| Bio 20700: Organismic Biology | (4 cr.) |
| Bio 22800: Ecology & Evolution | (4 cr.) |
| Bio 22900: Cell & Molecular Biology | (4 cr.) |
| Bio 35000: Microbiology | (4 cr.) |

Analysis/Computation

| | |
|--|---------|
| CE 33500: Computational Methods in CE | (3 cr.) |
| ChE 49000: Probability, Statistics and Design of Experiments | (3 cr.) |
| EE 31100: Probability and Statistics | (3 cr.) |
| ME 32200: Computational Methods in Engineering | (3 cr.) |

Total Credits**127****RECOMMENDED SEQUENCE OF COURSES****First Semester**

| | |
|----------------------------------|---------|
| Math 20100: Calculus I* | (3 cr.) |
| Chem 10301: General Chemistry I | (4 cr.) |
| Engr 10100: Engineering Design I | (1 cr.) |
| Engl 11000: Freshman Composition | (3 cr.) |
| Liberal Arts | (3 cr.) |

14 credits**Second Semester**

| | |
|---|---------|
| Math 20200: Calculus II* | (3 cr.) |
| Chem 10401: General Chemistry II | (4 cr.) |
| Phys 20700: General Physics I | (4 cr.) |
| Engr 10601: Introduction to Earth Systems | (4 cr.) |
| CSc 10200: Introduction to Computing | (3 cr.) |

18 credits**Third Semester**

| | |
|--|---------|
| Math 20300: Calculus III* | (4 cr.) |
| Phys 20800: General Physics II | (4 cr.) |
| Engr 10300: Analysis Tools for Engineers | (2 cr.) |
| EAS 21700: Systems Analysis of the Earth | (4 cr.) |
| Engl 21007: Writing for Engineering | (3 cr.) |

17 credits**Fourth Semester**

| | |
|---|---------|
| Math 39100: Methods of Differential Equations* | (3 cr.) |
| Math 39200: Linear Algebra and Vector Analysis* | (3 cr.) |
| Restricted Engineering Elective | (3 cr.) |
| Thermodynamics option | (3 cr.) |
| CE 26400: CE Data Analysis | (3 cr.) |

15 credits**Fifth Semester**

| | |
|--|---------|
| Engr 59910: Geographical Information Science | (3 cr.) |
| Fluid Mechanics option | (3 cr.) |
| Bio 10100: Foundations of Biology | (4 cr.) |
| Technical Elective | (3 cr.) |
| Restricted Advanced Elective | (3 cr.) |

16 credits**Sixth Semester**

| | |
|--|---------|
| CE 37200: Environmental Impact Analysis | (3 cr.) |
| Engr 30100: Introduction to Remote Sensing | (3 cr.) |
| Technical Elective | (3 cr.) |

Liberal Arts (3 cr.)
CE 365000: Hydraulics & Hydrology
(3 cr.)

15 credits

Seventh Semester

CE 47400: Environmental
Engineering (3 cr.)
Engr 59869: ESE Design I (2 cr.)
2 Technical Electives (6 cr.)
2 Liberal Arts (6 cr.)

17 credits

Eighth Semester

Engr 59870: ESE Design II (3 cr.)
2 Technical Electives (6 cr.)
2 Liberal Arts (6 cr.)
15 credits

* *minimum grade of "C" required*

Advisement

All full-time faculty serve as undergraduate advisors. A faculty member in the ESE field of interest or specialization will be assigned to each undergraduate major in the sophomore year and serve as program advisors and transfer credit evaluators.

COURSE DESCRIPTIONS

All courses are offered through various CCNY science and engineering departments and are listed and described under the respective departments. The ESE courses are described below.

ENGR/EAS 10610: Introduction to Earth System Science and Engineering

The goal of this introductory course is to obtain an understanding of the entire Earth system on a global scale by studying its component parts (Atmosphere, Hydrosphere, Geosphere, and Biosphere); the interactions, linkages and dynamic equilibrium among these components on various time scales; and external forces on the system. This formulation is then applied to understanding the impact and interaction of anthropogenic factors, including modern engineering systems, on the environment (complex non-engineered systems). Examples will include topics such as global warming and sea level rise, etc. Select Laboratory Exercises: Minerals and Rocks, Simple Systems Computer Models, Mapping, Remote Sensing Data Handling and Visualization (IDL/ENVI). 3 hr./wk. lecture, 3 hr./wk. lab.; 4 cr.

ENGR 30100: Introduction to Remote Sensing and Imaging

Introduction to Satellite Remote Sensing and Imaging: Basic principles of remote sensing including the electromagnetic

spectrum, blackbody radiation, atmospheric scattering, reflection, absorption and emission. Detailed description of current satellite sensors, spectrometers and platforms. Spectral characteristics of atmospheric gases, ocean, soils and vegetation. High spatial and spectral resolution satellite remote sensing. Integration and visualization of geoscience data. Feature analysis, Supervised and unsupervised land classification. Prereq.: CS102 or ENGR103, Math 20300, Physics 20800. 3 hr./wk.; 3 cr.

ENGR 59869: Environmental and Earth System Science and Engineering Design I

Senior Students Only. Prerequisite: Completion of the Structured Engineering/Science Sequence. 1.5 hr. lecture/wk., 1.5 hr. supervised team meeting/wk.; 2 cr.

ENGR 59870: Environmental and Earth System Science and Engineering Design II

This is a two semester design sequence for Earth System Science and Environmental Engineering Students. The student is required to design and implement a solution that addresses a specific Earth system/environmental engineering problem or question. The weekly lectures (during both semesters) expose students to principals of engineering design, including identification of a problem, background research, social environmental, ethical and economic considerations, intellectual property and patents and proposal writing including methods of engineering analysis and modeling. A detailed design proposal is completed during the first semester. The second semester is devoted to intensive design implementation. For the second semester, students are required to write a midterm progress report and an in depth engineering final report. They must also make an oral final presentation and demonstration to the faculty. 1.5 hr. lecture/wk., 3 hr. supervised design implementation workshop, 1 hr. design team meeting; 3 cr.

ENGR 55680: Special Topics in Remote Sensing

The course will provide an advanced and thorough presentation of a few topically relevant remote sensing techniques/ applications beyond Engr 30100 (Satellite Remote Sensing and Imaging). The topics will be chosen based on a combination of faculty and student interest in the areas of atmosphere, ocean and land remote sensing. The course will conclude with a semester ending team oriented project based intensively on analysis and interpretation of remote sensing data. 3 hr./wk.; 3 cr.

ENGR 59910: Introduction to GIS

Develop an understanding of geographic space and how maps represent geographic space. A student must be able to read maps, as well as write about and discuss information gleaned from maps. ArcGIS 9 will be used as GIS tool for this course. By completing this course, students will: understand the basic concepts of geography necessary to efficiently use GIS technology, gain a basic, practical understanding of GIS concepts, techniques and real world applications, understand basic GIS analysis concepts and practical applications of GIS, and gain practical experience using basic GIS tools to build useful maps. 3 hr./wk.; credits

PROGRAM DIRECTORS

Fred Moshary, Professor, Electrical Engineering

Jeffrey Steiner, Professor, Earth and Atmospheric Sciences

PARTICIPATING FACULTY

Samir Ahmed

Herbert Kayser Professor, Electrical Engineering

Teresa Badosz

Professor, Chemistry

Sanjoy Banerjee

Distinguished Professor, Chemical Engineering Director of CUNY Energy Institute

Karin Block

Assistant Professor, Earth and Atmospheric Sciences

Vasil Diyamandoglu

Assistant Professor, Civil Engineering

John Fillos

Professor, Civil Engineering

Stanley Gedzelman

Professor, Earth and Atmospheric Sciences

Alexander Gilerson

Associate Professor, Electrical Engineering

Irina Gladkova

Associate Professor, Computer Science

Jorge Gonzalez

Professor, Mechanical Engineering

Barry Gross

Associate Professor, Electrical Engineering

Michael Grossberg

Assistant Professor, Computer Science

Urs Jans

Associate Professor, Chemistry

Patricia Kenyon

Professor, Earth and Atmospheric Sciences

Reza Khanbilvardi

Professor, Civil Engineering
NOAA Chair

Nir Krakauer

Assistant Professor, Civil Engineering

Jae Lee

Associate Professor, Chemical Engineering

Zhengshao (Johnny) Lau

Assistant Professor, Earth and Atmospheric Sciences

Shayesti Mahani

Assistant Professor, Civil Engineering

Frederica Raia

Associate Professor, Earth and Atmospheric Sciences

Irven Rinard

Professor, Chemical Engineering

William Rossow

Distinguished Professor, Electrical Engineering

Leonid Roytman

Professor, Electrical Engineering

Hansong Tang

Assistant Professor, Civil Engineering

Marco Tedesco

Assistant Professor, Earth and Atmospheric Sciences

Yigli Tian

Associate Professor, Electrical Engineering

Charles Vörösmarty

Presidential Professor, Civil Engineering

Margaret Winslo

Professor, Earth and Atmospheric Sciences

Beth Wittig

Assistant Professor, Civil Engineering

Pengfei Zhang

Associate Professor, Earth and Atmospheric Sciences

Department of Electrical Engineering

Professor Roger Dorsinville, Chair • Department Office: ST 602 • Tel: 212-650-7248

GENERAL INFORMATION

The City College offers the following undergraduate degree in Electrical Engineering:

B.E. (E.E.)

PROGRAMS AND OBJECTIVES

Electrical engineers are involved in the design of components and systems, ranging from the smallest computer chips to large communication systems that span the earth and reach into intergalactic space. The invention of the transistor touched off a technological revolution that continues unabated today, including the development of lasers, fiber optics, microcomputers, satellite communications, control systems, and increasingly sophisticated signal processing algorithms, to name but a few areas.

The undergraduate program in electrical engineering welcomes students who have a solid preparation in mathematics and the sciences. The course of study trains students in analytical procedures to solve specific problems; in laboratory methods to examine complex electrical phenomena; and ultimately in design synthesis to meet specified criteria for systems required to perform specific functions. The program emphasizes mathematical modeling and abstract reasoning because electrical phenomena cannot normally be directly perceived safely by human senses. The program's core curriculum trains students to master the reasoning methods required for electrical engineering. Core areas include linear systems and controls, robotics, photonics, electronics, communications, and computers. Through a variety of elective courses, students are then able to

pursue special interests in such areas as photonics, computer engineering, control systems, digital signal processing, networks, telecommunications, microwaves, and robotics.

The faculty of the department enhance their teaching activities with a number of active research programs. Advanced students are encouraged to participate in these research efforts.

MISSION

The mission of the Department of Electrical Engineering at The City College, in conformity with the mission of the School of Engineering, is:

- I. To educate well-rounded and conscientious electrical engineers capable of becoming leaders in their profession.
- II. To carry out basic and applied research leading to new ideas, systems, and devices in electrical engineering and related interdisciplinary areas.
- III. To offer advice, service, and support to industry, government agencies, schools, community groups and professional societies.
- IV. To insure that the above is carried out in appropriate and modern facilities that are conducive to learning.

PROGRAM EDUCATIONAL OBJECTIVES

In order to achieve the above-mentioned mission, the faculty and students of the Electrical Engineering Department have established the following Undergraduate Program Educational Objectives:

- A. Apply sound scientific knowledge and engineering principles to real

world problems to meet the needs of society.

- B. Contribute actively to the field by participating in professional societies, publishing, attending conferences and seeking patents.
- C. Function effectively in multidisciplinary teams and progress to leadership roles.
- D. Perform effectively and ethically in a global multicultural environment.

PROGRAM OUTCOMES

The Program Educational Objectives listed above are the basis for the following Program Outcomes expected of all graduates receiving the B.E. (E.E.) degree:

- a. an ability to apply knowledge of mathematics, science and engineering;
- b. an ability to design and conduct experiments, as well as to analyze and interpret data;
- c. an ability to design a system, component, or a process to meet desired needs;
- d. an ability to function on multidisciplinary teams;
- e. an ability to identify, formulate, and solve real world electrical engineering problems;
- f. an understanding of professional and ethical responsibility;
- g. an ability to communicate effectively, including the use of information technology tools when appropriate;
- h. the broad education necessary to understand the impact of engineering solutions in a global and societal context;

- i. a recognition of the need for, and an ability to engage in life-long learning;
- j. a knowledge of contemporary issues: an appreciation of environmental, economic and technological issues and their impact on society;
- k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice;
- l. preparation for pursuing advanced degrees;
- m. competence in computational and simulation tools;
- n. competence in engineering probability.

REQUIREMENTS FOR MAJORS

All Electrical Engineering majors must complete the following:

Math and Science Requirements

Required Courses

Chemistry:

10301: General Chemistry 4

Computer Science:

10200: Introduction to Computing 3

Mathematics:

20100: Calculus I* 3

20200: Calculus II* 3

20300: Calculus III* 4

39100: Methods of Differential Equations* 3

39200: Linear Algebra and Vector Analysis for Engineers* 3

Physics:

20700-20800: General Physics* 8

32300: Quantum Mechanics for Engineers 3

* Minimum grade of "C" required.

Total Math and Science Credits 34

English and Liberal Arts (General Education) Requirements

Refer to the Grove School of Engineering section for details.

Total English and Liberal Arts (General Education) Credits 21

Engineering Requirements

Required Courses

Engineering:

10100: Engineering Design I* 1

10300: Computer-Aided Analysis Tools for Engineers 2

20400: Electrical Circuits 3

27600: Engineering Economics 3

Electrical Engineering:

20500: Linear Systems Analysis I 3

21000: Switching Systems 3

22100: Electrical Engineering Laboratory I 1

24100: Electronics I 3

25900: Programming for Electrical Engineering 4

30600: Linear Systems Analysis II 3

31100: Probability and Statistics 3

31200: Communication Theory 3

32200: Electrical Engineering Laboratory II 1

33000: Electromagnetics 3

33900: Semiconductor Materials and Devices 3

59866: Senior Design I 3

59867: Senior Design II 3

Total Required Engineering Credits 45

**New transfer students who have successfully completed Calculus II (Math 20200) should not take Engr 10100. Instead, they are required to complete an additional EE Advanced Laboratory Elective course.*

Electrical Engineering Restricted Electives

Choose 3 of the following:

33300: Introduction to Antennas, Microwaves and Fiber Optics (3 cr.)

34200: Electronics II (3 cr.)

37100: Linear Feedback Systems (3 cr.)

44100: Electronic Devices and Semiconductor Materials (3 cr.)

44400: Digital Computer Systems (3 cr.)

Electives

All majors must complete the credit requirements from the A and B Electives lists:

A. Lecture Electives

All majors, in consultation with their faculty advisor, must select 18 credits of Lecture Electives, at least 9 credits of which must be in Electrical Engineering courses.

Electrical Engineering:

33300: Introduction to Antennas, Microwaves and Fiber Optics (3 cr.)

34200: Electronics II (3 cr.)

37100: Linear Feedback Systems (3 cr.)

35700: Electric Power Engineering (3 cr.)

43800: Management Concepts for Engineers (3 cr.)

44100: Electronic Devices and Semiconductor Materials (3 cr.)

44400: Digital Computer Systems (3 cr.)

45100: Communication Electronics (3 cr.)

45200: Fiber Optic Communications (3 cr.)

45300: Digital Signal Processing (3 cr.)

45400: Physical Electronics (3 cr.)

45500: Elements of Power Systems (3 cr.)

45600: Elements of Control Theory (3 cr.)

45700: Digital Integrated Circuits (3 cr.)

45800: Introduction to Lasers (3 cr.)

45900: Microprocessors (3 cr.)

46000: Computer Communication Systems (3 cr.)

46200: Photonic Engineering (3 cr.)

46300: Wireless Communications (3 cr.)

46400: VSLI Design (3 cr.)

47100: Introduction to Digital Image Processing (3 cr.)

51000: Independent Study (1 or 3 cr.) (departmental approval required)

Computer Science:

31800: Internet Programming (3 cr.)

34200: Computer Organization (3 cr.)

Mathematics:

32800: Numerical Analysis** (3 cr.)

Physics:

45200: Optics (3 cr.)

Engineering***:

23000: Thermodynamics (3 cr.)

30000: Social Issues of Biomedical Engineering (3 cr.)

30100: Introduction to Satellite

Remote Sensing and Imaging (3 cr.)

I0600: Applied Algebra (3 cr.)

I1100: Engineering Analysis (3 cr.)
I1200: Complex Variables (3 cr.)

Biomedical Engineering:

50100: Cell and Tissue Mechanics (3 cr.)
50200: Cell and Tissue Transport (3 cr.)
50300: Cell and Tissue Biomaterial Interactions (3 cr.)
50500: Image and Signal Processing (3 cr.)

Chemical Engineering:

49808: Nanomaterials (3 cr.)

Chemistry:

10401: General Chemistry II (3 cr.) (minimum grade of C required)

** Credit cannot be received for both Math 32800 and CSc 44000.

*** For graduate courses, GPA of 2.75 or higher; minimum grade of C is required.

B. Advanced Laboratory Electives

Three (3 credits) of the following courses:

Electrical Engineering:

32300: Lab III (1 cr.)
42100: Local Area Network Laboratory (1 cr.)
42200: Analog Laboratory (1 cr.)
42500: Computer Engineering Laboratory (1 cr.)
42600: Control Laboratory (1 cr.)
42800: Photonics Engineering Laboratory (1 cr.)

Total Elective Credits 20

Total Credits for Major 130

Additional Requirements for Graduation

Refer to the Grove School of Engineering section for details.

RECOMMENDED SEQUENCE OF COURSES

First Semester*

Math 20100: Calculus I (3 cr.)
Chem 10301: General Chemistry (4 cr.)
Engr 10100: Engineering Design I (1 cr.)
Eng 11000: Freshman Composition (3 cr.)
One Liberal Arts course (3 cr.)
14 Credits

Second Semester

Math 20200: Calculus II (3 cr.)
Phys 20700: General Physics I (4 cr.)

CSc 10200: Introduction to Computing (3 cr.)
Engr 10300: Computer-Aided Analysis Tools for Electrical Engineers (2 cr.)
Eng 21007: Writing for Engineering (3 cr.)
Liberal Arts course (3 cr.)
18 Credits

Third Semester

Math 20300: Calculus III (4 cr.)
Phys 20800: General Physics II (4 cr.)
Engr 20400: Electrical Circuits (3 cr.)
EE 21000: Switching Systems (3 cr.)
Liberal Arts course (3 cr.)
17 Credits

Fourth Semester

Math 39100: Methods of Differential Equations (3 cr.)
Math 39200: Linear Algebra and Vector Analysis for Engineers (3 cr.)
EE 20500: Linear Systems Analysis I (3 cr.)
EE 22100: Electrical Engineering Laboratory I (1 cr.)
EE 24100: Electronics I (3 cr.)
Phys 32300: Quantum Mechanics for Engineers (3 cr.)
16 Credits

Fifth Semester

EE 30600: Linear Systems Analysis II (3 cr.)
EE 31100: Probability and Statistics (3 cr.)
EE 32200: Electrical Engineering Laboratory II (1 cr.)
EE 33000: Electromagnetics (3 cr.)
EE Restricted Elective (3 cr.)
EE 25900: Programming for Electrical Engineering (4 cr.)
17 Credits

Sixth Semester

EE 31200: Communication Theory (3 cr.)
EE Lab Elective (1 cr.)
EE Restricted Elective (3 cr.)
EE 33900: Semiconductor Materials and Devices (3 cr.)
Two Lecture Elective courses (6 cr.)
16 Credits

Seventh Semester

EE Restricted Elective (3 cr.)
Engr 27600: Engineering Economics (3 cr.)
EE Lecture Elective (3 cr.)
Two Liberal Arts courses (6 cr.)

EE 59866: Senior Design I (3 cr.)

18 Credits

Eighth Semester

EE 59867: Senior Design II (3 cr.)
EE Restricted Elective (3 cr.)
Three Lecture Elective courses (9 cr.)
Two EE Advanced Laboratory Elective courses (2 cr.)
17 Credits

ADVISEMENT

All full-time faculty serve as undergraduate advisors. Students attending mostly in the evening should consult the Department bulletin board for special arrangements.

COURSE DESCRIPTIONS

20500: Linear Systems Analysis I

Laplace transform, s-domain circuit analysis, network functions, frequency response. Fourier series and Fourier transform. Parseval theorem. Prereq: Engr 20400; pre- or coreq.: Engr 10300, Math 39100 (min. C grade). 3 hr./wk.; 3 cr.

21000: Switching Systems

Analysis and synthesis of combinatorial circuits. Karnaugh maps. Analysis and design of sequential circuits. Digital computer and industrial applications. Prereq.: Math 20200 (min. C grade). 3 hr./wk.; 3 cr.

22100, 32200, 32300: Electrical Engineering Laboratory I, II, III

Experiments and design problems based on material drawn from the electrical engineering (Engr 20400, EE 21000, EE 24100, EE 34200). Test and measurement instruments, Virtual instruments and computer instrumentation, Electric and electronic circuits. Transient and frequency response, Logic circuits, Logic circuits, Discrete circuits. Operational amplifiers. 3 lab hr./wk.; 1 cr. each. EE 22100: prereq.: Engr 20400, EE 21000; pre- or coreq: Engr 10300. EE 32200 prereq.: EE 22100, EE 24100. EE 32300 prereq.: EE 32200, EE 34200.

24100: Electronics I

Electronic devices and their use in analog circuits. Prereq.: Phys 20800 (min. C grade); pre- or coreq.: EE 20500 and EE 21000. 3 hr./wk.; 3 cr.

25900: Programming for Electrical Engineering

Part I. C++ and UNIX: UNIX preliminaries, C++ program format, data types, file I/O classes, overload operators, inheritance. Part II. Electrical engineering applications: projects on numerical solutions of linear equation systems, numerical differentiation/integration, least square

approximations, etc. Prereq.: CSc 10200, Engr 10300; pre- or coreq.: Math 39100 (min. C grade), Math 39200 (min. C grade). 4 hr./wk., 4 cr.

30600: Linear Systems Analysis II

Discrete-time signals. Discrete-time systems. Linear, shift-invariant discrete-time systems. Convolution. The Z-transform. Transfer functions. The Fourier transform. Fourier analysis of discrete-time systems. Sampling in the time and frequency domains. Prereq.: EE 20500. 3 hr./wk.; 3 cr.

31100: Probability and Statistics

Sample space and probability theory. Density and distribution functions of single and multiple discrete and continuous random variables. Functions of random variables. Expectation, variance and transforms. Independence, covariance and correlation. Central limit theorem, weak/strong law of large numbers. Introduction to random processes. Confidence intervals, hypothesis testing, simple linear regression techniques, chi-square minimization methods. Prereq.: Math 20300. 3 hr./wk.; 3 cr.

31200: Communication Theory

Amplitude modulation, frequency modulation, noise in amplitude modulation systems, noise in frequency modulation systems, analog to digital conversion, digital modulation techniques. Prereq.: EE 31100. 3 hr./wk.; 3 cr.

33000: Electromagnetics

Complex vectors. Maxwell's Equations. Boundary conditions. Wave equations. Uniform plane waves. Polarization. Propagation in lossless and lossy media. Poynting vector. Reflection and transmission of waves at normal and oblique incidence. Transmission lines (propagation, Smith chart, transients). Topics in waves. Electrostatic magnetic fields. Electrostatic forces and energies. Prereq.: Phys 20800, Math 39100 and 39200 (min. C grade). 3 hr./wk.; 3 cr.

33300: Introduction to Antennas, Microwaves and Fiber Optics

Fundamental understanding in theory and applications of microwaves, waveguides, and antenna for wired and wireless communication and power transfer. Understanding of applications drawn from technologies: optical fibers, satellite communication, biomedical sensing safety, microwave ovens, and RFID. Topics include: Review of EM waves propagation in free space and transmission lines. Fundamental concepts, structures, and advantages of various transmission media and technologies. Structures of conducting and dielectric waveguides. Cavity resonators. Radiation fields of dipoles. Antenna patterns and parameters. Linear antenna. Antenna arrays. Receiving antenna, and various antenna

designs and applications. Prereq.: EE 33000. 3 hr./wk.; 3 cr.

33900: Semiconductor Materials and Devices

The crystal structure of solids. Introduction to quantum mechanics and quantum theory of solids. Charge carriers in semiconductors. Carrier transport phenomena. Carrier generation and recombination. Mathematical analysis of diffusion phenomena. Ambipolar transport. Surface effects. Basic structure of the pn junction. Prereq.: EE 33000, Phys 32300. 3 hr./wk.; 3 cr.

34200: Electronics II

Electronic devices and circuits. Feedback amplifiers, oscillators. Comparators and Schmitt triggers. Differential amplifiers and operational amplifiers. Prereq.: EE 24100. 3 hr./wk.; 3 cr.

35700: Electric Power Engineering

Analysis of magnetic circuits. Equivalent circuits and operations of power transformers, autotransformers, three-phase transformers. Basic principles of electromechanical energy conversion, single and double excitation. Elementary power systems and per-unit calculations. Power transmission, distribution, three-phase induction machines. Prereq.: EE 20500, EE 33000. 3 hr./wk.; 3 cr.

37100: Linear Feedback Systems

Analysis of feedback systems including block diagrams, signal flow graphs, time domain specifications, Routh's stability criterion, root locus, Bode and Nyquist diagrams, and state feedback. Prereq.: EE 20500; pre- or coreq: MATH 39100, 39200 (minimum C grade). 3 hr./wk.; 3 cr.

42100: Local Area Network Laboratory

Introduction to computer networks: local area network, wide-area network and interconnected network; packet switching and circuit switching. Design and simulation of various networks. Measurements and control of performance parameters such as throughput, delay and call blocking rate. Networks and services for simulations include datagram and virtual circuit (WAN), Ethernet and Token Bus (LAN). Pre- or coreq.: EE 46000. 3 lab hr./wk.; 1 cr.

42200: Analog Communication Laboratory

Analog communication systems, including frequency translation, AM signal generation and reaction, double and single sideband modulation, FM signal bandwidth, narrow and wide angle modulation, FM signal generation and reception, frequency division multiplexing, and noise in FM. Prereq.: EE 31200. 3 lab hr./wk.; 1 cr.

42500: Computer Engineering

Laboratory

Introduction to the operation and applications of microcomputers and design experiments in computer interface engineering utilizing a microprocessor-based computer. Design projects include computer input-output device selection, program interrupt, on-line control, direct memory access, and circular input-output buffer. Prereq.: EE 44400 (or CSc 21000 and 34200). 3 lab hr./wk.; 1 cr.

42600: Control Laboratory

Experiments dealing with the operation and performance of feedback control systems. Study some aspects of feedback control systems, such as stability, transient analysis, and system performance. Build different controllers such as constant gain controllers, controllers with velocity feedback, and PID controllers. Compare these controllers in terms of transient analysis and system performance. Prereq.: EE 37100. 3 lab hr./wk.; 1 cr.

42800: Photonics Engineering Laboratory

Hands-on approach to optical systems and photonics applications including: 1) refraction, diffraction, and imaging; 2) computer-aided photonics system design; 3) holography; 4) introduction to fiber-optics; 5) spectroscopy. Students are required to complete at least three out of the five units. Prereq.: EE 33000. 3 lab hr./wk.; 1 cr.

43800: Management Concepts for Engineers

The principles and techniques of team management in a high-technology environment. Concepts in developing leadership and entrepreneurial skills as well as communication skills in a business context. A term paper will be required. Prereq.: at least upper junior status. 3 hr./wk.; 3 cr.

44100: Electronic Devices and Semiconductor Materials

Fundamental properties of semiconductors. Simple device fabrication, physical principles of the "p-n" junctions, metal-semiconductor junctions, the Schottky-barrier diode, the bipolar transistor (BJT), the field effect transistor, the MOS transistor, CMOS technology. Prereq.: EE 33900. 3 hr./wk.; 3 cr.

44400: Digital Computer Systems

Digital system description. Algorithmic processor design. Organization of a simple digital computer. Control unit design, microprogramming. Elements of programming. General CPU, memory, and input/output organization. Microcomputer organization. Prereq.: EE 21000, pre or coreq.: EE 25900. 3 hr./wk.; 3 cr.

45100: Communication Electronics

Components of end-to-end communications systems. Noise in circuits and systems. Behavior of wideband and tuned amplifiers; limits on small signal operation. Gain controlled amplifiers, limiters, frequency multipliers, oscillators, coupling networks. Nonlinear elements, distortion, amplitude, frequency, and phase modulators, transmitters and low-noise receivers. Prereq.: EE 31200 and EE 34200. 3 hr./wk.; 3 cr.

45200: Fiber Optic Communications

This course is intended to provide the basic materials for an introductory senior or first-year graduate course in the theory and application of optical fiber communication technology with emphasis on both digital and analog point-to-point very-high-bit-rate long haul optical transmission systems. Topics covered include: an overview of the fundamental components of advantages of optical fibers relative to other transmission media; basic laws and definitions of optics that are relevant to optical fibers; degradation of light signals arising from attenuation and distortion mechanisms; main devices encountered in a fiber optic system, light sources, light detectors. Analog and digital modulation formats at the transmitter: theory and design of receivers, noise and detection for optical fiber links; performance analysis and design of both digital and analog point-to-point very high bit-rate long-haul optical transmission systems. Prereq.: EE 31200, EE 33300, EE 44100. 3 hr./wk.; 3 cr.

45300: Digital Signal Processing

Introduction to basic digital signal processing concepts; the finite Fourier transform, cyclic convolution, digital filters, Z-transform. Design of algorithms computing the finite Fourier transform and cyclic convolution. Cooley-Tukey and Winograd algorithms. Prereq.: EE 30600. 3 hr./wk.; 3 cr.

45400: Physical Electronics

Theory of metals, crystal structure, classification of lattices, x-ray diffraction, periodic potentials and energy bands, statistical physics and charge carrier concentration profiles, multiband effective mass theory, electron-photon interactions, electron-phonon interactions, electronic and optical effects in nanostructures, optoelectronic device applications.. Prereq.: EE 33900. 3 hr./wk.; 3 cr.

45500: Elements of Power Systems

Analysis of transmission lines, transformers, and electric machines as the elements of power systems. Prereq.: EE 35700. 3 hr./wk.; 3 cr.

45600: Elements of Control Theory

Design of classical and state space controllers for continuous time and sampled data systems. Lead, lag, and lag-lead compensation. State feedback, separation theorem, reduced order estimators. Lead compensation using w-plane. Discrete equivalent state space models. Deadbeat response. Prereq.: EE 37100. 3 hr./wk.; 3 cr.

45700: Digital Integrated Circuits

Design of logic circuits: CMOS, Pseudo-nMOS, and high-performance circuits, such as dynamic pre-charge circuits and clocked CMOS, etc. Design of flip-flops and memories at the transistor level. Design of arithmetic circuits, I/O circuits, registers and control circuits, as well as analysis of digital circuit characteristics. Prereq.: EE 24100. 3 hr./wk.; 3 cr.

45800: Introduction to Lasers

Resonant optical cavities. Amplification by an atomic system. Conditions for oscillation. Homogeneous and inhomogeneous systems. General characteristics of lasers. Generation of short pulses: Q-switching and mode locking. Semiconductor lasers. Rare earth lasers. Gas lasers. Fiber lasers. Laser applications. Prereq.: EE 33300, EE 33900. 3 hr./wk.; 3 cr.

45900: Microprocessors

Introduction to stored program computers and microcomputers. Reviews of number systems, binary arithmetic, register transfer language, and micro-operations. Digital computer and microcomputer functional elements, input-output devices, system organization and control. Accumulator-based processors, general register processors. Linear pipelining and cache memory. Prereq.: EE 44400. 3 hr./wk.; 3 cr.

46000: Computer Communication Systems

Queuing theory, packet, message and circuit switching networks, assignment of link capacities and flows, routing algorithms, flow control and error control, multiple access schemes and OSI/ISO network protocols. Prereq.: EE 31200. 3 hr./wk.; 3 cr.

46200: Photonic Engineering

Study of basic optics and computer-aided design for optics. Application of study to solve engineering problems and design photonic devices. Topics will be selected from: ray tracing; lens design; interferometry; analysis of optical systems; spectroscopic techniques; Fourier optics; fibers, waveguides, integrated optics; video disk; optical detectors. Prereq.: EE 33300. 3 hr./wk.; 3 cr.

46300: Wireless Communications

Introduction to wireless/mobile communications systems. Cellular systems concept: frequency reuse, co-channel and adjacent

channel interference, capacity improvement. Wireless channel characteristics: long-term fading, short-term fading. Diversity techniques: DPSK, QPSK, 4QPSK, QAM, GMSK. Multiple access techniques for wireless communications: FDMA, TDMA, CDMA. Personal communications services. Current standards of PCS and cellular systems. Prereq.: EE 31200. 3 hr./wk.; 3 cr.

46400: VLSI Design

Introduction to CMOS circuits, CMOS processing technology and physical characterization of gates, clocking strategies, I/O structures, and structured design concepts. The student will design, simulate, and lay out mask description of digital CMOS VLSI circuits. The design will be simulated using SPICE and RSIM. Circuit layout is created using MAGIC software package. The circuit will be fabricated by the foundry service supported by NSF/DARPA and tested. A final report detailing all the work is required. Pre-or coreq: EE 45700. 2 class, 3 lab hr./wk.; 3 cr.

47100: Introduction to Digital Image Processing

Introduction to fundamental technologies for digital image and video representation, analysis, processing and compression (MPEG, JPEG etc). Topics include digital image/video perception, sampling, optimal quantization, transform, filtering, multi-spectral processing, restoration, feature extraction, morphological transform, image compression (lossy and lossless), video compression (lossy and lossless), and latest applications. Pre-or coreq: Engr 10300 & EE30600 or CSc 47000; 3 hr./wk.; 3 cr.

51000: Independent Study

The student pursues a program of independent study under the direction of a faculty mentor. Open only to students who have shown exceptional ability (minimum GPA 3.5). Students desiring to register in this course should apply by Dec. 1 for the spring term and by May 1 for the fall term. A final report is required. Prereq.: departmental approval. 3 hr./wk.; 1 or 3 cr.

59866 & 59867: Capstone Design for Electrical Engineering

This is a two-semester capstone design course. The student is required to design and implement a solution to an engineering project. Topics include introduction to engineering design, identification of a problem, background research, social, environmental, ethical and economic considerations, intellectual property and patents and proposal writing, including methods of engineering analysis and theoretical modeling. A detailed concept and design proposal is completed during the first semester and the implementation phase may also begin. A functional physical prototype

or computer model is completed and tested in the second semester. Each student is required to write an in depth engineering report and to make an oral presentation to the faculty. EE 59866: prereq: EE 32200; co-req. any EE lab elective. EE 59867: prereq: EE 59866. 3 class, 3 design hr./wk; 3 cr.

FACULTY

Samir Ahmed, Herbert Kayser Professor

B.A., Cambridge Univ., M.A.; Ph.D., Univ. College (UK)

Mohamed A. Ali, Professor

B.S., Azar Univ. (Egypt); M.S., The City College; Ph.D., CUNY

Joseph Barba, Professor and Dean, Grove School of Engineering

B.E., CCNY, M.E.; Ph.D., CUNY

Michael Conner, Professor

B.E.S., Johns Hopkins Univ.; M.S., Univ. of Maryland, Ph.D.

David Crouse, Associate Professor

B.S. (Physics), Purdue Univ.; Ph.D., Cornell Univ.

Roger Dorsinville, Professor and Chair

B.S., Moscow State Univ. (Russia), M.S., Ph.D.

Alexander Gilerson, Associate Professor

B.S., Technical Univ. (Russia), M.S., Ph.D.

Barry M. Gross, Associate Professor

B.A. (Physics/Math), Yeshiva Univ.; M.S., CCNY; Ph.D., CUNY

Ibrahim W. Habib, Professor

B.S., Ain Shams Univ. (Egypt); M.S., Polytechnic Univ. of New York; Ph.D., CUNY

Ping-Pei Ho, Professor

B.S., Tsing-Hun Univ. (Taiwan); M.B.A., Kent State Univ.; Ph.D., CUNY

Hongjoon Kim, Assistant Professor

B.S., Kyungpook National Univ. (South Korea); M.S., Univ. of Southern California; Ph.D., Univ. of Wisconsin-Madison

Myung Jong Lee, Professor

B.S., Seoul National Univ. (Korea), M.S.; Ph.D., Columbia Univ.

Nicholas Madamopoulos, Associate Professor

B.S., Univ. of Patras (Greece); M.S., Univ of Central Florida, Ph.D.

Jamal T. Manassah, Professor

B.S., American Univ. of Beirut (Lebanon); M.A., Columbia Univ., Ph.D.

Fred Moshary, Professor

B.S. (Applied Physics), Cornell Univ., M.S.; Ph.D. (Applied Physics), Columbia Univ.

Truong-Thao Nguyen, Associate Professor

M.Sc., Princeton Univ.; Ph.D., Columbia Univ.

William Rossow, Distinguished Professor

B.A., Hanover College; M.S., Cornell Univ., Ph.D.

Leonid Roytman, Professor

B.S., Moscow Polytechnical (Russia), M.S.; Ph.D., Novosibirsk Polytechnical Inst. (Russia)

Tarek N. Saadawi, Professor

B.Sc., Cairo Univ. (Egypt), M.Sc.; Ph.D., Univ. of Maryland

Norman Scheinberg, Professor

B.E.E., Cooper Union; M.S., M.I.T.; Ph.D., CUNY

Sang Woo Seo, Assistant Professor

B.S., Ajou Univ. (South Korea); M.S., Kwangju Inst. of Science and Technology (South Korea); Ph.D., Georgia Inst. of Technology

Aidong Shen, Associate Professor

B.S., Xiamen Univ. (China); Ph.D., Chinese Academy of Sciences, SIOFM.

Kenneth Sobel, Professor

B.E., CCNY; M.E., Rensselaer Polytechnic Inst., Ph.D.

Yi Sun, Assistant Professor

B.S., Shanghai Jiao Tong Univ. (China), M.S.; Ph.D., Univ. of Minnesota

YingLi Tian, Associate Professor

B.S., Tian Jin Univ. (China); M.S.; Ph.D., Univ. of Hong Kong

M. Ümit Uyar, Professor

B.S., Istanbul Teknik Univ. (Turkey); M.S., Cornell Univ., Ph.D.

Ardie D. Walser, Associate Professor and Associate Dean

B.E., CCNY, M.E.; Ph.D., CUNY

Jizhong Xiao, Associate Professor

B.S., East China Inst. of Tech. (China); M.S. (EE), Nanyang Tech. Univ. (China); Ph.D. (ECE), Michigan State Univ.

PROFESSORS EMERITI

Vincent Deltoro

Demos Eitzer

George M. Kranc

Irving Meth

Donald L. Schilling

Gerald Subak-Sharpe

Herbert Taub

Fred Thau

Richard Tolimieri

Louis Weinberg

Department of Mechanical Engineering

Professor Feridun Delale, Chair • Department Office: ST 233 • Tel: 212-650-5224

GENERAL INFORMATION

The City College offers the following undergraduate degree in Mechanical Engineering:

B.E. (M.E.)

PROGRAMS AND OBJECTIVES

Mechanical Engineering is a very broad and versatile profession. Mechanical engineers deal with a wide spectrum of topics ranging from cell mechanics to the design of huge launching pads for space vehicles. Their domain of interest includes energy conversion, space propulsion, transportation vehicles, manufacturing, assembly lines, robotics, computer hardware, pollution control, biomechanics, medical instruments, and heating, ventilating and air conditioning. The diverse and extensive nature of mechanical engineering provides vast opportunities for employment in many challenging and exciting industries.

Our educational program is carefully designed to meet industry's criteria for successful engineers. It stresses fundamentals as well as practice. It focuses on creative thinking and problem-solving skills. It emphasizes written and oral communication, teamwork, design, time management, computer utilization and communication through graphics. Its primary goal is education for career-long learning, giving students the educational tools to enable them to deal with rapidly advancing technologies.

Practice in teamwork is achieved through design projects, computer-aided manufacturing, participation in regional and national contests, independent study and group learning settings. Skills in oral and written

communication are gained through reports and presentations of individual and team projects. Modern laboratories provide opportunities for training in measurements and testing. Computers are extensively used in design, simulation, optimization and learning through graphics.

MISSION

The mission of the Department of Mechanical Engineering at The City College, in conformity with the mission of the Grove School of Engineering, is:

- I. To educate well-rounded and conscientious mechanical engineers of diverse backgrounds capable of becoming leaders in our society.
- II. To carry out basic and applied research leading to new scientific and educational ideas, systems, and devices in mechanical engineering and related interdisciplinary areas.
- III. To offer advice, service, and support to industry, government agencies, schools, community groups and professional societies.

PROGRAM EDUCATIONAL OBJECTIVES

Consistent with the mission, the following Undergraduate Program Educational Objectives are established to provide a quality education in mechanical engineering:

- A. Our graduates will have successful professional careers.
- B. Our graduates will engage in professional development to enhance their competency and career.
- C. Our graduates will pursue advanced studies if they choose to do so.

PROGRAM OUTCOMES

Upon graduation our students are expected to have:

- a. an ability to apply knowledge of mathematics, science and engineering;
- b. an ability to design and conduct experiments, as well as to analyze and interpret data;
- c. an ability to design a system, component, or a process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability;
- d. an ability to function on multi-disciplinary teams;
- e. an ability to identify, formulate, and solve engineering problems;
- f. an understanding of professional and ethical responsibility;
- g. an ability to communicate effectively;
- h. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context;
- i. a recognition of the need for, and an ability to engage in life-long learning;
- j. a knowledge of contemporary issues;
- k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice;
- l. preparation for pursuing advanced degrees;
- m. knowledge of specialized and emerging areas in mechanical engineering.

REQUIREMENTS FOR MAJORS

Mechanical Engineering majors must complete the following:

**Math and Science Requirements
Required Courses****Mathematics:**

| | |
|---|---|
| 20102: Calculus I* | 3 |
| 20202: Calculus II* | 3 |
| 20300: Calculus III* | 4 |
| 39100: Methods of Differential Equations* | 3 |
| 39200: Linear Algebra and Vector Analysis for Engineers | 3 |

Physics:

| | |
|-------------------------------|---|
| 20700-20800: General Physics* | 8 |
|-------------------------------|---|

Chemistry:

| | |
|----------------------------|---|
| 10301: General Chemistry I | 3 |
|----------------------------|---|

Science Electives:*

Two of the following courses:

| | |
|---|---|
| Biology: 10100: Biological Foundations I | 6 |
| Biology 32100: Introduction to Human Physiology and Biophysics+ (4 cr.) | |
| Chemistry 10400: General Chemistry II (3 cr.) | |
| Chemistry 26100: Organic Chemistry I+ (3 cr.) | |
| Chemistry 33000: Physical Chemistry I+ (3 cr.) | |
| Computer Science 10200: Introduction to Computing (3 cr.) | |
| EAS 21300: Engineering Geology (3 cr.) | |
| EAS 21700: ESS: Systems Analysis of the Earth (3 cr.) | |
| Physics 31500: Medical Physics (3 cr.) | |
| Physics 32100: Modern Physics for Engineers** + (3 cr.) | |
| Physics 42200: Biophysics (3 cr.) | |
| Physics 45400: Descriptive Astronomy (3 cr.) | |

Total Math and Science Credits 33

* Minimum grade of "C" required.

** Can be used as either a Science or a Mechanical Engineering Elective.

+ Second science elective (4th semester) restricted to one of the following four: Bio

32100, Chem 26100, Chem 33000, EAS 21700, Phys 32100.

English and Liberal Arts (General Education) Requirements

Refer to the Grove School of Engineering section for details.

Total English and Liberal (General Education) Arts Credits 24

**Engineering Requirements
Required Courses****Engineering:**

| | |
|------------------------------------|-----|
| 10100: Introduction to Engineering | * 1 |
| 20400: Electrical Circuits | 3 |
| 23000: Thermodynamics | 3 |

Mechanical Engineering:

| | |
|---|---|
| 14500: Computer-Aided Drafting | 2 |
| 24600: Engineering Mechanics I | 3 |
| 24700: Engineering Mechanics II | 3 |
| 31100: Fundamentals of Mechatronics | 3 |
| 32200: Computer Methods in Engineering | 3 |
| 33000: Mechanics of Materials | 3 |
| 35600: Fluid Mechanics | 3 |
| 37100: Computer-Aided Design | 3 |
| 41100: Systems Modeling, Analysis and Control | 4 |
| 43000: Thermal Systems Analysis and Design | 3 |
| 43300: Heat Transfer | 3 |
| 43600: Aero-Thermal-Fluids Laboratory | 1 |
| 46100: Engineering Materials | 4 |
| 46200: Manufacturing Processes and Materials | 3 |
| 46300: Micro/Nanotechnology | 3 |
| 47200: Mechanical Systems Design | 3 |
| 47300-47400: Senior Design Project | 6 |

Total Required Engineering Credits 60

Design Electives

| | |
|---|---|
| Three of the following courses: | 9 |
| Mechanical Engineering: 44100: Advanced Stress Analysis (3 cr.) | |
| 46600: Dynamics and Controls of Aerospace Vehicles (3 cr.) | |
| 46800: Aircraft and Rocket Propulsion (3 cr.) | |
| 46900: Spacecraft Systems and Spacecraft Design (3 cr.) | |
| 47100: Energy Systems Design (3 cr.) | |
| 51100: Advanced Mechatronics (3 cr.) | |
| 51400: Rotorcraft Aerodynamics (3 cr.) | |
| 51500: Orbital Mechanics (3 cr.) | |
| 53700: Turbomachinery Design (3 cr.) | |
| 53900: Vehicular Power Systems (3 cr.) | |
| 54200: Introduction to the Theory and Practice of Vibration (3 cr.) | |

| | |
|--|--|
| 54600: Robotics and Automation (3 cr.) | |
| 54700: Environmental Control (3 cr.) | |
| 54800: Aerostructures (3 cr.) | |
| 55500: Structural Dynamics and Aeroelasticity (3 cr.) | |
| 55600: Advanced Fluid Mechanics (3 cr.) | |
| 57100: Mechanism Design (3 cr.) | |
| 57200: Aerodynamic Design (3 cr.) | |
| Biomedical Engineering: 50100: Cell and Tissue Mechanics (3 cr.) | |
| 50200: Cell and Tissue Transport (3 cr.) | |
| 50300: Cell and Tissue Biomaterial Interactions (3 cr.) | |

Mechanical Engineering Electives 3
Additional elective(s) from the following courses or the Design Electives list.

| | |
|--|--|
| 40100: Review of Engineering Fundamentals (1 cr.) | |
| 52600: Introduction to Finite Element Method (3 cr.) | |
| 53600: Energy Conversion (3 cr.) | |
| 56700: Special Topics in Aerospace Engineering (3 cr.) | |
| 56800: Special Projects in Aerospace Engineering (3 cr.) | |
| 59001-59003, 59101-59103: Special Projects** (1-3 cr.) | |
| 59500: Teaching/Research Experiences for Undergraduates (3 cr.) | |
| 59803-59806, 59903-59906: Special Topics in Mechanical Engineering** (3-6 cr.) | |
| 59901: Product Development, Management, and Marketing (3 cr.) | |
| 59903: Automotive Safety Design and Injury Biomechanics (3 cr.) | |
| Physics: 32100: Modern Physics for Engineers*** (3 cr.) | |

Total Elective Credits 12

* New transfer students who have successfully completed Calculus II (Math 20200 or 20202) should not take Engr 10100. They are required to complete an additional ME elective course of at least one credit.

** Departmental approval required.

*** Can be used as either a Science or a Mechanical Engineering Elective.

Total Credits for Major 129

Additional Requirements for Graduation

Refer to the Grove School of Engineering section for details.

RECOMMENDED SEQUENCE OF COURSES

First Semester*

Math 20102: Calculus I (3 cr.)
 Chem 10301: General Chemistry I (3 cr.)
 Engr 10100: Introduction to Engineering (1 cr.)
 Eng 11000: Freshman Composition (3 cr.)
 ME 14500: Computer-Aided Drafting (2 cr.)
 Liberal Arts course (3 cr.)

15 Credits

Second Semester

Math 20202: Calculus II (3 cr.)
 Phys 20700: General Physics I (4 cr.)
 First Science Elective Course (3 cr.)
 Eng 21007: Writing for Engineering (3 cr.)
 Liberal Arts course (3 cr.)

16 Credits

Third Semester

Math 20300: Calculus III (4 cr.)
 Phys 20800: General Physics II (4 cr.)
 Engr 20400: Electrical Circuits (3 cr.)
 ME 24600: Engineering Mechanics I (3 cr.)
 Liberal Arts course (3 cr.)

17 Credits

Fourth Semester

Math 39100: Methods of Differential Equations (3 cr.)
 Engr 23000: Thermodynamics (3 cr.)
 ME 24700: Engineering Mechanics II (3 cr.)
 ME 32200: Computer Methods in Engineering (3 cr.)
 ME 33000: Mechanics of Materials (3 cr.)
 Second Science Elective Course (3 cr.)

18 Credits

Fifth Semester

Math 39200: Linear Algebra and Vector Analysis for Engineers (3 cr.)
 ME 31100: Fundamentals of Mechatronics (3 cr.)
 ME 35600: Fluid Mechanics (3 cr.)
 ME 46100: Engineering Materials (4 cr.)
 Liberal Arts course (3 cr.)

16 Credits

Sixth Semester

ME 43000: Thermal Systems Analysis and Design (3 cr.)

ME 37100: Computer-Aided Design (3 cr.)

ME 41100: Systems Controls (4 cr.)

ME 43300: Heat Transfer (3 cr.)

ME 47200: Mechanical Systems Design (3 cr.)

16 Credits

Seventh Semester

ME 43600: Aero-Thermal-Fluids Laboratory (1 cr.)

ME 46200: Manufacturing Processes and Materials (3 cr.)

ME 46300: Micro/Nanotechnology (3 cr.)

ME 47300: Senior Design Project I (3 cr.)

Design Elective course (3 cr.)

Liberal Arts course (3 cr.)

16 Credits

Eighth Semester

ME 47400: Senior Design Project II (3 cr.)

Two Design Elective courses (6 cr.)

Mechanical Engineering Elective course (3 cr.)

Liberal Arts course (3 cr.)

15 Credits

ADVISEMENT

All full-time faculty serve as undergraduate advisors.

TRANSFER CREDITS

The Mechanical Engineering Department grants transfer credits for legitimate mechanical engineering courses having engineering/science content that matches City College courses. Courses claiming a design component are not accepted except in certain compelling cases that are supported by convincing documentation at the evaluation session. Such documentation must include (a) a complete, legitimate transcript; (b) complete class notes; (c) textbooks used; (d) reports written; (e) homework; (f) professionally executed, detailed engineering drawings, etc. Note that only courses with grades of C or better are accepted for transfer credits.

COURSE DESCRIPTIONS

14500: Computer-Aided Drafting

Basic theory of space geometry, with applications in computerized drafting. Students develop skills of spatial analysis, visualization and interpretation through reading existing drawings and freehand sketching. Conventional drafting practices are introduced, including orthographic projections, auxiliary and sectional views, isometric and orthographic projections and basic dimensioning. Computer-aided drafting software is used to produce engineering drawings. 1 class, 2 lab hr./wk.; 2 cr.

24600: Engineering Mechanics I (Statics and Particle Kinematics)

Vector concepts in mechanics. Equivalent force systems. Centers of gravity and pressure. Equations of equilibrium for two- and three-dimensional systems. Static determinacy. Analysis of trusses, frames, machines and cables. Frictional forces. Properties of surfaces and rigid bodies. Particle kinematics: path variables, cylindrical coordinates and relative motion. Recitation periods integrated with classroom work. Prereq.: Math 20200 (min. C grade), Physics 20700 (min. C grade); pre- or coreq.: ME 14500 or BME 22000. 3 hr./wk.; 3 cr.

24700: Engineering Mechanics II (Kinematics and Dynamics of Rigid Bodies)

Kinematics of rigid bodies and relative motion. Particle dynamics. Vibrations of single-degree-of-freedom mass-spring systems. Dynamics of systems of particles and rigid bodies. Moment of momentum equations. Kinetics of plane motion for rigid bodies. Energy methods. Computer-assisted mechanism dynamics design project. Design periods integrated with classroom work. Prereq.: ME 24600; pre- or coreq.: Math 39100 (min. C grade). 3 hr./wk.; 3 cr.

31100: Fundamental of Mechatronics

Modern electric/electronic devices with applications in mechanical measurements are used as various sensors, such as strain gages, thermocouples, piezoelectric transducers, LVDT's, optoelectronic proximity sensors, etc. Static and dynamic characteristics of sensors and time-frequency responses of various measurement systems are studied. Concepts of filtering, amplification and signal conditioning are demonstrated through hands-on laboratory experiments. Engineering statistics and regression analysis are also introduced for analyzing measurement errors. Prereq.: Engr 20400, Math 39100 (min. C grade) ME 24700, ME 33000; pre- or coreq.: Engl 21007, ME 32200, Math 39200 . 2 class, 3 lab hr./wk.; 3 cr.

32200: Computer Methods in Engineering

Digital procedures and numerical techniques necessary for the solution of many classes of mechanical engineering problems. Procedures for the analysis and processing of experimental data, for the solution of boundary and initial value problems, sets of linear equations and eigenvalue problems. Difference methods. Use of these techniques as essential to the design process, both in the solution of equations which do not have easily obtained closed form solutions and in the treatment of experimental data. Students will principally use the microcomputer laboratory and ancillary facilities. Pre- or coreq.: Math 39100 (min. C grade). 2 class, 3 lab hr./wk.; 3 cr.

33000: Mechanics of Materials

Engineering analysis of deformable elastic and inelastic bodies subject to axial, torsional, flexural and shearing loads. Analysis of stress and strain. Stress/strain relations, strain energy and failure theories. Deformations and deflections due to mechanical and thermal loads. Statically determinate and indeterminate systems. Pressure vessels, combined loading, principal stresses, thermal stresses, joints and fittings. Stability, buckling and critical loads. Prereq.: Math 20300 (min. C grade), ME 24600. 3 class, 1 rec. hr./wk.; 3 cr.

35600: Fluid Mechanics

Basic concepts in fluid mechanics. Hydrostatics. Control volume formulation of the basic laws of conservation of mass and momentum. Differential analysis of fluid motion: continuity and Euler's equations. Bernoulli's equations. Dimensional analysis and similitude. Incompressible viscous pipe flow. Introduction to boundary layer theory. Drag and lift. Prereq.: Math 39100 (min. C grade), Phys 20800 (min. C grade); pre- or coreq.: Math 39200. 3 hr./wk.; 3 cr.

37100: Computer-Aided Design

Introduction to the theory and methods of Computer-Aided Design (CAD) from a user's viewpoint. Design methodology. Simulation and modeling. Introduction to analysis programs based on finite element methods and postprocessing. Application of these concepts to specific engineering design projects. The student will have access to professional workstations with color graphics capability. Prereq.: ME 14500, ME 32200, ME 33000; pre- or coreq.: Math 39200. 2 class, 3 design hr./wk.; 3 cr.

40100: Review of Engineering Fundamentals

Review of science, mathematics and engineering concepts. Topics include engineering mathematics, chemistry, materials science, solid and fluid mechanics,

thermodynamics, engineering economics and ethics, computer science and electrical circuits. The course concludes with a practice Fundamentals of Engineering (FE) exam. Prereq: Senior undergraduate or graduate standing. 3 hr./wk.; 1 cr.

41100: Systems Modeling, Analysis and Control

Model development with applications to mechanical engineering systems. First and higher order system responses. Laplace transform, transfer functions and block diagrams. Frequency response and vibration. Routh-Hurwitz stability and graphical methods such as root locus and Bode plot. Introduction to feedback control. Concepts of PID control, tuning and compensation. Hands-on and demonstrative experiments include static and dynamic rotor balancing, shake table testing of various degree-of-freedom systems, feedback controls of pneumatic, servo motor, fluid level and temperature control systems. Prereq.: ME 31100, ME 33000; pre- or coreq.: ME 35600. 3 class, 3 lab hr./wk.; 4 cr.

43000: Thermal Systems Analysis and Design

Engineering application of thermodynamics to steam gas cycles, gas cycles, refrigeration, Maxwell relations and application. Chemical reactions and combustion processes. Phase equilibrium and chemical equilibrium. Flow through nozzles and blade processes. Prereq.: Engr 23000, ME 35600. 2 class, 2 design hr./wk.; 3 cr.

43300: Heat Transfer

Derivation of the energy equation. One-dimensional conduction and extended surfaces. Introduction to two-dimensional and transient conduction. Fundamentals of convection heat transfer. Solutions to laminar convection problems. Correlation equations for Nusselt number. Free convection. Heat exchanger theory. Introduction to radiation heat transfer. Design projects on heat transfer in thermal systems. Pre- or coreq.: ME 35600. 3 hr./wk.; 3 cr.

43600: Aero-Thermal-Fluids Laboratory

Experiments and demonstrations designed to illustrate concepts and verify theories in thermodynamics, fluid flow, and heat transfer. Experiments involve a wind tunnel, a refrigeration unit, a centrifugal pump-turbine unit, a pipe flow unit, a fin heat transfer device and a heat exchanger. Use of PC-based data acquisition systems. Prereq.: ME 31100, ME 43000, ME 43300. 3 lab hr./wk.; 1 cr.

44100: Advanced Stress Analysis

Stress and strain. Principal axes. Hooke's Law. Constitutive equations for elastic materials. Formulation of plane stress and plane strain in Cartesian and polar

coordinates. Theories of failure. Thick tubes, rotating disks, shrink fits. Thermal stresses in rings, tubes, and disks. Loads, moments, and deflections in statically indeterminate systems. Castigliano's theorems and energy methods. Component design projects involving various failure theories. Prereq.: ME 24700, ME 33000. 3 hr./wk.; 3 cr.

46100: Engineering Materials

Utilizing concepts of atomic theory, crystalline structures and a variety of microscopic observations, basic properties of engineering materials are studied. Processing techniques for control of the microstructure of the materials to improve their mechanical behavior are introduced. The materials include metals and alloys, ceramics and glass, as well as plastics and composites. The necessary tradeoffs between design alternatives and available manufacturing and processing methods are also considered. Pre-req: CHEM 10301 (Min C grade), Engl 21007; pre- or coreq.: ME 33000. 3 class, 3 lab hr./wk.; 4 cr.

46200: Manufacturing Processes and Materials

Relationship between product design and manufacturing. Influence of material properties. Capabilities and limitations of common methods of processing metallic and nonmetallic materials (casting, hot and cold working, joining, traditional and non-traditional machining). Introduction to computer-aided manufacturing, robotics and computer numerical control. Prereq.: ME 14500, ME 46100. 2 class, 3 lab hr./wk.; 3 cr.

46300: Micro/Nano Technology: Mechanics, Materials, and Manufacturing

The aim of this course is to introduce students with diverse technical interests to the emerging area of micro and nano phenomena in science and engineering. Micro-Electrical Mechanical Systems (MEMS) and Nanotechnology continue to revolutionize research in the engineering and science communities requiring newcomers to familiarize themselves with these fundamental principles. This course will address synthesis and manufacturing techniques of micro/nano devices, relevant mechanics concepts (such as fracture and contact mechanics, elasticity), material property determination at small scales (e.g. size-scale strength effects), and engineering difficulties with manipulation and control of materials and phenomena on scales less than 1000 times the width of a human hair. The course will be centered upon a series of investigational exercises including microfluidics experiments, electro-mechanical testing of microdevices, transport and deposition of macromolecules (e.g. DNA,

proteins), nanolithography, and manipulation of carbon nanotubes. Course material will also briefly discuss the evolution of select micro/nano innovations and their impact and applications in applied sciences, medicine, space development, policy, and the environment. Prereq: ME 35600 or ChE 34100; pre- or coreq: ME 46200. 2 class, 2 lab hr./wk.; 3 cr.

46600: Dynamics and Control of Aerospace Vehicles

Static and dynamic stability criteria. Control considerations. Longitudinal control. Stability derivatives. Longitudinal and lateral stability analysis. Lateral and rolling control. Transient motion in response to control movement. Open loop control. Dynamics of steered bodies. Closed loop control. Automatic control. Design projects related to aircraft control. Prereq.: ME 41100 or EE 37100; pre- or coreq.: 46200. 3 hr./wk.; 3 cr.

46800: Aircraft and Rocket Propulsion

Aerodynamic and thermodynamic design of airbreathing and rocket engines. Physical parameters used to characterize propulsion systems performance. Subsonic and supersonic gas dynamics and cycle analysis of ramjets, turbojets, turbofans and turboprops. Effect of after-burning and thrust vectoring. Design of inlets, diffusers, fans, compressors, combustors, turbines and nozzles. Liquid and solid propellant rockets. Market and environmental considerations. Design project. Prereq.: ME 43000. 3 hr./wk.; 3 cr.

46900: Spacecraft Systems and Spacecraft Design

Overall description of the basic mission considerations for aircraft design. Space environment, astrodynamics and atmospheric reentry. Attitude description. Configuration and structural design. Spacecraft subsystems are discussed with theoretical background and current engineering practice. Thermal control. Power. Navigation and guidance. Telecommunications. Tools to evaluate the overall impact on the various component subsystems and the integrated system leading to the final design selection. Design project. Prereq.: ME 43000. 3 hr./wk.; 3 cr.

47100: Energy Systems Design

Design and analysis of cycles, components, and systems used in power generation and related industries. Power plant cycles and flow diagrams. Heat balance calculations. Turbines, steam generators. Economics of energy systems, capacity analysis, load curve analysis, scheduling. Use of computerized steam and gas tables and power plant simulation. Design projects on power plant cycles and associated equipment.

Prereq.: ME 43000, pre- or coreq.: ME 43300. 2 class, 1 design hr./wk.; 3 cr.

47200: Mechanical Systems Design

Introduction to design philosophy. Design of basic mechanical elements: screws, shafts, gears, bearings, springs, brakes, clutches, etc. Open-ended design projects dealing with the integration of these elements into subsystems such as drive trains, indexing devices, conveyors, etc. Emphasis is placed on computer use with commercial and student-generated software, as well as on report writing. Prereq.: ME 24700, ME 33000; pre- or coreq.: ME 46100. 2 class, 2 design hr./wk.; 3 cr.

47300, 47400: Senior Design Project

In this two-semester capstone course, the student is required to find a professional design solution to an open-ended real life engineering problem. These projects are proposed and supervised, in conjunction with course leaders, by individual faculty members or industry. Special attention is paid to the use of computer-driven machine tools as well as to the observance of economic, safety, reliability, esthetic, and ethical constraints. In the first semester, concept design and analysis are carried out. A functional prototype is fabricated in the second semester. As applicable, a physical or computer model must be tested, in addition to writing an in-depth engineering report. Each student is required to make an oral presentation to the faculty. Prereq. for ME 47300: ME 47200; pre- or coreq.: ME 37100, ME 41100, ME 43600, ME 43300, ME 46200. Prereq. for ME 47400: ME 411000, ME 47300. 2 class, 3 design hr./wk.; 3 cr. each

51100: Advanced Mechatronics

Digital principles are studied and their applications in A/D and D/A converters, microcontrollers and programmable-logic controllers (PLCs) are demonstrated by controlling various electromechanical devices, such as relays, DC servos, and stepper motors. Principles of electric machines and selection of electric motors are also introduced. Hands-on laboratory experience, including team-design for measurement and control of various electromechanical devices, is particularly emphasized. Prereq.: ME 41100. 2 class, 2 lab hr./wk.; 3 cr.

51400: Rotorcraft Aerodynamics

Rotor in vertical or hover flight: Momentum theory, wake analysis, blade element theory. Unsteady flow effects. Rotor in forward flight. Rotor mechanisms. Performance. Trim, stability and control. Helicopter configurations. Prereq.: ME 41100. 3 hr./wk.; 3 cr.

51500: Orbital Mechanics

The two-body problem. Lagrangian dynamics. Hamiltonian equations. Perturbations.

Satellite orbits and ballistic trajectories. Effects of drag on satellite orbits. The general three-body problem. Coordinate systems and coordinate transformations. Computational methods. Design project. Prereq.: ME 24700. 3 hr./wk.; 3 cr.

52600: Introduction to Finite Element Method

Formulation of element stiffness matrices and their assembly. Assumed displacement fields. Isoparametric elements and Gauss quadrature. Static condensation and equation solvers. Variational calculus and weighted residuals. Application to statics, dynamics, fluid mechanics and heat transfer. Prereq.: ME 32200, ME 37100; pre- or coreq.: ME 43300. 3 hr./wk.; 3 cr.

53600: Energy Conversion

Modern static and dynamic conversion devices. Applications include thermoelectrics, magneto- hydrodynamics, electro-hydrodynamics, fuel cells, reciprocating and rotary energy converters. Current and future energy resources and factors affecting the rate of energy consumption. Comparison of alternative energy conversion systems, including limitations and efficiency of each, and the comparative effects on the environment. Prereq.: ME 43000. 3 hr./wk.; 3 cr.

53700: Turbomachinery Design

Aerodynamic and thermodynamic fundamentals applicable to turbomachinery. Analysis of gas and steam cycles. Advanced cycles. Configurations and types of turbomachinery. Turbine, compressor and ancillary equipment kinematics. Selection and operational problems. Design projects relating to gas turbines. Prereq.: ME 35600, ME 43000. 3 hr./wk.; 3 cr.

53900: Vehicular Power Systems

Classification of cycles and engines. Thermodynamic analysis and design applications of air standard and real gas cycles. Combustion charts. Exhaust and intake processes, residual gas fraction. Combustion thermodynamics, chemical equilibrium, and engine emissions. Carburetion, throttling, and carburetor design. Volumetric efficiency and valve design. Design studies. Engine design. Prereq.: ME 43000, ME 35600, ME 43300. 3 hr./wk.; 3 cr.

54200: Introduction to the Theory and Practice of Vibration

Differential equations and general solutions of damped, free, and forced single-degree-of-freedom systems. Numerical solutions. Multi-degree-of-freedom systems, principal modes. Semi-definite systems. Shock and vibration testing. Design project on vibration isolation of machinery. Prereq.: ME 24700. 3 hr./wk.; 3 cr.

54600: Robotics and Automation

Robotics and relevant fields related to robot design and operation. Kinematic problems peculiar to robotic construction. Control considerations. Power sources. Sensory equipment and intelligence. Specifications used to evaluate robot performance. Economic considerations of robotized operations in various applications. Group technologies and flexible manufacturing systems. Prereq.: ME 24700; pre- or coreq.: ME 46200. 2 class, 3 lab hr./wk.; 3 cr.

54700: Environmental Control

Design of environmental control systems for domestic, commercial, and industrial spaces. Heating, ventilating, air conditioning. Psychrometric chart processes. Design projects on buildings involving heat transmission in building structures, space heat loads, cooling loads, air conditioning systems, fans, ducts, and building air distribution. Prereq.: ME 43000, ME 35600, ME 43300. 3 hr./wk.; 3 cr.

54800: Aerostructures

Flight-vehicle imposed loads. Analysis and design of typical members of semi-monocoque structures under tension, bending, torsion, and combined loading. Buckling of columns and plates. Analysis and design of joints and fittings. Design projects involving structural members under various loading conditions. Prereq.: ME 32200, ME 35600, ME 46100. 3 hr./wk.; 3 cr.

55500: Structural dynamics and Aeroelasticity

Basic analytical techniques of fixed and rotating wings interactions with flows. Unsteady aerodynamics and flutter. Fuselage vibrations. Methods for vibration control. Stability analysis. Mechanical and aeromechanical instabilities. Design project including the aeroelastic behavior of simple systems. Prereq.: ME 41100, ME 46100. 3 hr./wk.; 3 cr.

55600: Advanced Fluid Mechanics

Equations of viscous flow. Exact Navier-Stokes solutions. Low Reynolds number flow, lubrication theory. Design project on film bearings. Boundary layer flows. Reynolds equations. Turbulent flow hypotheses. Potential flow. Pumps and blowers. Design project on piping systems. Prereq.: ME 32200, ME 35600. 3 hr./wk.; 3 cr.

56700: Special Topics in Aerospace Engineering

Topics chosen for their particular or current interest to undergraduate students. Prereq.; Department approval. Hours vary; 1-3 cr.

56800: Special Projects in Aerospace Engineering

Students may earn elective credits by undertaking appropriate and sufficient comprehensive research and design projects under the guidance of a faculty member, and writing a Thesis report. Prereq.; Department approval. Hours vary; 1-3 cr.

57100: Mechanism Design

Introduction to linkages, cams, and gearing. Design criteria. Displacement, velocity and acceleration analysis of planar linkages: graphical and computer methods. Mechanical advantage by instant centers and virtual work. Static and dynamic mechanism force analyses. Kinematic synthesis of planar linkages: graphical and analytical approaches. CAM design: basic considerations of follower displacement, velocity, acceleration, and pulse. CAM layout and manufacture. Kinematic mechanism design project. Prereq.: ME 24700. 3 hr./wk.; 3 cr.

57200: Aerodynamic Design

Airfoil theories. Finite wings. Swept wings. Compressible flow, normal and oblique shock waves. Wings in compressible flow. Airfoil design. Wind tunnels. Prereq.: Engr 23000, ME 35600. 3 hr./wk.; 3 cr.

59001-59003, 59101-59103: Special Projects

Students may earn elective credits by undertaking appropriate and sufficiently comprehensive research and design projects under the guidance of a faculty member, and writing a thesis report. Prereq.: formal (written) commitment of a faculty member. Hours vary; 1-3 cr.

59500: Teaching/ Research Experiences for Undergraduates

This course provides undergraduate students with guided experiences in developing and assisting in the teaching of undergraduate laboratories, and performing laboratory research, in either case under direct faculty supervision. Evaluation is based on written documentation of the work. Prereq: Departmental approval. 3 hr./wk.; 3 cr.

59803-59806, 59903-59906: Special Topics in Mechanical Engineering

Topics chosen for their particular or current interest to undergraduate students. Prereq.: departmental approval. 3-6 hr./wk.; 3-6 cr.

59901: Product Development, Management and Marketing

Product development strategies from concept to marketing. Integration of engineering, design, manufacturing, marketing, management and finance. students work in teams on all aspects of an actual product. The course is taught in partnership with

industry. Prereq.: permission of instructor. 3 hr./wk.; 3 cr.

FACULTY**Yiannis Andreopoulos, Pope Energy Professor**

Diploma in Mech. & Elec. Engr., Nat'l Tech. Univ. of Athens; M.Sc. & D.I.C. (Aeronautics), Imperial College, London, Ph.D. (Aero. Engrg.)

Charusheel N. Bapat, Associate Professor

B.E., Poona College of Engineering (India); M.Tech., Indian Inst. of Technology; Ph.D., Univ. of Manitoba
Gary F. Benenson, Professor
B.S. (Physics), Univ. of Chicago; M.S. (Eng. Sci.), Rensselaer Polytechnic Inst.; P.E. (New York)

Zeev Dagan, Professor and Provost

B.E., CCNY, M.E.; Ph.D., CUNY
Feridun Delale, Professor and Chair
B.S. (CE), Istanbul Tech. Univ., M.S. (CE); Ph.D., Lehigh Univ.

Niell Elvin, Associate Professor

B.Sc., Univ. of the Witwatersrand (South Africa), S.M. (Aeronautics and Astronautics), M.I.T., S.M. (Civil and Environmental Engineering), Ph.D.

Peter Ganatos, Professor

B.E., CCNY, M.E.; Ph.D. (Eng.), CUNY
Jorge Gonzalez-Cruz, Professor
B.S., Univ. of Puerto Rico, M.S.; Ph.D., Georgia Inst. Of Tech.

Latif M. Jiji, Herbert Kayser Professor

S.B., M.I.T.; M.S., Carnegie-Mellon Univ.; M.S. (Aero Sci), Univ. of Michigan, Ph.D.

Masahiro Kawaji, Professor

B.A.Sc., Univ. of Toronto; M.S., Univ. of California, (Berkeley), Ph.D.

Taehun Lee, Assistant Professor

B.S., Seoul Natl. Univ., (S. Korea); M.S., Univ. of Iowa, Ph.D.

Jacqueline Jie Li, Associate Professor

B.S. (Mech), Peking Univ.; M.E. (Applied Mech), Beijing Inst. of Technology; Ph.D., Rutgers Univ.

Been-Ming Benjamin Liaw, Professor

B.S., National Tsinghua Univ., M.S.; Ph.D., Univ. of Washington

Rishi Raj, Professor

B.S., Punjab Univ.(India); B.S., P.F. Univ. (Moscow), M.S.; Ph.D., Penn. State Univ.

Ali M. Sadegh, Professor

B.S., Arya-Mehr Univ. of Technology (Iran); M.S., Michigan State Univ., Ph.D.; P.E. (Michigan)

Ioana Voiculescu, Assistant Professor

M.S., Tech. Univ. Politehnica (Romania); Ph.D., George Washington Univ.

Charles B. Watkins, Professor

B.S., Howard Univ.; M.S., Univ. of New Mexico, Ph.D.; P.E. (District of Columbia)

Hong Hui Yu, Associate Professor

B.S. (Applied Math), Tsinghua Univ., M.E. (Solid Mech.); Ph.D., Princeton Univ.

PROFESSORS EMERITI

Antonio Baldo

Myron Levitsky

Gerard G. Lowen

Henry T. Updegrave, Jr.

Sheldon Weinbaum

CCNY



Biomedical Education



**The Sophie
Davis
School of
Biomedical
Education**

The Sophie Davis School of Biomedical Education

Eitan Friedman, Ph.D., Acting Dean • HR107 • Tel: 212-650-5275

PROGRAMS AND OBJECTIVES

The Sophie Davis School of Biomedical Education was founded at The City College of New York (CCNY) in 1973. Named in honor of one of its major benefactors, the School was established to educate young men and women of diverse ethnic backgrounds to serve as primary care physicians and physician assistants in medically underserved communities.

The School's early success in achieving this mission—combined with the increasingly urgent need to train larger numbers of primary care physicians and to increase the number of physicians from minority groups—led the School to significantly increase the number of its basic science faculty and expand its teaching and research activities.

The City College of New York has served an important social as well as educational mission for over 150 years. The College's special mission is to provide economically and socially disadvantaged students with the intellectual training, professional skills and academic credentials they need to realize their full potential and to contribute effectively to society. It is no mere coincidence that the mission of The City College and the Sophie Davis School are closely related; indeed, they are integrally linked to each other.

B.S./M.D. PROGRAM

The Biomedical Education program is designed as a seven-year integrated curriculum leading to Bachelor of Science (B.S.) and Doctor of Medicine (M.D.) degrees. During the first five years of the program, students fulfill all requirements for the B.S. degree as well as the pre-clinical portion of

a medical school curriculum. After successfully completing the five-year sequence and passing Step I of the U.S. Medical Licensure Examination, students are considered for transfer to one of six medical schools for their final two years of clinical training. The Bachelor of Science degree is conferred by City College, while the medical school to which the student transfers awards the Doctor of Medicine degree. The medical schools participating in the program are:

- **Albany Medical College**
- **Dartmouth Medical School**
- **New York Medical College**
- **New York University School of Medicine**
- **The State University of New York (SUNY) Health Science Center at Brooklyn**
- **SUNY at Stony Brook School of Medicine**

All of the above are accredited by the Liaison Committee on Medical Education of the Association of American Medical Colleges and the American Medical Association.

THE GOALS

There is a continuing shortage of primary care physicians in our nation, creating an urgent need for more family physicians, internists, pediatricians, and obstetrician/ gynecologists in many communities. The shortage of African-American and Hispanic primary care physicians in inner city areas is particularly acute.

The B.S./M.D. program of The Sophie Davis School of Biomedical Education, is committed to producing broadly educated, highly skilled physicians who are prepared to undertake postgraduate training, increasing the number

of physicians of African-American, Hispanic and other ethnic backgrounds who have been historically under-represented in the medical profession and whose communities have been historically underserved by primary care practitioners, and encouraging students to become primary care physicians who will:

- Provide superior preventive and therapeutic medical care to underserved urban communities;
- Plan for effective, comprehensive health care services in cooperation with community leaders, residents, and providers of health-related services; and
- Serve as health care advocates for individuals and families living in the communities in which they practice.

THE SERVICE COMMITMENT

All students entering The Sophie Davis School of Biomedical Education sign an Agreement on Post-Graduation Service Commitment as part of acceptance to the program, and upon completion of a primary care residency training program, provide full-time primary care service for two years in a designated physician shortage area in New York State. If the graduate fails to complete this agreement, they must repay the school the sum of \$75,000.

ADMISSIONS POLICIES, REQUIREMENTS, AND APPLICATION PROCEDURES

Policies

The goals of The Sophie Davis School of Biomedical Education are designed to attract students who bring special intellectual and personal qualities to their studies. Academically qualified

students who demonstrate the maturity, integrity, compassion, and motivation needed to become dedicated and highly skilled physicians are those most likely to succeed in the program. One of the most important factors considered in the admissions process is the applicant's potential for and interest in pursuing a career as a primary care physician in medically underserved urban areas. The overall assessment of the applicants by the Admissions Committee includes:

- Academic ability as demonstrated by high school grades, Regent's examination scores in Biology, Chemistry, Physics and 11th year Mathematics;
- SAT and ACT scores;
- Personal attributes such as initiative, empathy and responsibility, consistent with the attributes of primary care doctors;
- Interest in working with low-income people and underserved communities as evidenced by health-care related experiences and participation in community and extracurricular activities;
- Contribution to a richly diverse student body.

After careful initial screening, the most highly qualified applicants are invited for personal interviews. The Admissions Committee makes the final selection of students admitted each year among those interviewed.

General Requirements

To be considered for September admission to The Sophie Davis School of Biomedical Education, an applicant must:

- be a resident of New York State and a citizen or permanent resident of the United States;
- be a high school graduate as of September 1 of the year of matriculation;
- have a minimum grade average of 85 percent through the first three years of high school;
- take the ACT examination;
- submit SAT scores; and

- have completed no more than 12 college-level credits as of the end of the fall semester. (NOTE: College credits earned prior to high school graduation are not counted for this purpose.)

Students who have previously taken college courses that they wish to have considered for credit must submit a copy of the official college transcript with the application.

Application Requirements

Each applicant must submit two separate applications:

1. An application for admission to The Sophie Davis School of Biomedical Education; and
2. An application for admission to The City University of New York (CUNY). On the CUNY application, students must list The Sophie Davis School of Biomedical Education as one of their choices. (Code Number 0179).

The application to The Sophie Davis School must be postmarked by January 8th.

A. Completing the Sophie Davis School Application

If you have not received the viewbook and the application form, contact the Office of Admissions at 212-650-7718 or 7712. The application can be downloaded at <http://med.cuny.edu>. The student should complete the application and submit it to his or her high school counselor. The counselor should attach an official copy of the student's transcript and forward the form to the Sophie Davis Office of Admissions. Transcripts submitted from other than the high school counselor are not valid. Applicants who have already graduated from high school may submit their applications directly to the Sophie Davis Office of Admissions. However, their high school transcripts must also be submitted directly by the high school from which they graduated. Additionally, students should request four letters of recommendation from individuals who are familiar with their qualifications and character, such as teachers, employers, or community

leaders. Recommendations from family members are not acceptable. Letters of recommendation sent by individuals associated with the high school should be submitted with the application; individuals outside the high school should send letters directly to the Office of Admissions. One letter of recommendation must be from a science teacher.

The completed application and all supporting materials must be postmarked by January 8th. Any application or supporting materials postmarked after that date will not be considered.

All applications and requests for information should be addressed to:

Office of Admissions
Sophie Davis School of Biomedical Education
HR 101
160 Convent Avenue
New York, NY 10031

B. The City University of New York Application

Application forms to The City University of New York may be obtained from any New York City high school, the Admissions Office at any unit of the City University of New York, or requested online at www.cuny.edu. A "CUNY Admissions Guide" is also available. Applications and materials are also available from:

The Office of Admissions Services
1114 Avenue of the America, @
42nd Street, 15th floor
New York, NY 10036
Phone: (212) 997-2869

or write to:

University Application Processing Center (UAPC)
Box 136, Bay Station
Brooklyn, NY 11235

A completed CUNY general or a CUNY Honors College application, along with a \$65 non-refundable fee, should be sent to the University Application Processing Center. The application fee is subject to change.

SCHOLARSHIPS AND GRANTS

The William Randolph Hearst Scholarship
For selected graduates of the Bridge to Medicine Program who enroll in Sophie Davis.

The Lois Pope/Leaders in Furthering Education (LIFE) Unsung Hero Scholarships

\$25,000 over each of the five years at Sophie Davis are awarded to four entering students for academic excellence and selfless community work.

Alan Selig Memorial Fund

The Alan Seelig Memorial Fund provides tuition aid, grants, and emergency loans on the basis of need. The Fund was established in memory of Alan Seelig, Class of 1980, who lost a valiant struggle against cancer on Christmas Day, 1978. The Fund was initially established by family members and friends, and now annually receives contributions from alumni of the School. Hundreds of students have benefited from the fund. Alan Seelig Memorial Awards are granted annually to one to three graduating seniors who have overcome adversity.

The Dean's Award for Academic Excellence

Given to the graduating senior who has shown academic excellence and has demonstrated qualities that exemplify the highest ideals of medicine.

The Rita and Howard Shapiro Memorial Scholarship

A grant to up to three graduating seniors based on academic performance and financial need.

Leonard Davis Community Fellowships

Awarded to several students to provide service to local community organizations.

The Sophie and Leonard Davis Scholarships

Ten \$20,000 grants spread over four years of medical school education (the last two at Sophie Davis and then the two years at the cooperating medical school), awarded annually to 4th year students based on need and merit.

The Mack Lipkin Broader Horizons Fellowship

Provides travel and stipends for summer research projects most often between the 4th and 5th years.

The Louis & Rachel Rudin Student Research Fellowships

Provides stipends for several students doing research, usually during the summer.

THE FIVE-YEAR CURRICULUM

The curriculum for the first five years of the B.S./M.D. program is designed to prepare students to begin their clinical training and to foster student interest in practicing primary care medicine in underserved urban communities.

Its objectives are to:

- provide students with the highest quality premedical and medical education possible, based on rigorous training in basic and clinical sciences;
- offer a broad, thorough and balanced baccalaureate education that includes studies in the humanities and social sciences;
- encourage students to develop critical thinking skills;
- develop effective writing and communication skills;
- stress and promote the values and attitudes essential to members of the medical profession;
- make students aware of changing economic and social issues in the practice of medicine;
- prepare students to work both with individuals and in the community to promote good health;
- offer students varied experiences in urban health care by utilizing a diverse mix of teaching sites, including community health centers; and
- encourage the faculty to become personally involved in the development of the students in a relationship of scientific and professional collaboration.

The implementation of the new modular curriculum of Sophie Davis began in the spring semester of 2004 and the first class to fully experience this curriculum graduated in 2009.

COMMUNITY HEALTH AND SOCIAL MEDICINE

The Sophie Davis School of Biomedical Education is unique among the nation's medical schools in tailoring its curriculum towards preparation of students to become community-oriented primary care physicians who will serve in medically underserved areas. This mission is supported through the School's intensive sequence of courses in Community Health and Social Medicine (CHASM), which include field placements in partnership with community-based health centers and health-related programs in underserved areas of New York City.

Through course work, small group sessions, field and clinical placements, and experiences in a "population" laboratory, CHASM provides students with opportunities to understand health and disease beyond the traditional medical realm. Students acquire the skills to analyze the health of populations and to consider multi-faceted intervention strategies aimed at improving health and health care communities. Through their work in the four-year CHASM sequence, students prepare for their future service as physicians who play many different roles. These include:

- clinicians who provide integrated, accessible health care services through a sustained partnership with patients;
- medical professionals who apply the tools of scientific reasoning to the practice of medicine and the promotion of health within communities;
- scientists who engage in clinical and epidemiology research;
- agents of change, working with communities and organizations to improve health through action at the political and health systems levels.

Clinical and Field Placements

To provide opportunity for its students to participate in a variety of field experiences throughout their five years, Sophie Davis has developed a network of field placements and primary care clinical sites, which function as partners in the educational process. The network includes over 50 community health and health-related social service centers located in underserved areas of the Bronx, Brooklyn, Manhattan, and Queens.

The Clinical Campus sites are where students are introduced to primary care medicine and learn early clinical skills. A community-based faculty of primary care physicians including general internists, pediatricians, and family physicians provides mentoring and teaching to students within these settings. These centers include:

Bedford-Stuyvesant Family Health Center, Inc., Brooklyn

Charles B. Wang Community Health Center, Manhattan and Queens

Community Health Center of Richmond, Staten Island

Montefiore Medical Group at Castle Hill, Bronx

**Morris Heights Health Center, Bronx
Ryan/Chelsea – Clinton Community Health Center, Manhattan**

Settlement Health and Medical Services, Manhattan

Urban Health Plan, Bronx

William F. Ryan Community Health Center, Manhattan

THE ACADEMIC YEAR

The academic year encompasses the fall and spring semesters. Biomedical students are required to take a minimum of 12 credit hours each fall and spring semester to be considered full-time students. Beginning with the second year, the spring semester extends into the summer.

STUDENT EVALUATION

Students in the Sophie Davis School are required to earn a grade of "B" or better in all biomedical subjects and a grade of "C" or better in all other academic courses required for graduation.

The Sophie Davis School Student Handbook on Academic Policies and Procedures provides more details on these requirements. Students are offered personal and academic support to help assure satisfactory progress in their studies, including a review of their records twice a year by the Sophie Davis School Committee on Student Academic Progress. Students unable to meet required levels of academic progress following opportunities to improve their performance are subject to dismissal from the program. If qualified, these students may explore the option of transferring into the College of Liberal Arts and Sciences of the City College to pursue a medical education through the traditional route.

APPLICATION TO COOPERATING MEDICAL SCHOOLS

In the fourth year, students begin the application process to the six cooperating medical schools:

Albany Medical College

Dartmouth Medical School

New York Medical College

New York University School of Medicine

SUNY Health Science Center at Brooklyn

SUNY Stony Brook School of Medicine

Candidates generally are invited to interview with several of the medical schools. In the summer after the fourth year, the medical schools rank their applicants and students rank the schools in order of preference. In the matching process, both the preference of the schools and of the students is taken into account. Students are provisionally admitted to one of the medical schools. In order to be admitted to one of the medical schools, each student must demonstrate high levels of academic performance and achieve the competencies necessary to succeed in clinical training. While each school has a limited number of places, most students are admitted to one of the schools to which they have given a high ranking. Following the successful completion of the first five years of the curriculum and passing Step I

of the United States Medical Licensure Examination, students transfer to the third year of the medical school to which they were admitted to complete their clinical training.

B.S./M.D. CURRICULUM

The following is an outline of the five years of study. The new modular curriculum was phased in spring 2004 and was fully implemented by spring 2006.

First Year, Fall Semester

Bio 20700: Biology of Organisms (4 cr.)

FIQWS: Freshman Inquiry Writing Seminar (6 cr.)

Phys 20300: General Physics I (4 cr.)

NSS 10000: New Freshman Seminar (0 cr.)

Elective (3 cr.)

First Year, Spring Semester

MED 10200: Principles of General Chemistry (5 cr.)

Phys 20400: General Physics II (4 cr.)

WCIV 10100/10200: World Civilizations I or II (3 cr.)

Elective (3 cr.)

Second Year, Fall Semester

MED 20300: Bio-Organic Chemistry (5 cr.)

Bio 20600: Introduction to Genetics (3 cr.)

Math 17700: Introduction to Biostatistics (3 cr.)

Psy 10200: Applications of Psychology in the Modern World (3 cr.)

Elective (3 cr.)

Second Year, Spring Semester

MED 20400: Molecules to Cells I (4 cr.)

MED 21400: Health, Medicine & Society I – Culture, Health & Illness/Community Oriented Primary Care (3 cr.)

MED 22400: Health, Medicine & Society II – Research Methods in Culture, Health & Illness/Community Oriented Primary Care (2 cr.)

MED 23400: Health, Medicine & Society III – Field Work in Community Medicine (5 cr.)

Elective (3 cr.)

Third Year, Fall Semester

MED 30500: Molecules to Cells II (3 cr.)

- MED 33501: Health, Medicine & Society IV – Fundamentals of Epidemiology (3 cr.)
 PHIL 30000: The Rational Animal (3 cr.)
 USSO 10100: The Development of the U.S. and its People (3 cr.)

Third Year, Spring Semester

- MED 33601: STEP 3 – Structure (Human Gross Anatomy and Embryology and Histology) (11 cr.)
 MED 34601: STEP 4 – Systemic Functions I (3 cr.)

Fourth Year, Fall Semester

- MED 41700: Health, Medicine & Society V – The U.S. Health Care System (3 cr.)
 MED 42700: Patient – Doctor I (1 cr.)
 MED 44700: STEP 4 – Systemic Functions II (5 cr.)
 MED 45701: STEP 5 – Medical Pharmacology (7.5 cr.)

Fourth Year, Spring Semester

- MED 42800: Patient-Doctor II (3 cr.)
 MED 46800: STEP 6 – Neuroscience (5 cr.)
 MED 47802: STEP 7 – Behavioral Medicine (4 cr.)
 MED 48801: STEP 8 – Host Defense, Infection & Pathogenesis (10 cr.)

Fifth Year, Fall Semester

- MED 59901: STEP 9 – Neuro-Psychiatry (3 cr.)
 MED 51901: STEP 10 – Systemic Pathology (7.5 cr.)
 MED 52901: STEP 11 – Introduction to Clinical Med. I (3 cr.)
 MED 53900: Clinical Decision Making and Evidence-Based Medicine (2 cr.)

Fifth Year, Spring Semester

- MED 52000: Physical Diagnosis (4 cr.)
 MED 53001: STEP 11 – Introduction to Clinical Med. II (8 cr.)

Sixth And Seventh Years

During the sixth and seventh years, students complete clerkships and other academic work in accordance with the requirements of the particular medical school (of the six cooperating institutions) to which they transfer for this part of the M.D. curriculum.

COURSE DESCRIPTIONS

The Sophie Davis School of Biomedical Education courses are included here; course descriptions for other required courses may be found in the appropriate section of this Bulletin.

10200: Principles of General Chemistry

This is an intermediate course, which includes most of the topics covered in a traditional pre-med General Chemistry course but delves more deeply into concepts and principles that will appear in the students' medical career. These involve acid-base behavior, some aspects of thermodynamics, and selected properties of liquids, gases, and solutions among others. Many of the principles and concepts taught are applied to biological systems. Mathematical techniques needed to understand the principles of chemistry are integrated into the course and elementary physics concepts are reviewed. Prereq.: High School algebra, geometry, trigonometry and chemistry; physics recommended. 4 lect., 3 lab hr./wk.; 5 cr.

20300: Bio-Organic Chemistry

This is a course in which some aspects of a traditional one-year Organic Chemistry course are covered with an emphasis on reaction mechanisms, and stereochemistry. The organic chemistry is immediately applied to the appropriate class of biological molecules. So in effect, we are introducing a more biochemistry-oriented organic chemistry. Topics such as carbohydrates, carboxylic acids and lipids, etc. will be discussed. This integration of organic and biochemistry will diffuse the boundary between the two areas and will better prepare the students for entry into the Molecules-to-Cells course. Prereq: MED102. 4 lect., 3 lab hr./wk.; 5 cr.

21400: Health, Medicine & Society I: Culture, Health & Illness/Community Oriented Primary Care

This course is designed to acquaint students with the basic tools, concepts and methods for the study of health, illness, and community life by focusing on the disciplines of medical anthropology and community-oriented primary care. By the end of this course students should be able to: 1) recognize, define and apply the basic concepts and methods of medical anthropology and community oriented primary care; 2) realize that interactions between health, disease, community life, and culture can be studied in a holistic and scientific fashion and that quite a bit is known about them from this perspective; 3) acknowledge that the social and cultural differences existing among patients and between medical and social systems

are variables that need to be taken into account in the treatment of patients; 4) locate and assess medical social science data sources in print and online formats; and 5) understand the need to balance an individual approach to patient care with a population approach. Co-requisite: MED 22400. 3 hr./wk.; 3 cr.

22400: Health, Medicine & Society II: Research Methods in Culture, Health & Illness/Community Oriented Primary Care

A laboratory/workshop course focusing on qualitative/quantitative data collection and analysis skills fundamental to community-based medicine and medical anthropology. Students will learn basic demographic concepts, some basic descriptive statistics, and methods for collecting and analyzing data on the social and cultural determinants of disease and health. These methodologically oriented lectures and workshops parallel topics covered in MED 21400 but emphasize skills, application and problem solving. 1 lect., 2 workshop hr./wk.; 2 cr.

23400: Health, Medicine & Society III: Fieldwork in Community Medicine

The field placement is a structured clerkship that introduces students to an inner-city community and a social or health service agency. Each student works in one of numerous agencies located in the Bronx, Manhattan, Queens or Brooklyn under the dual supervision of the Community Medicine faculty/staff and a provider preceptor. Placement sites include health centers, hospital outpatient services, social welfare agencies, and programs for the elderly, adolescents and children.

The course is taught during the spring and summer. Students learn interviewing, screening and advocacy techniques. Students work 20 hours per week in a community-based agency. In addition to their agency responsibilities, students:

1. maintain a log of their activities, their interactions with patients and staff, and their analysis of proposed solutions to problems in their own work and that of the agency;
2. prepare an agency report that examines the background, governance, population served, services and programs, and how the agency is funded;
3. present a case study of a family or individual focusing on the effects of community, sociocultural and economic factors on the patient's health; and
4. conduct a community survey or chart review on a defined population (including questionnaire construction, pilot testing, aggregation and analysis of results)

Co-requisite: MED 22400. 8.5 lab, 8.5 hr./wk.; 5 cr.

20400: Molecules to Cells

Prereq. for Med 20400: MED 10200, 20300, BIO 20600, BIO 20700. 4 hr./wk.; 4 cr. Graded as a year-long course with MED 30500.

30500: Molecules to Cells II

This two-semester course (MED 20400 and 30500) is designed to provide students with comprehensive and integrated concepts of biochemistry, cell biology, and medical genetics within a clinically oriented framework. Topics are presented with the aim that students will become aware of the contribution of cell and molecular biology and genetics to future developments in clinical diagnosis and treatment. Students are expected to acquire the necessary skills to integrate microscopic structure and cellular function, a prerequisite for other disciplines such as Human Development, Medical Histology, Physiology, Immunology, Pathophysiology, and other related areas. Sessions include lectures, small group discussions, and clinical correlations. Prereq.: MED 20400. 5 hr./wk.; 3 cr.

31000: Independent Study

1-4 credits (determined prior to registration by Medical School faculty member). Students may pursue a program of independent study under the direction of a Medical School faculty member. Prerequisites: Determined by faculty member.

31100-32000: Selected Topics

Selected topics provide an opportunity for the special study of areas not covered in the usual department offerings. Specific topics vary from semester to semester, depending upon student and faculty interest. Prerequisites, credits and hours are determined by Chairperson and Curriculum Committee.

33501: Health, Medicine and Society IV: Fundamentals of Epidemiology

This course equips students with the ability to understand and evaluate the impact of environmental, biological, social, and behavioral risk factors on health and disease through the epidemiology methods. The course uses lectures, small group meetings and assignments to acquaint student with: measures of morbidity and mortality; techniques of epidemiology surveillance including disease outbreaks; appropriate settings for use of cross-sectional, prospective and retrospective study design as methods to examine disease causation and distribution; calculation of relative risk; sources of bias and variability in studies. Lectures and workshops reinforce student facility with statistical methods used in analyzing and interpreting the medical literature. Small group meetings require students to demonstrate the skills of critical evaluation of epidemiology evidence.

Prereq.: MED 21400, MED 22400, MED 23400 and MATH17700. 3 lect., hr./wk.; 3 cr.

33601: Structure: Human Gross Anatomy and Embryology and Histology (Step 3)

Structure consists of two components: Human Gross Anatomy, Embryology, and Organ Imaging and Medical Histology. The objective of Human Gross Anatomy, Embryology, and Organ Imaging is to provide students with hands on experience in the study of the structure and function of the human body, an understanding of relevant aspects of human development and its abnormalities, and the value of imaging techniques in the visualization of the human body. Structure at the macroscopic level is explored by regional dissections. Students are expected to examine anatomic relationships leading to an integration of anatomic function and embryo-fetal development under normal and pathologic conditions.

Histology pursues an extension and integration of topics presented in both the Molecules to Cells and Human Gross Anatomy and Embryology. The main objective is the microscopic identification of cells, tissues, and organs in preparation for the study of normal and abnormal function and structure in further courses on systemic function, pathogenesis, and systemic pathology. Students are expected to master the material and acquire integration skills by correlating macroscopic and microscopic structure using clinical and pathologic examples, which emphasize cell and tissue biology in preventive medicine and disease. Prereq.: MED 20400 and 30500. 16 hr./wk.; 11 cr.

34601: Systemic Functions I (Step 4)

Prereq.: MED 20400, MED 30500 and MED 33601. 16 hr./wk.; 3 cr. Graded as a year-long course with MED 44700.

44700 Systemic Functions II (Step 4)

This two-semester (MED34601 and MED44700) medical school course is designed to provide medical students with an understanding of the physiological principles needed for the practice of clinical medicine. It covers a range of topics from cellular physiology to the physiology of organs and organ systems. Students are expected to apply their knowledge of anatomy and biochemistry in studying these areas. The course includes topics devoted to the study of membrane physiology, muscle physiology, the cardiovascular system as well as renal, respiratory, gastrointestinal and endocrine systems. Instructional activities include lectures, clinical case discussions, student-centered problem-based learning sessions, reviews, problem-solving and computer-based exercises. Prereq.:

MED 34601. 16 hr./wk.; 5 cr. Graded as a year-long course with MED 34601

41700: Health, Medicine & Society V - The U.S. Health Care System

This course provides students with the knowledge and skills to critically examine how the U.S. health care system and policy-making apparatus influence the health of Americans. In lectures and small groups, students study the epidemiology of behavioral and environmental risk in U.S. sub-populations, the structure of the health system and medical insurance, and the role of public health, medicine and primary care in influencing health outcomes. Social and political factors of particular relevance to underserved, low income, and minority populations are emphasized. Students are required to develop presentations and written papers for seminars, where topics presented in the readings and lectures are explored in greater depth. In concert with skills previously acquired in Fundamentals of Epidemiology students completing this course will emerge with an understanding of study design as it informs medical outcomes and health services research. Prereq.: MED 21400, MED 22400, MED 23400 and MED 33501. 4 hr./wk.; 3 cr.

42700: Patient-Doctor I

Graded as a yearlong course with Patient-Doctor II. 5 hr./wk.; 1 cr.

42800: Patient-Doctor II

The Patient-Doctor Sequences I and II are two consecutive longitudinal clinically oriented academic sequences designed to meet the needs of fourth-year students. Patient-Doctor Sequences I and II enable the students to acquire, integrate, properly apply knowledge for, and develop the skills and attitudes to engage in effective patient centered medical interviewing through the study of all aspects of the doctor-patient relationship, review of systems, and medical decision-making. Students are also introduced to primary care practice. The experience is structured to enhance students' familiarity with the multiple facets of primary care medicine. Rotation at partner Community Health Centers under the supervision of community-based primary care physicians will encourage students to hone their diagnostic skills, become familiar with community-based medical practices, and develop role-model relationships with primary care physicians. Patient-Doctor Sequences I and II rely on the following didactic components: interactive lectures, small group learning formats, videotape-based sessions, role-playing tutorials, standardized patient tutorials, and medical interviewing practice seminars. Summative and formative evaluation will consist of written clinical essays,

and Group Objective Structured Clinical Examinations. 5 hr./wk.; 3 cr.

45701: Medical Pharmacology (Step 5)

This step is designed to introduce medical students to the rational basis of drug use. It emphasizes the fundamentals of drug absorption, distribution, metabolism and elimination. Students will learn the relation between drugs and receptors, adverse drug reactions and drug use in special populations. The step will focus on mechanisms by which drugs elicit their clinical effects and the evaluation and treatment of drug toxicity. The course includes units devoted to the study of drugs affecting the autonomic nervous, the cardiovascular system, diuretics, drugs influencing the endocrine system, chemotherapeutic drugs and agents used in the treatment of inflammation. Instructional activities include lectures, clinical case presentation, student-led discussions of clinical cases and laboratory. Prereq.: MED 44700. 16 hr./wk.; 7.5 cr.

46800: Neuroscience (Step 6)

This course is designed to introduce students to basic principles of neuroanatomy and neurophysiology. The fundamentals of structure and function of the brain and spinal cord at both the microscopic and gross levels of organization are examined. Particular emphasis is placed on questions of clinical relevance. Students are encouraged to relate their understanding of the neuroanatomical and physiological principles to solving clinical issues. Prereq.: MED 20400. 20 hr./wk.; 5 cr.

47802: Behavioral Medicine (Step 7)

Behavioral Medicine is a principle-driven/learner-centered/small-group-and-case based academic module that promotes acquisition and integration of knowledge, skills, attitudes, and values that permit students to: 1) Use behavioral science concepts and strategies to integrate patient-centered, disease-based, population-based, and evidence-based medicine into primary care medicine, 2) Communicate effectively and efficiently within the doctor-patient relationship, with professionals and the public, and 3) Promote lifestyle changes in the service of health promotion and disease prevention.

In Behavioral Medicine students learn to recognize, appraise, and contrast normal and abnormal behavior through the study of pathophysiology and psychopathology so as to comfortably negotiate the various aspects of human behavior in health and illness. Students learn that the essence of being human lies in the interrelationships among biology, behavior, cognition, environment, society, and culture, and master the essential aspects of growth and

development along the life cycle. Students learn the foundation of medical assessment, which is the evaluation of behavior manifested as symptoms and signs, their origins and consequences along a time axis. In Behavioral Medicine students learn the emotional aspects of illness, human coping behavioral patterns, and personality and behavioral styles and their role in health and illness. Through graduated immersion in Behavioral Medicine students hone their interpersonal and communication skills, develop cross-cultural competence, flexibility, and tolerance in medical practice. Students participate in interactive lectures, large and small group learning formats, PBL's, small-group tutored and tutorless seminars, videotape-based sessions, case based small group sessions, and case conferences, review the pertinent literature, integrate new and previously studied relevant material, and participate in experiential projects, all intended for application in clinical medicine. 20 hr./wk.; 4 cr.

48801: Host Defense, Infection, and Pathogenesis (Step 8)

This course integrates the biomedical disciplines of immunology and medical microbiology with the pathophysiology of infectious and/or immunological diseases and the appropriate pharmacology, emphasizing the relevance to the clinical setting. Students learn fundamental concepts and terminologies of immunology, bacteriology, virology, parasitology and mycology with an emphasis on mechanisms of microbial disease transmission, interwoven with an understanding of host defense mechanisms. A basic understanding of the classification and characteristics of infectious micro-organisms, the mechanisms by which infectious agents cause disease, methods of both prevention and treatment are highlighted. Causes and treatments of immune diseases are also emphasized. Students become familiar with the concepts of inflammation, sepsis, cell injury, tissue repair, hemodynamic disorders, genetic disorders, environmental and nutritional pathology, immunodeficiency diseases, autoimmune diseases, allergy, metabolic diseases and neoplasia.

Throughout the course, small group tutorials and interactive clinical correlations based on clinical cases link basic science concepts to clinical medicine. Laboratories in microbiology and immunology introduce students to some of the basic techniques used in diagnostic laboratories for the identification of infectious bacteria, parasites and fungi, and acquaint students with laboratory tests that are routinely performed in diagnostic clinical microbiology and immunology laboratories. Laboratories also utilize diagnostic unknowns to train students in the interpretation of clinical case histories and the isolation and

characterization of micro-organisms involved in infectious diseases. General pathology laboratories focus on observations of gross specimens and light microscopic examination of diseased tissues to identify the features of general pathological processes relevant to diverse disease states. Tutorials, clinico-pathological correlations and laboratories emphasize problem-solving skills, integration of knowledge and independent learning. Prereq.: MED 30500 and MED 33601. 20 hr./wk.; 10 cr.

59901: Neuro-Psychiatry (Step 9)

Neuro-Psychiatry combines aspects of behavioral science, psychiatry, psychopharmacology, and clinical neuroscience. This constitutes an integrated learning module administered by the Departments of Behavioral Medicine and Physiology and Pharmacology. Neuro-Psychiatry integrates important material gleaned from behavioral science, neuroscience, physiology, general pharmacology, psychopharmacology, neuropharmacology, psychopathology, pathophysiology, and clinical epidemiology. It aims to guide students in acquiring the basic knowledge, skills, and attitudes regarding prevalent psychiatric and neurological disorders. The disorders will be thoroughly covered with regard to phenomenology, diagnosis, pathophysiology, and therapeutics. Prereq: MED 45700, MED 46800, MED 47800. 16 hr/wk; 3 cr.

51901: Systemic Pathology (Step 10)

In the Systemic Pathology course, students learn to apply the principles and mechanisms of diseases. The course covers the disease process in all organ systems, including a separate section on the cardiovascular system, with the pertinent pathophysiologic correlations. The basic clinical aspects of systemic disease are introduced and correlated with the morphologic features of the diseases. The course utilizes lectures with Kodachrome slides, power point presentations, essay assignments, laboratory sessions with gross specimens and pertinent clinical histories, microscopic slides, and review sessions. Pathologists from the Mount Sinai School of Medicine will be selected to provide lectures during this course. Pathology residents & fellows from Mount Sinai will be selected to participate in the laboratory sessions. Prereq.: MED 48801. 11 lect., 8 lab, 21 hr./wk.; 7.5 cr.

52000: Physical Diagnosis

This course instructs the student in the art and technique of the patient interview and physical examination through a lecture series, a smaller group tutorial segment, and actual bedside patient examinations. Course faculty are drawn from the Divisions of General Internal Medicine, Cardiology, Pulmonary Medicine, Endocrinology &

Metabolism, Nephrology, Rheumatology, Infectious Disease, Geriatrics, Obstetric & Gynecology, Hematology & Oncology, Immunology & Allergy, and Gastroenterology of St. Luke's Roosevelt Hospital Center and other metropolitan teaching hospitals.

Additional course faculty is drawn from the Department of Medicine at St. Luke's - Roosevelt Hospital Center. 2 lect., 4 tutorial, and 3 bedside hr./wk.; 4 cr.

52901: Introduction to Clinical Medicine I (Step 11)

1 lect., 2 clinical conference hr./wk.; 3 cr.

53001: Introduction to Clinical Medicine II (Step 11)

This two-semester course (MED 52901 and MED 53001) is designed to build upon students' knowledge of the basic sciences and prepare them for the clinical clerkship in medicine. The course integrates pathophysiology with clinical medicine, and is taught using case studies.

Topics include cardiology, endocrinology, gastroenterology, gerontology, hematology, immunology, infectious diseases, medical genetics, nephrology, nutritional aspects of diseases, obstetrics and gynecology, oncology, pulmonary medicine, and rheumatology. Course faculty are from the Department of Medicine at St. Luke's-Roosevelt Hospital Center. 5 lect., 10 clinical conference hr./wk.; 8 cr.

53900: Clinical Decision Making & Evidence-Based Medicine

This course focuses on applications of the scientific method to evaluations of medical practice. Through lectures and problem-solving workshops, the course reviews the methods of evidence-based assessment of the medical literature. Using examples taken from the peer-reviewed scientific literature, students gain understanding of core concepts such as probability, sensitivity and specificity of diagnostic testing, measurement of risk, pre-and post-test likelihoods, decision analysis and cost effectiveness analysis. These concepts are built upon in small group settings in the context of decision-making within clinical practice. Prereq.: MED 33501. 2 lect., hr./wk.; 2 cr.

ELECTIVES

Students may choose electives in the Division of Humanities and Arts, Social Science and Science within the College of Liberal Arts and Sciences, described in The City College Undergraduate Bulletin. The Student Handbook on Academic Policies and Procedures of The Sophie Davis School of Biomedical

Education describes the policy governing the "Electives Requirement."

B.S. DEGREE PROGRAM FOR PHYSICIAN ASSISTANTS

General Information

The CCNY/Sophie Davis School of Biomedical Education Physician Assistant Program at Harlem Hospital is an upper-division baccalaureate program, which can be completed in 28.5 months. The goal of the program is to teach students to become highly competent, knowledgeable, and compassionate primary care professionals. Students enter the program after completing a minimum of two years of college with at least 60 transferable credits. Classes begin in July with a six-week orientation period followed by courses in Medical Physiology & Psychiatry along with Microbiology and Physical Diagnosis. For the first 16 months, students have biomedical and clinical medicine lectures and take behavioral science courses. They begin to have patient contact, learning interviewing skills, performing physical examinations, and preparing medical records. Graduate pairing is used as a clinical training tool during the didactic year. The final 13 months consist of clinical training in internal medicine, pediatrics, psychiatry, emergency medicine, primary care, surgery, SICU, obstetrics/ gynecology, and geriatrics. Clinical clerkships are arranged at various New York City Health and Hospitals Corporation facilities, neighborhood health care centers, voluntary hospitals, and private practices throughout the New York metropolitan area, with a few out-of-town locations. Students at each site are assigned to attending physicians, graduate physician assistants, and residents who coordinate their instruction and monitor and evaluate their clinical performance.

This program is as intellectually demanding as graduate school and requires a full-time commitment. Classes are scheduled for an average of 35 hours per week with each hour of class requiring at least 1.5 hours of additional study per day. Classes are generally scheduled from 8 a.m. to 5 p.m.

and are subject to change. Because of these academic demands, employment during the program is not encouraged.

The Physician Assistant Profession

The Physician Assistant (PA) is a dependent medical practitioner who, under the supervision of a doctor of allopathy or osteopathy, may perform diagnostic, therapeutic and health promotion/disease prevention services in any clinical setting. The specific tasks performed by a physician assistant vary by several regional factors. PAs practicing in New York may perform all duties within the scope of the clinical practice of their supervising physician and write prescriptions for scheduled drugs and medications. The Physician Assistant Program at Harlem Hospital Center provides a comprehensive education required to excel as a practitioner.

ACCREDITATION

The program is approved by the New York State Board of Higher Education and the State Board of Regents. The program was reviewed by the Accreditation Review Committee on Education for the Physician Assistant (ARC-PA) June 2002 and granted its continuing accreditation September 2002. The Program's last on-site evaluation was successfully completed on June 30, 2006.

THE MISSION OF THE PROGRAM

The CCNY/ Sophie Davis School of Biomedical Education Physician Assistant Program at Harlem Hospital recruits, educates, and mentors a diverse group of students from underserved communities to become physician assistants providing quality health care. The program emphasizes primary health care and preventive medicine, and seeks to interest students working in medically underserved areas. The program uses didactic and clinical training, fosters an appreciation for research and empowers faculty and students to be advocates for the physician assistant profession,

and for the delivery of primary health care.

Further, it is committed to providing:

- A rigorous curriculum based on ACGME competencies in clinically oriented basic sciences; a comprehensive presentation of the clinical specialties of medicine, surgery, pediatrics, psychiatry, geriatrics and obstetrics and gynecology. There is an emphasis throughout the program on the social, economic and behavioral factors, which influence patient care; clinical education and exposure to a variety of health care settings within health manpower shortage communities and institutions serving multi-ethnic populations;
- Professional development that involves participation in a variety of community and professional organizations;
- Research skills to enable students to compile, analyze, and synthesize data, utilizing that information to improve health care services in the communities served and;
- Instructional skills enabling graduates to provide education to both patients and colleagues.

Application Process

The application process is competitive. The average student accepted has three and one half years of transferable college credits with a grade point average of 3.0 on the 4.0 scale and a minimum of one-year health care experience.

Applicants must have completed courses with an overall grade point average of 2.5 minimum (science GPA of 2.6 or better), and a minimum of 60 transferable college credits. Without exception, the following prerequisites are required:

- 8 credits of Biology with lab: General Biology I & II or Anatomy & Physiology I & II. No introductory courses are accepted.
- 8 credits of Chemistry with lab: General Chemistry 1 & 2 or Inorganic 1 & 2 or Organic 1 & 2. No introductory courses accepted.

- 6 credits of English: Non-remedial Literature/ Composition. TOEFL and ESL are unacceptable.
- 3 credits of Math: Pre-Calculus, Calculus or higher. Note: Statistics courses are not acceptable in meeting the math requirements.
- 12 credits in Humanities/Social Science: Humanities in Philosophy, Art, Literature, Social Sciences in Psychology, Economics, and Sociology.

Applicants must have completed all prerequisite course work by the end of the application deadline and all official transcripts must be received by March 30th.

Applicants to the Physician Assistant Program must submit two separate applications:

1. An application to the P.A. Program.
2. A transfer application to the City University of New York (CUNY), University Application Processing Center (UAPC).

To complete the P.A. Program Application, applicants must:

- Submit a completed P.A. application form directly to the program office at the address listed below;
- Arrange to have original transcripts from all colleges attended forwarded to UAPC and to the P.A. Program;
- Provide the P.A. Program Office with the names and addresses of three unrelated individuals (such as employers, teachers, and community leaders) who are familiar with the applicant's abilities and who agree to recommend the applicant for admission. All such letters must be received by the March 15th deadline.

The completed application form and all supporting documents, including letters of recommendation, must be postmarked by March 15 and returned to the address below for the applicant to be considered for admission.

City College of New York/Sophie Davis School
Physician Assistant Program at Harlem Hospital
160 Convent Avenue, HR 15

New York, NY 10031
Tel: (212) 650-7745; Fax: (212) 650-6697

If you attended a school outside of the continental U.S. you are advised to send in your application and foreign transcript(s) prior to the March 30th deadline. Foreign transcripts must be evaluated 6-8 months in advance. In addition, all foreign applicants must have completed six credits of College English in the U.S. TOEFL and ESL is not accepted.

All applicants who wish to be considered for admission to the CUNY/CCNY Physician Assistant Program at Harlem Hospital Center should be a citizen or permanent resident of the U.S. In addition, in order to receive licensing privileges by the State of New York, all applicants are required to have a valid social security number before applying to the program. These policies are in conformity with the Sophie Davis School of Biomedical Education, City College of New York and Harlem Hospital Center in New York City.

The CUNY/CCNY P.A. Program currently does not participate in the Central Application Service for Physician Assistants (CASPA). Please follow the directions in filling out the P.A. Program and UAPC applications.

The CUNY Transfer Application

Transfer application forms to The City University of New York may be obtained from the Admissions Office at any unit of CUNY or the P.A. Program office. Applications and materials are also available from:

The Office of Admissions Services
1114 Avenue of Americas @ 42nd Street, 15th Floor
New York, New York 10036
Phone: (212) 997-2869

Or write to:

University Application Processing Center (UAPC)
Box 136, Bay Station
Brooklyn, New York 11235

Completing the Application Process

Completed CUNY applications, along with a \$65 non-refundable fee (\$70

for transfer applications), should be sent to the University Application Processing Center (UAPC) at the above address (the application fee is subject to change).

- If the CUNY Harlem P.A. Program is your first choice, YOU MUST USE CODE #0166.
- Official transcript(s) from all colleges must be forwarded to UAPC.
- Applications and all official transcripts must be received by March 15th.
- Do not send the UAPC application to the P.A. program.

Grading Policies and Academic Standards

To remain in good academic standing in the P.A. Program, students must demonstrate a continuing commitment to the standards of the physician assistant profession and receive a passing grade in each required course in accordance with grading policies and requirements set forth in the P.A. Program Student Handbook. A student receiving a failing grade in any required course may be placed on academic probation and may be subject to dismissal. Any student on academic probation receiving a subsequent failing grade may be dismissed from the program. Students who fail to represent and assume the role and responsibility of the physician assistant will also be subject to probation and dismissal.

The P.A. Program's Committee on Course and Standing is responsible for establishing and enforcing academic standards, regulations and degree requirements. For further details concerning academic and grading requirements, attendance and examination policies, and expected standards of conduct, consult the P.A. Program Student Handbook, the City College Undergraduate Bulletin, and the City College Student Guide.

Degree Requirement and Certification

To qualify for graduation, students must successfully complete all required courses in the Physician Assistant curriculum. Students must also take and

pass the CUNY Skills Assessment test, the CUNY Proficiency Exam and the Speech Proficiency Exam. In addition to the baccalaureate degree, graduates of the program receive a Certificate of Completion from Harlem Hospital Center. Graduates can register as Physician Assistants with the New York State Department of Education and are eligible to take the National Certifying Examination sponsored by the National Commission on the Certification of Physician Assistants, Inc.

Program Activity Fee

A non-refundable \$800 fee is assessed for costs incurred for malpractice insurance, academy membership fee and the ropes (skill-building) course. This fee must be enclosed with your letter of acceptance to the program. Payment of this fee must be by certified check or money order made out to The City College of New York.

Books and Equipment Costs

Students can expect estimated book expenses of \$800.00 for each semester, an initial outlay of \$450.00 for diagnostic equipment to be purchased before the end of the summer semester, and a \$150.00 BLS/ACLS course fee. In addition the student should expect to pay \$425.00 for the Physician Assistant National Certification Exam (PANCE). All costs and fees are subject to change.

SCHOLARSHIPS AND GRANTS

The scholarships, grants, loans and work-study opportunities can be combined into a package to help meet the difference between the cost of attending and the contribution from the student and family. Award amounts are based on need. The City College Financial Aid Office can provide more detail on all of these programs. Please call (212) 650-5819.

CURRICULUM

Pre-Clinical Segment

Fall I

Orientation/30101: Medical Terminology (1 cr.)
38100: Physiology I (4 cr.)
38200: Physiology II (4 cr.)

31103: Gross Anatomy (5 cr.)
39100: Microbiology: (4 cr.)

Spring I

30020: Pharmacology (4 cr.)
34200: CML Cluster I (2 cr.)
30200: Physical Diagnosis I (1 cr.)
30100: History of the Profession (1 cr.)
36100: Clinical Correlation I (1 cr.)
37100: Behavioral Science (2 cr.)
37200: Interviewing & Counseling (1 cr.)

Summer I

30300: Physical Diagnosis II (1 cr.)
32300: Pathology (1 cr.)
33300: Pediatrics (2 cr.)
34300: CML Cluster II (3 cr.)
35300: HPDP (1 cr.)
36200: Clinical Correlation II (1 cr.)

Fall II

30400: OB/GYN (1 cr.)
32400: Geriatrics (1 cr.)
33400: Surgery (2 cr.)
34400: CML Cluster III (2 cr.)
35400: Emergency Medicine (3 cr.)
37400: Culture, Health & Illness (1 cr.)
38400: Health, Law & Economics (1 cr.)
39401: Epidemiology (1 cr.)
39402: Graduate Pairing (1 cr.)
Clinical Segment (12.5 months)

Spring II

(Rotations Begin in January)

Rotations

40500: PANCE: Clinical Seminar I (1 cr.)
40502: PANCE: Clinical Seminar II (1 cr.)
40503: PANCE: Clinical Seminar III (1 cr.)
41500: Emergency Medicine (3 cr.)
42500: Medicine (3 cr.)
43500: OB/GYN (3 cr.)
44500: Pediatrics (3 cr.)
45500: Primary Care (3 cr.)
46500: Psychiatry (3 cr.)
47500: Surgery (3 cr.)
48500: Critical Care SICU (2 cr.)
49500: Geriatrics (2 cr.)
49900: Elective (2 cr.)

At the end of each clerkship students take an examination on the material covered in the clerkship, write a formal paper, and participate in a Clinical Seminar.

COURSE DESCRIPTIONS

LECTURE COURSES

30100: History of the Profession

This course introduces students to the history of the P.A. profession through an extensive review of original literature, including readings on medical manpower shortages, patient and provider acceptance, quality of care, substitutability, subspecialty development, and economic issues. The ethics portion explores contemporary ethical issues in the context of the role of a dependent practitioner. 15 lect., 1 hr./wk.; 1 cr.

30101: Orientation/Medical Terminology

The course teaches the principles of scientific reasoning through integrated problem-based learning, study, test taking, scientific reading and writing skills. Students participate in a three-day team building exercise (Ropes course) and seminars, which focus on listening and communication skills development. Students become familiar with the vocabulary of anatomical structures, disease processes, and the medical disciplines in this self-study programmed course. The terminology learned provides a foundation for the study of the preclinical and clinical sciences and enhances effective communication with other healthcare professionals. 15 lect., 1 hr./wk.; 1 cr.

32202: Pharmacology (4)

Introduction of the general principles of drug actions and characteristics of classes of drugs currently used in primary care practice; drug safety and efficiency; duration of action; potential side effects or adverse reactions; drug interactions; prescription writing; and legal considerations. 60 lect., 30 lab, 6 hr./wk.; 4 cr.

36100/36200: Clinical Correlation I/II

Students learn the critical thought process necessary for the diagnosis and treatment of clinical problems. 15 lect., 15 lab, 2 hr./wk.; 1 cr.

37100: Behavioral Science

Basic concepts of mental health, signs and symptoms of mental disorders, methods of gathering data on a patient's mental status, and methods of managing mental health problems in primary care setup. The Department of Psychiatry teaches a sequence in stress management. 30 lect. hrs./sem., 15 lab, 3 hr./wk.; 2 cr.

38100/38200: Physiology I/II

Introduction to the study of the biomedical sciences with emphasis on the relationship of structure to function, the sources of energy for life processes, and the quantitative measurement of physiological

functions. 60 lect. hr./sem., 4 hr./wk.; 4 cr.

39100: Microbiology

This course introduces students to the role of bacteria, fungi, viruses, protozoa and parasites in disease, immunity, and public health practice. Emphasis is on clinical applications and basic laboratory diagnostic procedures. 45 lect., 45 lab, 6 hr./wk.; 4 cr.

30200/30300: Physical Diagnosis I/II

Students are introduced to the role of the physician assistant-patient interaction; proper methods of obtaining a comprehensive patient history and performing of comprehensive physical examination and methods of written case presentations utilizing the problem-oriented medical record. Includes supervised small group practicums in the physical examinations. 30 lect., 30 lab, 4 hr./wk.; 1 cr.

34200: CML Cluster I; 34300: CML Cluster II; 34400: CML Cluster III

Introduction to fundamental disease processes constructed in units around the major subspecialties of Internal Medicine: Immunology, Infectious Diseases, Dermatology, Rheumatology, Hematology, Oncology, Cardiology, Endocrinology, Nephrology, Pulmonary, Gastroenterology, and Neurology. Integration of knowledge acquired in preclinical sciences with an understanding of clinical signs and symptoms related to common disease entities; process of diagnostic hypothesis generation; and introduction to the principles of patient management and therapeutics. The section on Radiology introduces the student to the concepts of radiation safety, the indications, contraindications and preparations of routine and special studies. While covering nuclear imaging, CT and MRI studies, more than 2/3 of the section is devoted to teaching the student paradigms for reviewing normal radiographs. Also included in this sequence is a section on Dental Issues in Primary Care. 30 lect. 2 hr./wk. and 35 PBL hr./wk.; 2 cr.

37200: Interviewing and Counseling

This course focuses on the cultural patterns of communication affecting the clinician-patient relationship and teaches students effective interviewing techniques. Throughout the course, students are expected to apply the concepts and cognitive skills acquired through the Behavioral Science and Physical Diagnosis courses to clinical situations. 15 lect., 15 Problem-Based Learning hours 2 hr./wk.; 1 cr.

31103: Gross Anatomy

Examination of human morphology and the fundamental relationships among the neurological, musculoskeletal, cardiovascular, gastrointestinal, respiratory, renal,

and reproductive systems through lectures, demonstrations, and cadaver dissections. 50 lect., 58 lab, 16 hr./wk. for 6 weeks, 5 cr.

32300: Pathology

This course presents the students with the key concepts of the evolution and expression of disease. The material covered is based upon the clinical importance and heuristic relevance of individual disorders. The lectures are supplemented by computer-assisted instruction. 15 lect., 30 lab, 3 hr./wk.; 1 cr.

33300: Pediatrics

Basic introduction to growth and development, well-child care, and evaluation, diagnosis and management of common disorders from conception to young adulthood. Parent education and trauma prevention are stressed. 30 lect., 15 lab, 3 hr./wk.; 2 cr.

35300: Health Promotion & Disease Prevention (HPDP) Clinical Labs

This course emphasizes the role of Physician Assistants in educating patients about disease prevention. Principles of behavioral medicine are taught in conjunction with material on promoting healthy lifestyles. 15 lect., 15 lab, 2 hr./wk.; 1 cr.

30400: OB/GYN

Introduction to routine and problem oriented evaluation of the female patient with emphasis on office Gynecology, AIDS, and high-risk pregnancies. 15 lect., 15 lab, 2 hr./wk.; 1 cr.

32400: Geriatrics

This course introduces the students to the clinical implications of the physiologic changes occurring as a result of the aging process. It also emphasizes the problem with prescriptions and the elderly as well as injury prevention and home visits. 15 lect., 15 lab, 2 hr./wk.; 1 cr.

33400: Surgery

Introduction to selected common disorders warranting general and surgical subspecialty evaluation including pathophysiology, preoperative management, repair, post-operative management and recovery. 30 lect., 15 lab, 3 hr./wk.; 2 cr.

35400: Emergency Medicine

The emergency medicine segment focuses on diagnosis, treatment and referral of medical and surgical conditions frequently encountered in the emergency room setting. 3 hr./wk.; 3 cr.

37400: Culture, Health and Illness

This course has three broad objectives: 1) To acquaint students with the basic tools, concepts and methods of the social sciences in the study of health, illness and community life, 2) To explore a range of

health-related issues such as how cultures adapt to environmental circumstances; how cultural traditions influence the way people feel and express distress, explain their illness, manage misfortune and seek help; and how class, gender and ethnic differences are reflected in patterns of sickness and death, and 3) To introduce the students to the peoples, communities, and contemporary problems of New York. 1 hr./wk.; 1 cr.

38400: Health, Law and Economics

This course introduces students to the basic principles of the law as it relates to healthcare and malpractice. 1 hr./wk.; 1 cr.

39401: Epidemiology

This course provides students with a basic understanding of morbidity and mortality rates, incidence and prevalence; the characteristics of persons, place and time as they relate to disease; cohort analysis; risk factors and the calculation of relative risk; and screening methods and the sensitivity and specificity of diagnostic tests. The laboratory exercises with computer applications are field based and designed to give the students practical experience in elements of community health assessment. 15 lect., 20 lab, 2.5 hr./wk.; 1 cr.

39402: Graduate Pairing

This is a continuation of the physical diagnosis course giving students an opportunity to shadow a practicing P.A. in a clinical setting. The student will observe the activities of a senior PA, interview patients, perform focused physical examinations, gain exposure to various medical specialties and acquire the socialization and skills that are pertinent to the profession. 1 hr./wk.; 1 cr.

CLINICAL ROTATIONS

41500: Emergency Medicine Rotation

This clerkship provides students with practical clinical experience in working in an urban acute care setting. The clerkship helps students develop a focused and systematic approach in diagnosing and treating common medical and surgical emergency problems. 6 weeks or 240 hours at the rotation site. 40 hr./wk.; 3 cr.

42500: Medicine Rotation

This clerkship provides students with practical clinical experience in interpreting and integrating information from a patient's history and physical symptoms in order to reach a diagnosis and formulate a management plan based on general medical knowledge. In addition, students learn the indications and limitations of diagnostic procedures and therapeutic regimens common to internal medicine. 6 weeks or 240 hours at rotation site. 40 hr./wk.; 3 cr.

43500: OB/GYN Rotation

Students gain practical clinical experience in the diagnosis, evaluation and management of normal and abnormal conditions in gynecology and obstetrics. In addition, students learn to provide pre- and post- partum care and counsel to patients on family planning and other concerns. 6 weeks or 240 hours at rotation site. 40 hr./wk.; 3 cr.

44500: Pediatrics Rotation

Students become acquainted with methods of pediatric diagnosis and therapy from birth through adolescence. Emphasis is placed on the diagnosis and management of common childhood illnesses and well-child care. 6 weeks or 240 hours at rotation site. 40 hr./wk.; 3 cr.

45500: Primary Care Rotation

Students in this clerkship gain experience in the effective and compassionate management of the broad spectrum of medical conditions that can be treated in the ambulatory setting. The clerkship emphasizes the importance of providing direct, initial, comprehensive and continuous health care, with a focus on health promotion and disease prevention. Students rotate twice through this clerkship. 6 weeks or 240 hours at rotation site. 40 hr./wk.; 3 cr.

46500: Psychiatry Rotation

This clerkship acquaints students with the diagnosis and management of ambulatory and inpatient psychiatric problems. Students learn to treat both acute and chronic mental health problems as well as affective disorders caused by chemical abuse. 6 weeks or 240 hours at rotation site. 40 hr./wk.; 3 cr.

47500: Surgery Rotation

This clerkship acquaints students with the diagnosis and management of general and subspecialty surgical problems occurring in an ambulatory setting. Students not only learn to assist in surgery, but also gain experience in pre- and post- operative evaluation and management. 6 weeks or 240 hours at rotation site. 40 hr./wk.; 3 cr.

48500: Critical Care/SICU Rotation

Students have an opportunity to participate in the care and management of patients who are critically ill with life-threatening multi-system diseases. Students are exposed to a broad spectrum of invasive physiological monitoring. 4 weeks or 160 hours of clerkship hours at the rotation site. 40 hr./wk.; 2 cr.

49500: Geriatrics Rotation

This clerkship gives students practical clinical experience in the diagnosis and management of common geriatrics medical conditions. Additional emphasis is placed on the rehabilitation techniques

and nutritional support appropriate for the elderly patient. 4 weeks or 160 hours of clerkship hours at the rotation site. 40 hr./wk.; 2 cr.

49900: Elective Rotation

This rotation is to expose and educate the P.A. student with clinical experiences with both a pediatric and adult population in Primary Care subspecialty. This rotation entails the development of comprehensive management of a wide variety of common medical problems. All disciplines of medicine are integrated, enabling the student to recognize normalcy and assess its deviations. The student will learn an approach to preventive medicine through the transitions of life - school age, middle age and old age. Preventive care shall be emphasized. The scheduled rotation hours will be determined by the preceptor at the beginning of the rotation and may be subject to change. 4 weeks or 160 hours of clerkship hours at the rotation site. 40 hr./wk.; 2 cr.

40501, 40502, 40503: Physician Assistant National Certifying Examination (PANCE): Clinical Seminars I, II, III

The Physician Assistant National Certifying Examination is equivalent to the National Board Examination - Medicine. Physician Assistant students need specific training in Patient Management Protocols, Clinical Therapeutics and Clinical Interventions in their Senior Year. The new course format will allow students to sign-up each semester for a one-credit hour (15 lecture/ laboratory hours) course in Medical Management and will receive a Pass/Fail grade at the end of each semester. 15 lect., 15 lab, 2 hr./wk.; 1 cr.

** Note: All course titles, course numbers, credits and course descriptions are subject to change.*

FACULTY

BEHAVIORAL MEDICINE

João V. Nunes, Associate Medical Professor and Chair

M.D., Espirito Santo Federal University Medical School (Brazil)

George Brandon, Associate Professor

B.A., Reed College; M.A., Rutgers University, M.Phil., Ph.D.

CELL BIOLOGY AND ANATOMICAL SCIENCES

Abraham L. Kierszenbaum, Medical Professor and Chair

B.S., National College (Buenos Aires, Argentina); M.D., Univ. of Buenos

Aires School of Medicine; Ph.D., Univ. of North Carolina at Chapel Hill
Edward W. Gresik, Medical Professor
 A.B., Xavier Univ.; M.S., Univ. of Illinois Medical Center, Ph.D.
Serafin Piñol-Roma, Associate Medical Professor
 A.B., Hamilton College; Ph.D., Northwestern Univ.

Laura L. Tres, Medical Professor
 B.S., National College, Buenos Aires (Argentina); M.D., Univ. of Buenos Aires School of Medicine, Ph.D.
Cigdem Erkuran-Yilmaz, Associate Medical Professor
 Ph.D., Univ. of Ankara, M.D.
Wan-Hua Amy Yu, Medical Professor
 B.S., Tunghai Univ. (Taiwan, China); M.S., St. Louis University, Ph.D.

COMMUNITY HEALTH AND SOCIAL MEDICINE

Marthe R. Gold, Medical Professor and Chair

M.D., Tufts Univ. School of Medicine; M.P.H. Columbia Univ. School of Public Health

Darwin D. Deen, Medical Professor
 B.S., Univ. of New Hampshire, M.D., Albert Einstein College of Medicine; M.S., Columbia Univ., College of Physician and Surgeons

H. Jack Geiger, Medical Professor Emeritus

M.D., Western Reserve Univ. School of Medicine, M.S. Hyg. (Epidemiology)

Donald O. Kollisch, Medical Professor and Deputy Dean

B.S., Massachusetts Institute of Technology; M.D., State University of New York Health Science Center (Downstate)

Erica I. Lubetkin, Associate Medical Professor

B.S., Brown Univ.; M.D., Univ. of Penn School of Medicine; M.P.H., Columbia Univ. School of Public Health

Nancy Sohler, Assistant Medical Professor

B.A., Friends World College; M.P.H., Columbia Univ. Mailman School of Public Health, Ph.D.

GENERAL AND ORGANIC CHEMISTRY

Khosrow Kashfi, Associate Medical Professor

B.Sc., Kingston Polytechnic; M.Sc., Cranfield Inst. of Tech.; Ph.D., Univ. of Tennessee.

MICROBIOLOGY AND IMMUNOLOGY

Sanna Goyert, Medical Professor and Chair

B.S., Univ. of Cincinnati; Ph.D., New York Univ.

Paul Gottlieb, Associate Medical Professor

B.S., SUNY (Stony Brook); M.S., New York Univ.; Ph.D., CUNY

Dani L. McBeth, Associate Medical Professor and Associate Dean

B.A., Colorado College; Ph.D., Univ. of Colorado

Carol W. Moore, Medical Professor

B.S., Ohio State Univ.; M.S., Penn State Univ., Ph.D.

Linda A. Spatz, Associate Medical Professor

B.A., SUNY (Albany); M.A., Columbia Univ., Ph.D.

PATHOLOGY

Stanley Lipper, Distinguished Lecturer

M.B., Ch.B., and M.Med., Univ. of Cape Town, Cape Town (South Africa); M.D., Certification: Amer. Board of Pathology,

PHYSIOLOGY AND PHARMACOLOGY

Eitan Friedman, Medical Professor, Chair and Acting Dean

B.A., Brooklyn College; Ph.D., New York Medical College

Shailesh P. Banerjee, Medical Professor

B. Pharm., Univ. of Rajasthan (India), M.S.; Ph.D., Univ. of Toronto

Patricia A. Broderick, Medical Professor

B.S., St. Thomas Aquinas College; M.S., Fordham Univ.; Ph.D., St. John's Univ.

Christopher Y. Chan, Assistant Medical Professor

B.A., Univ. of Oregon; Ph.D., Washington State Univ.

Maria Felice Ghilardi, Assistant Medical Professor

M.D., Facolta' di Medicina & Chirurgia Universita' degli Studi.

Ira Josephson, Associate Medical Professor

B.S. Tufts Univ.; Ph.D., Univ. of Virginia.

Itzhak Mano, Assistant Medical Professor

B.Sc., Hebrew Univ.; M.Sc., Weizmann Institute of Science, Ph.D.

John H. Martin, Medical Professor

B.A., Univ. of Rhode Island; M.A., Columbia Univ., M.Phil., Ph.D.

Andre Ragnauth, Research Professor

B.A., Queens College; M.Phil., CUNY, Ph.D.

Hoau-Yan Wang, Associate Medical Professor

B.S., China Medical College; M.S., St. John's Univ.(NY); Ph.D., Medical College of Pennsylvania

PHYSICIAN ASSISTANT PROGRAM FACULTY

Gemina Gates, Assistant Dean and Director

B.S., CCNY Certificate, SDSBE P.A. Program, Harlem Hospital Center; M.P.A., Baruch College

Paul Foster, Clinical Coordinator

B.S., CCNY Certificate, SDSBE P.A. Program, Harlem Hospital Center; M.P.A., Baruch College

Tracy Jackson, Clinical Coordinator

BS Lehman College, P.A. Certificate, Bronx Lebanon Hospital Center P.A. Program; M.A. Lehman College

David Lau, Didactic Coordinator

B.S. CCNY Certificate, SDSBE PA Program, Harlem Hospital Center

Emilia Medina-Colon, Director, Academic Coordination

B.S., Univ. of Puerto Rico, M.S; P.A. Certificate, Bronx Lebanon Hospital Center P.A. Program

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EXIT ONLY

About The City College

About The City College

The City College of New York is a small university within The City University of New York, offering a rich program of undergraduate, master's and doctoral study through its various schools and divisions.

The College of Liberal Arts and Science comprises the:

- **Division of Humanities and the Arts**
- **Division of Science**
- **Division of Social Science**
- **Division of Interdisciplinary Studies at the Center for Worker Education**

The Professional Schools are the:

- **Bernard and Anne Spitzer School of Architecture**
- **School of Education**
- **Grove School of Engineering**
- **Sophie Davis School of Biomedical Education**

Founded in 1847 by a referendum of the people of New York City, City College's mandate was to offer the best education possible to the children of the poor and working people, and to open to new immigrants the opportunities of America. The City College (CCNY) is the oldest college of the twenty-two units comprising The City University of New York (CUNY), which was established in 1961.

The College's resources include the Morris Raphael Cohen Library, the largest library in the University system, with holdings of over one million volumes; more than two hundred teaching and research laboratories; The Towers, a six-hundred bed residence hall; and an Information Technology Center that provides instructional and research-oriented services and student access

through numerous student computer labs. The Aaron Davis Hall is the site of rehearsals, performances, exhibits and technical training for students in the performing arts, as well as presentations by professional artists. It is a major cultural asset for CCNY as well as the New York City community.

ACCREDITATION

All degree programs are registered by the New York State Department of Education. The College is regionally accredited by the Middle States Commission on Higher Education (3624 Market Street, Philadelphia, PA, 19104-2680; 267-284-5000). Additionally, professional curricula are accredited by the appropriate professional educational agency or board including the National Architectural Accrediting Board, the National Council for Accreditation of Teacher Education,

STUDENT LIFE

About 15,000 students commute to the City College campus and live in the larger metropolitan area; they come from many different states across the U.S. and over one hundred different countries. Over eighty languages can be heard on campus, making CCNY a place both cosmopolitan and international. The ratio of male to female students is about 6 to 5.

Within the Division of Student Affairs, student activities at CCNY fall under the umbrella of the Office of Student Life and Leadership Development, which provides support for more than one hundred student clubs and organizations. Included are the undergraduate and graduate

student governments, two student newspapers, a yearbook, and a student-run radio station. Clubs reflect many of the academic, recreational, religious, political, professional and ethnic interests of CCNY's students.

THE CAMPUS

The City College campus occupies thirty-five acres along tree-lined Convent Avenue from 131st Street to 141st Street in the Borough of Manhattan. Many buildings in the area, known as St. Nicholas Heights, are landmarked, including CCNY's North Campus Quadrangle buildings and the former home of Alexander Hamilton, first Secretary of the Treasury. The larger campus for CCNY's students, of course, is the City of New York with a wealth of cultural and entertainment attractions found in few other cities of the world.

The City College is easily accessible by subway and bus; express trains from mid-Manhattan reach the campus in about fifteen minutes.

Nearly \$5 million of new construction and renovation is underway on the campus, including the recently completed home for the Bernard and Anne Spitzer School of Architecture and two advanced Science research centers on South campus.

All students, faculty and staff are issued an identification card that must be worn at all times in College buildings.

ORIGINAL CAMPUS BUILDINGS

Built in 1904, the original college buildings were designed by the architect George Post in a Collegiate Gothic style. Four halls—Shepard, Baskerville,

Townsend Harris and Wingate—were grouped around a green quadrangle and, with Compton and Goethals Halls (added later), now constitute the “North Campus.” These buildings and the college gates are listed in the State and National Register of Historic Places.

STEINMAN HALL-ENGINEERING (ST)

Just outside the north campus gate is the modern Steinman Hall-Engineering Building. Steinman, a six-story building equipped with approximately forty research and teaching laboratories, recently underwent a \$65 million improvement program. More information about specific facilities in Steinman Hall can be found in the sections of this *Bulletin* describing the engineering programs.

NORTH ACADEMIC CENTER (NA)

Dedicated in 1984, the North Academic Center covers three full city blocks and has 2,000 classrooms, labs, lecture halls and a media center. This building also contains the Cohen Library, the Finley Student Center, student government offices, meeting rooms, a print shop, a small theater, a ballroom and the campus dining areas. It is the largest academic building on the campus and contains the School of Education, the Division of Humanities and the Arts, the Division of Social Science, and the Information Technology Center as well as many computer laboratories.

THE ROBERT E. MARSHAK SCIENCE BUILDING (MR)

The Marshak Science Building, a modern and fully equipped thirteen-story building, houses the science programs. The facilities include a number of computer laboratories, a networked system of SUN and SGI computers, laser labs, electron microscopes, nuclear magnetic and electron spin resonance systems, a mass spectrometer facility, an NMR facility, biomedical research laboratories, the Science and Engineering

Library, a planetarium, a weather station, and more than two hundred teaching and research laboratories. Also found in the Marshak Building are the Nat Holman Gymnasium and the Jeremiah Mahoney Pool. The Holman Gym seats approximately 2,500 spectators and is a large, modern, multi-purpose facility, home to many of the College’s varsity athletic teams. The Mahoney Pool is used for competitions and recreational programs.

AARON DAVIS HALL (AD)

Aaron Davis Hall houses a 750-seat proscenium theater, a 175-seat experimental theater and a 75-seat rehearsal studio-workshop.

Davis Hall hosts an ambitious, year-round calendar of both student and professional performances, most of which are open to the public. The Hall is the only cultural facility of its kind north of Lincoln Center and has been used by groups like the Emerson String Quartet, the Dance Theater of Harlem, Opera Ebony and the New York City Opera National Company.

THE ARCHITECTURE BUILDING (AR)

The Bernard and Anne Spitzer School of Architecture is housed in a new 118,000 square foot facility, designed by architect Rafael Viñoly, which is designed to accommodate approximately 400 students. The building contains studios, classrooms, an exhibit area, administrative offices, the library, and computer labs. The new studios each provide close to 1,000 square feet of space. The building also houses the City College Architecture Center (CCAC), which provides consulting services to community-based organizations.

THE TOWERS RESIDENCE HALL (TD)

The Towers at CCNY is the first residence hall to be built on the CCNY campus in its 162-year history. The Towers, located on the corner of West 130th Street and St. Nicholas Terrace on the South Campus, opened its

doors in August 2006. Currently, The Towers provides accommodation for 589 resident students.

The Towers consists of 164 fully-furnished, air-conditioned suites in four configurations housing one to four students each as well as a limited number of studio and one-bedroom suites available for faculty housing. All suites have a fully-functional kitchenette. The Towers offers wireless internet service in the lounge areas, a multi-purpose seminar room, a fitness center, a central laundry facility, and a community kitchen. All residents are required to have an access card for entry at the 24-hour security desk; there are closed-circuit security cameras located throughout the building. CCNY operates a shuttle/escort van service to provide residents with easy access to the North Campus and local subway stations. The Residence Life Staff, which consists of Resident Assistants and professional staff, provides supervision of the building in accordance with CUNY/CCNY policies and procedures. Residence Life also strives to create community through educational and social programming and serves as a resource to all residents.

Information regarding the application process, scheduling a tour, and costs can be found on The Towers website at www.ccnytowers.com. The cost for living in The Towers varies by suite type and length of contract, however, all utilities (i.e., electric, heat, A/C, local phone service, internet service, and basic cable TV service) are included. Prospective residents may contact The Towers office by phone at (917) 507-0070 or via email at info@ccny-towers.com.

THE “I” (CENTRAL INFORMATION DESK/SERVICES)

The “I” Desk (Central Information Center), located in the NA lobby, gathers information from departments and programs on campus and disseminates it to students, staff, and visitors. Applications, bulletins and other forms needed for admission and registration

to City College are available. Other services include courtesy telephones for on-campus calls and document management services.

Display areas include information about tutoring, computer labs, academic calendars, special events, daycare and directions to both campus and off-campus locations. The "I" Desk customer care staff assists visitors by serving as an information hub to respond to inquiries regarding the myriad programs, activities and events at the College. The staff at the "I" Desk does not advise or counsel students about their curricular endeavors, but can refer students as appropriate (NA 1/205B; 212-650-5338).

THE CITY COLLEGE LIBRARIES

The City College library system includes:

- the Morris Raphael Cohen Library (North Academic Center)
- the Music Library (Shepard 160)
- the Ruderman Architecture Library (AR 101)
- the Architecture Visual Resources Library (AR 102)
- the Science/Engineering Library (Marshak 29)
- the Art Visual Resources Library (Compton Goethals 245A)
- the Center for Worker Education Library (25 Broadway)

Cohen Library, built around an atrium in the North Academic Center, occupies five floors and houses Humanities, Social Science and Education materials. The collections, the largest in the CUNY system, total more than 1,485,000 volumes, 901,300 microforms, 26,800 scores and recordings, 7,800 videos and DVDs, and 1,292,000 digital images. Designated a Federal depository in 1884, the library has 224,000 government documents. The Archives and Special Collections Division contains 4,126 linear feet of official records and historical material on the College in addition to rare books and special subject collections. Digital library holdings include more

than 43,700 e-books and 49,000 electronic subscriptions. The library serves the instructional and research needs of undergraduate through doctoral levels and provides study areas, carrels and computer workstations for students and faculty.

The website: <http://www1.ccny.cuny.edu/library/> provides quick and easy access to digital resources – full text, indexes, dissertations and catalogs – for more than 220 databases, including Science Direct, LEXIS-NEXIS, Web of Science, El Village, JSTOR, MathSciNet, PsycArticles, Project Muse, IEEE Xplore, the American Chemical Society, and the Avery Index to Architecture Periodicals. The CUNY+ online catalog on the web provides access to library holdings both at City College and throughout CUNY. The CCNY Alphabetical List of Journal Titles Online provides access to 50,000 digital periodicals.

Books and periodicals are arranged on open stacks. The Library of Congress classification is used for the shelf arrangement of most books. Three hundred and fifty computers provide access to digital resources, document preparation software and the internet. CLICS, the intra-CUNY borrowing system, allows users to request materials from any library in the University, for delivery to any CUNY library of their choice. Document delivery, Interlibrary loan and METRO referrals enable faculty and students to obtain materials from other library collections in the metropolitan area and beyond.

Both visual resources libraries are digital resource collections which include commercial databases such as ARTStor, Saskia and Archivision, with Embark as an image catalog.

The libraries host a full calendar of exhibitions, readings, lectures and programs in multiple venues.

Library faculty provide individualized library service to faculty and students, information literacy education, instruction in research methodology and resource evaluation on multiple levels, from FIQWS through graduate courses. A listing of library faculty is located in Appendix G.

COMPUTING AT THE CITY COLLEGE

ABOUT INFORMATION TECHNOLOGY SERVICES

Information Technology & Computer Services (ITCS) is responsible for the computing systems, facilities, networking infrastructure, software licensing, e-mail system and wireless access for the City College of New York. The ITCS Help Desk helps the faculty and students access Blackboard (CUNY) and the CUNY Portal along with technical support. Check out the Computer Services web site for Technology Fee Plan, IT services, and announcements. ITCS, STC, and iMedia, described below, are part of the Office of Information Technology at CCNY. Telecommunications, Administrative Computing Services, and Student Information Management Systems (SIMS) support groups are also in this organization.

INFORMATION TECHNOLOGY AND COMPUTER SERVICES

The primary goal of Information Technology and Computer Services is to ensure that students, faculty and staff who depend upon the College's information technology services and resources have a robust, dependable and user-friendly operating environment in which to work. Information Technology and Computer Services represents academic computing at CCNY, an increasingly complex and heterogeneous mix of technologies across many academic disciplines. We continually evaluate our offerings and our role within the College as we seek opportunities to facilitate the goals of our faculty, departments and programs.

There are approximately 60 computer labs housing 1500 computer systems distributed throughout the campus that are dedicated to supporting our students' rigorous academic computing needs. Underlying these computer systems is a fast, robust network with campus-wide gigabit connectivity and targeted wireless

access points. The College's network is comprised of two 1 Gigabit per second (Gbps) links to CUNY's main data center which provides 2 Gbps of bandwidth to the commercial Internet, plus 100 Mbps to Internet2 for all CUNY campuses. Internet2 is the next generation Internet connecting hundreds of research and educational institutions.

The general-use Computer Laboratory, located on the ground floor of the North Academic Center, houses 50 Apple Macintosh and 60 Windows-compatible computers available on a walk-in basis. This lab compliments a campus-wide distribution of computer labs designated to support instruction in specific disciplines, including the Economics and Psychology departments, the Division of the Humanities and the Arts, the Robinson Center for Graphic Arts, the Library, and the Center for Excellence in Teaching and Learning. There are also many computing and information technology facilities in the Division of Science and Schools of Architecture, Education and Engineering. These labs host a variety of specialized software applications allowing students to conduct research and produce and present their academic assignments.

Computing skills workshops are under constant development to provide students and instructional staff with the means to learn the fundamentals of using computer applications. These are provided in a variety of topics to give the College body a range of options for accessing and producing files for use on both personal computer systems and on the Internet. Topics of instruction include word-processing, spreadsheets, basic database design, statistical analysis, and multimedia production.

The College's website provides topical information, including a complete listing of computing facilities and other pertinent information and services concerning information technology at CCNY.

SOFTWARE TRAINING CENTER

The Software Training Center (STC) was initiated in Fall 2003 by the Student Technology Intern Program (STIP) to offer software training in a friendly atmosphere with state-of-the-art technology to all CCNY students. The STC offers training in Matlab (Computational Methods), C++, AutoCad, all Microsoft Office applications such as word processing, database design and management, electronic spreadsheets, graphical presentation and publication in a customer-friendly environment. The STIP creates opportunities for a select group of undergraduates to become part of this staff and gain advanced skills in the use of computer software, the development of teaching skills and the use of advanced technology. Additional assistance in using the various software applications is available for graduate students from the Center for Excellence in Teaching & Learning.

iMEDIA AUDIO-VISUAL DIVISION

The iMEDIA services and technologies support the delivery of content in support of research, scholarship, the curriculum, scholarly communication, appreciation of cultural diversity, information literacy, and community service.

To create Smart Classrooms, iMEDIA has installed LCD projectors, projection screens, and audio speakers in almost all classrooms and lecture halls for use with portable audio/video devices and laptops. The larger lecture halls have been equipped with permanent DVD/VHS players as well.

The iMEDIA division provides videoconferencing and distance education capabilities for CCNY faculty, students and research staff. Professional associations and organizations often provide videoconferences on special topics of interest to faculty and students. Distance education courses offered by a variety of institutions and organizations can be hosted at CCNY as well.

The iMEDIA staff offers audio and video production services in support of instruction, scholarly communications, and other activities consistent with the College's mission. Often faculty, students, staff, or administrators will require audio amplification or a video recording and editing of classroom sessions, special presentations, conferences, or special events.

iMedia provides College-wide portable technology services for classroom video or computer media presentations, classroom videoconferencing, and classroom audio support. It maintains a wide range of portable video, audio, and computer equipment for use in support of instructional programs.

ACADEMIC OFFERINGS

The College offers the following degrees:

- Bachelor of Arts
- Bachelor of Science
- Bachelor of Engineering
- Bachelor of Science in Education
- Bachelor of Fine Arts
- Bachelor of Architecture
- Various master's and combined B.A./M.A. degrees

In August 2008, The City College was granted the authority by the State of New York to offer Ph.D. degrees in Engineering as well as joint degrees in Science with the CUNY Graduate Center. A number of other doctoral programs are based at City College with the Ph.D. degree awarded through the Graduate School and University Center of The City University of New York.

The Sophie Davis School of Biomedical Education offers a program that enables students to earn a B.S./M.D. degree in seven years.

THE RIGHT TO PRIVACY

The College complies fully with the Family Educational Rights and Privacy Act (FERPA), as described in Appendix B of this publication.

RETENTION, GRADUATION AND JOB PLACEMENT

Retention

Students who enter City College's undergraduate programs progress toward the degree at various rates, from four to six or even eight years, depending upon previous academic preparation, as well as other factors such as the necessity to work. Tutoring and advising services are available to help students stay in school and complete their studies.

Of all first-time regular freshmen who entered in Fall 2000, 72.7% were still enrolled after one year, 58.1% after two years, 48.6% after three years, and 40.8% after four years. The graduation rate by the end of six years was 30.0%.

Job Placement

Of our 2005-2006 graduates, 7.8% went directly to graduate school. Of those who went to graduate school, 17.4% went to a law school and 1.2% went to medical school. A vast majority of City College graduates who are not pursuing further study find employment within three to four months after graduation. The Career Center and City College Alumni Association play an active role in helping new graduates find employment.

IMPORTANT NOTE

The City University of New York reserves the right, because of changing conditions, to make modifications of any nature in the academic programs and requirements of the University and its constituent colleges without advance notice. Tuition and fees set forth in this publication are similarly subject to change by the Board of Trustees of The City University of New York. The University regrets any inconvenience this may cause.

The College does not guarantee to offer all courses it announces. The announcement is made in good faith, but circumstances beyond the control of the College sometimes necessitate changes. The College may cancel courses if the enrollment does not warrant their being offered or if other contingencies make such a cancellation necessary.

Admissions

The Office of Admissions is located in the Wille Administration Building, A-101, 160 Convent Avenue (at 138th Street), New York, NY 10031.

Procedures for admission to City College as a freshman or as a transfer student from another college with advanced standing often differ from one program to another; students are therefore encouraged to visit or call the Office of Admissions at 212-650-6977 with any questions. Admissions information can also be obtained at www.ccnycuny.edu/admissions.edu.

CAMPUS VISITS

Tours of the campus are scheduled by appointment. Please call 212-650-6476. The Office of Admissions hosts an annual Open House in the fall. Students may also request visits to particular departments or programs.

DEGREE AND NON-DEGREE ADMISSION

Students are classified into two groups. Degree students are those who have been accepted into a specific college program leading to a degree. Non-degree students may enroll in credit courses but are not officially registered in a degree program. Non-degree students must meet all prerequisites for the courses in which they wish to enroll. A limited number of credits earned by such students may later be transferred to a degree program.

FRESHMAN ADMISSION

Freshman admission is based on a student's overall high school academic average, grades in individual subjects, distribution of academic courses, and standardized test scores (all recent high school graduates are required to submit SAT I or ACT scores). The College recommends four years of English, four years of social studies, four years of mathematics, three years of laboratory science, three or four years of a foreign language, and one year of performing or visual arts as the academic preparation needed for success at City College. General Educational Development (GED) diploma recipients must submit official test scores for consideration. International applicants from non-English speaking countries are required to submit a TOEFL (Test of English as a Foreign Language) score.

CUNY Skills Requirements

All freshmen and transfer students are required to meet City University's skills proficiency requirements in reading, writing and mathematics by taking and passing the CUNY Assessment Tests. Partial exemptions from these exams may be granted based on standardized test scores or courses taken at other colleges. Contact the Office of Admissions for detailed information.

Applying for Freshman Admission

Applicants for freshman admission can apply online at www.ccnycuny.edu/admissions. Priority is given to applications completed before March 15 (for fall admission) and October 1 (for spring admission).

Selective programs such as Macaulay Honors College, Sophie Davis School of Biomedical Education, Grove School

of Engineering, and Bernard and Anne Spitzer School of Architecture have earlier deadlines and/or special application requirements; please contact the Office of Admissions for more information.

The SEEK Program

The SEEK program (Search for Education, Elevation and Knowledge) is a program for New York State residents who are in need of both academic and financial assistance in order to obtain a college education. SEEK students may be eligible to receive up to five years of state-funded tuition assistance and a stipend to help cover the cost of books and college fees. They also receive intensive counseling and academic support.

A student wishing to apply to the SEEK program should file the CUNY freshman application and complete the section labeled SEEK and College Discovery. For more information about SEEK, refer to the section in this Bulletin describing the Department of SEEK Counseling and Student Support Services.

Macaulay Honors College/CCNY Honors Program

Entering freshmen may apply for several honors-level programs at the College, including the City College Honors Program and the Macaulay Honors College. These programs are academically rigorous. Students admitted to the programs are advised in the Honors Center. For application and deadline information, contact the Office of Admissions (212-650-6977).

Advanced Placement

Students who enrolled in an advanced placement program while in high school may be excused from certain courses or may receive credit cases

based on advanced placement examination results. The College will award up to thirty-two credits for advanced placement courses. Generally, for scores of 4 or 5, the College will award course credit. Students who have taken the advanced placement examinations should have the scores sent to the Office of Admissions.

College Courses Taken in High School

High school students who have taken college level courses must provide the college/university transcript to the Office of Admissions in order to have the courses evaluated for credit.

TRANSFER ADMISSION

Transfer admission is based on a student's overall grade point average (G. P. A.), including courses taken at all institutions attended since graduating high school. Admission criteria vary by school as follows:

College of Liberal Arts and Science and School of Education

1. CUNY Community College graduates.
2. All others must meet one of the following criteria:
 - a. 14-18 1/2 credits earned at a 2.50 G.P.A. or higher; or
 - b. 19-23 1/2 credits earned at 2.25 G.P.A.; or
 - c. 24 or more credits earned at a 2.00 G.P.A.; or
 - d. 23 1/2 or fewer credits earned at 2.00 G.P.A. and meet current requirements used for freshman admission.

Applicants who have a grade point average below 2.0 but have not attended college for at least five years may be admissible to the College of Liberal Arts and Science.

Spitzer School of Architecture

Transfer admission to the Bernard and Anne Spitzer School of Architecture is highly selective and is based on a student's overall grade point average (G. P. A.).

Grove School of Engineering

Transfer applicants to the Grove School of Engineering are required to present

a G. P. A. of at least 2.5 and one semester of calculus with a grade of "C" or higher. The applicants must demonstrate proficiency in math and science. Those with fewer than 14 credits must also meet freshman requirements for admission.

INTERNATIONAL STUDENTS

United States citizens and those applicants on temporary visas whose schooling has been outside the United States should file the appropriate transfer or freshman application. In addition, students who are on temporary visas and whose native language is not English will be required to submit results of the Test of English as a Foreign Language (TOEFL). Applications are available online at www.ccnycuny.edu/admissions.

International students are encouraged to apply at least eight months prior to the semester the applicant wishes to enter. Each student's application is individually evaluated. In addition, new regulations imposed by the United States Department of Homeland Security may cause delays in receiving the F-1 student visa. It is possible that it may take longer than eight months to be admitted and enrolled at City College. In most cases, international students are not eligible for financial aid.

READMISSION TO CITY COLLEGE

Students who have not attended City College for one or more semesters (exclusive of Summer Semester) must file an application for readmission with the Admissions Office at least three (3) months prior to the beginning of the semester for which readmission is sought. Applications for readmission are available on the college's web site at www.ccnycuny.edu/admissions or at the Admissions Office. Approval from the appropriate Dean's office must be obtained prior to submitting an application.

Readmission is not guaranteed to any applicant. Decisions are based on the student's academic record at City

College. Applicants should provide a statement indicating the reason(s) for absence from the College and any relevant supporting documentation. The College seeks to readmit only those students who can demonstrate the ability to remain in good academic standing and complete degree requirements within a reasonable period of time. If the applicant's grade point average is below 2.0, approval must come from the Committee on Course and Standing of the specific school the student plans to enter.

Clearance by the Bursar's Office is necessary before action can be taken on an application for readmission. There is a non-refundable fee of \$10 which will not be charged at the time of application, but will appear on the student's first semester registration bill.

SPECIAL CATEGORIES FOR ADMISSION

Early Admissions (High School Juniors)

City College admits academically exceptional high school students upon the completion of their junior year of high school. Students enter as degree students into the College's Honors program. Applicants generally are from the upper 10% of their high school class. Students are accepted on the basis of demonstrated academic achievement and an interview by a member of the Admissions Committee. For applications, contact the Admissions Office.

Second Degree

City College accepts applications for a second undergraduate degree when the second degree represents preparation discrete from the preparation identified in the first bachelor's degree. Applicants must receive approval from the dean or designee from the school or division from which the second degree is being sought. Applicants should apply as transfer students at www.ccnycuny.edu/admissions.

Post-Baccalaureate Status

Students who already hold a bachelor's degree and wish to enroll in

undergraduate courses for personal or professional enrichment, without pursuing a degree, may be eligible for post-baccalaureate admission. Students must meet course prerequisites as determined by the department and are admitted on a space available basis.

Non-Degree Status

Students who do not hold a bachelor's degree must be high school graduates or hold a General Educational Development (GED) diploma with a minimum score of 3250, and should submit transcripts of any prior college training. Courses taken by non-degree students are primarily intended for personal enrichment. All non-degree students (post-baccalaureate, visiting, non-degree) are limited to a maximum of 24 credits, except in the School of Engineering, which limits students to 12 credits. Departmental approval is needed to register for courses in English, mathematics, science, English as a Second Language or courses in the professional schools.

Non-degree and post-baccalaureate students are not eligible for financial aid and must pay tuition and fees. This special enrollment procedure does not apply to graduate courses. Non-degree students must meet all prerequisites for the courses in which they wish to enroll.

Senior Citizens

New York State residents who are 60 or older may enroll tuition-free in undergraduate courses on a space-available basis, provided they do so on an audit basis. An \$80 per semester fee is required of senior citizens who are auditing courses. Those who wish to enroll for credit may do so on the same basis as other degree-credit students. Senior citizens who wish to take courses for credit must file a regular application and meet the general admission requirements. For information regarding course offerings or application procedures, contact the Office of Admissions.

Visitors from Other Colleges or Universities

From Within The City University

Students currently enrolled at another CUNY college must file an E-Permit with their home college. Check the website of the home college for E-Permit application and procedures.

From Outside The City University

Students who are currently enrolled in schools outside CUNY must provide the Office of Admissions with written permission from their home school, together with a completed non-degree application form. There is a non-refundable application fee of \$70. Applications are available at www.ccnycuny.edu/admissions.

Visitors from other colleges may be restricted from taking courses in the Schools of Engineering and Architecture and in the English as a Second Language program. The Department of Mathematics may request that students take an examination to verify placement into specific courses.

Note: Non-degree students attending City College are not eligible to take courses on permit at another CUNY college.

INTEGRITY OF DOCUMENTS

All documents submitted to City University and City College in support of an application for admission become the possession of City University and City College and will not be returned to the applicant.

All information requested on an application must be answered fully and correctly. Omission of colleges, universities and/or proprietary schools attended or falsification of information will constitute grounds for permanently rescinding an offer of admission, disciplinary action and/or dismissal.

HEALTH STATEMENT AND IMMUNIZATION REQUIREMENT

New York State Public Health Law 2165 requires proof of immunity to measles, mumps and rubella (MMR) as a condition for attendance. The College reserves the right to prevent the registration of any applicant who fails to provide a record of immunization or who otherwise provides a health risk to the College community. It is University policy that all students who register for six or more credits/equivalent credits and were born after December 31, 1956 must provide proof of their immunity to measles, mumps and rubella. Students may fax their immunization records and the forms to 212-650-8227.

Recently, New York State passed Public Health Law (PHL) 2167, addressing meningococcal meningitis. In compliance with PHL 2167, all New York State students, regardless of how many credits they take in college, must fill out a Meningococcal Meningitis Response form within 30 days of registration or at the same time they send in their MMR compliance document.

Students may download forms at http://origin.admin.ccnycuny.edu/student_affairs/wellness/default.asp. If submitting the forms by fax, be sure to include the name, social security number (or assigned City College identification number) and birth date. Applicants are advised to confirm the receipt of the fax by calling 212-650-8222.



Tuition and Fees

The Bursar's Office is located in the Wille Administration Building, Room 103, and the telephone number is 212-650-8700.

Tuition is set by the University Board of Trustees and is subject to change without notice by their actions. Students should arrange to pay their total tuition, fees and charges as the final step of the registration process if they wish to be admitted to classes. Students who may be eligible for financial assistance or grants should consult with the Financial Aid Office as early as possible.

UNDERGRADUATE TUITION PER SEMESTER

| | Flat Rate | Per Credit |
|--|----------------|------------|
| 12-18 credits | | |
| New York State Residents | | |
| CUNY students | \$2,300.00 | \$195.00 |
| Non-degree students | not applicable | \$285.00 |
| Non-Resident Students | | |
| CUNY students | not applicable | \$415.00 |
| Non-degree students | not applicable | \$415.00 |
| | Full-time | Part-time |
| Technology Fee | \$100.00 | \$50.50 |
| Student Activity Fee | 49.35 | 33.35 |
| Non-degree Student Activity Fee | 26.85 | 17.85 |
| Consolidated Fee | 15.00 | 15.00 |

ACCELERATED STUDY FEE

There is an accelerated study fee for undergraduate students taking more than eighteen credits per semester. Graduating seniors and certain students in the School of Biomedical Education are exempt.

| Credits in Excess of 18 | Fee |
|-------------------------|----------|
| 1-2 excess credits | \$100.00 |
| 3-4 excess credits | \$230.00 |
| 5-6 excess credits | \$460.00 |
| more than 6 credits | \$690.00 |

OTHER FEES

| | |
|---|---------|
| Application (freshman) | \$60.00 |
| Application (transfer) | 65.00 |
| Re-entry | 10.00 |
| Change of Program | 18.00 |
| Check Reprocessing | 15.00 |
| Non-payment | 15.00 |
| Transcript | 7.00 |
| Make-up Examination (to resolve INC grade) | |
| First in semester | 25.00 |
| Each additional | 5.00 |
| Duplicate Receipt | 5.00 |
| Duplicate ID Card | 5.00 |

There may be other costs and fees associated with academic work, such as textbooks and studio lab materials. Notice of additional fees will appear in the course listing in each semester's online *Schedule of Classes*.

SENIOR CITIZEN FEES

Individuals who have reached the age of 60 prior to the first day of a semester may enroll for undergraduate courses on an audit basis and pay only the Senior Citizen's fee of \$65.00 plus the \$15.00 consolidated fee. Persons in this category may enroll on a space available basis after degree students have had an opportunity to register. Students must document their eligibility by submitting a copy of one of the following:

- Medicaid card
- Driver's license (or "non-driver's license")
- Birth Certificate

TUITION REFUNDS

When courses are cancelled by the College, a full refund of appropriate tuition and fees will be made. In other cases, tuition refunds will be made or liability reduced only in accordance with Board of Trustees regulations. Further information can be obtained from the Office of the Registrar. If approved, proportionate refunds of tuition will be made in accordance with the schedule below. The date on which the application is filed, not the last date of attendance, is considered the official date of the student's withdrawal and serves as the basis for computing any refund.

| | |
|--|------|
| Withdrawal before the first day of classes (as published in the Academic Calendar) | 100% |
| Withdrawal before completion of the first full scheduled week of classes | 75% |
| Withdrawal before completion of the second full scheduled week of classes | 50% |
| Withdrawal before completion of third full scheduled week of classes | 25% |
| Withdrawal beyond third week | None |

Consolidated, student activity, materials and technology fees are not refundable.

PAYMENT OF COLLECTION COSTS

Students who do not make full payment of their tuition, fees and other college bills and whose account is sent to a collection agency will be responsible for all collection costs, including agency fees, attorney fees, and court costs, in addition to whatever amounts are owed to the College. In addition, non-payment or a default judgment against a student's account may be reported to a credit bureau and be reflected in credit reports.

NEW YORK STATE RESIDENCY REQUIREMENTS

A student must be a United States citizen, permanent resident, or in a qualifying non-immigrant status to be eligible for New York State resident tuition. Please contact the Office of Admissions or the Office of the Registrar if you have any questions regarding eligibility for in-state tuition. Students under the age of 24 whose parents or legal guardians live outside the State of New York may be considered non-residents. Policies regarding New York State residency appear in the City University of New York Fee Manual. The fee manual was amended in October 2002 revising the policy for "undocumented" and "out-of-status" students to meet New York State guidelines.

Financial Aid

The Financial Aid Office is located in the Wille Administration Building, Room 104 and the phone number is 212-650-6656.

The Financial Aid Office administers federal and state funds, as well as those provided by special programs and the College itself, with the intention of insuring that all qualified students will have an opportunity to pursue higher education. Scholarships, grants, loans, work opportunities and governmental benefits are combined into a package to help meet the difference between the cost of attendance and the contribution from the student and family. Unless otherwise stated, award amounts are based upon need. Federal funds may be disbursed only to those who maintain good academic standing and are not in default of a student loan or owe a refund on a federal grant. Most students who are on probation and who make satisfactory academic progress will continue to maintain their academic standing in the College and their concurrent eligibility for financial aid. Students are urged to apply before the priority deadline of April 1. For the most recent information on application filing procedures, academic progress requirements, and other eligibility criteria for the various programs, students are urged to contact the Financial Aid Office.

MAJOR GRANTS

Tuition Assistance Program (TAP)

TAP is a grant for full-time undergraduate and graduate students who are residents of New York State and who are U.S. citizens or eligible aliens. Undergraduates may be eligible for grants from \$200 to a maximum of

\$4,600 for the academic year. TAP awards cannot exceed the cost of tuition. Participants in this program are expected to comply with the program pursuit and academic progress requirements to remain eligible for subsequent TAP awards. Rules for eligibility appear in the Schedule of Classes and are available in the Financial Aid Office and on its website.

Federal Pell Grant

This grant program is for undergraduate students who are U.S. citizens or eligible aliens carrying one or more actual or equivalent credits. Pell is an entitlement program, which means that the U.S. Government guarantees a grant to all students who show evidence of need. Full-time undergraduate students may receive awards of up to \$5,350 per year.

Federal ACG and SMART Grants

Full-time recipients of Federal Pell Grants who are U.S. citizens or permanent residents may be eligible for the Academic Competitiveness Grant (ACG) or the National Science and Mathematics Access to Retain Talent (SMART) Grant. These grants require students to maintain a G.P.A. of 3.0 in majors designated by the federal government. Awards range from \$750 to \$4,000 per year.

Campus-Based Aid Programs

Funds from the three federal programs—Federal Work-Study (FWS), Federal Perkins Loan, and Federal Supplemental Educational Opportunity Grant (FSEOG)—are awarded to eligible students who attend on at least a half-time basis. Except for FSEOG, which is for undergraduates only, undergraduate and graduate students who are U.S. citizens or eligible aliens

may apply. Unlike Federal Pell and TAP, these are not entitlement programs; the Free Application for Federal Student Aid form (FAFSA), which is used to apply for most financial aid, should be filed each year before the priority deadline of April 1.

Federal Work-Study Program (FWS)

Students are offered an opportunity to work on campus or at an approved off-campus public service or non-profit agency in the hope that they will gain educational and financial benefits through FWS experience. During the academic year students work part-time; during the summer and vacation periods, part-time or full-time.

Federal Perkins Loan

Depending upon the availability of funds, low interest loans are usually awarded up to \$5,000 per year. Repayment begins six months after the borrower ceases to be at least a half-time student. Deferments are available for eligible students.

OTHER FINANCIAL AID

New York State Scholarships and Awards

Scholarships awarded through the New York State Education Department and administered by the Higher Education Services Corporation (NYSHESC) include the following: New York State Scholarship for Academic Excellence; Regents Awards for Children of Deceased or Disabled Veterans; Regents Awards for Children of Deceased Police Officers, Firefighters and Corrections Officers; Regents Professional Opportunity Scholarships; State Aid to Native Americans; New York State World Trade Center Memorial Scholarships; and Veterans Tuition Awards. For further

information and application materials, contact NYSHESC (www.hesc.org or 99 Washington Avenue, Albany, New York 12255), or the New York State Education Department (Education Building Annex, Room 374, Albany, New York 12234).

Federal Aid to Native Americans

To be eligible for these awards, applicants should be a member of, or at least one-quarter degree Indian blood descendent of a member of an American Indian tribe who are eligible for the special programs and services provided by the United States through the Bureau of Indian Affairs, and be accepted for admission to an accredited college pursuing a four-year degree. Further information may be obtained from the local Bureau of Indian Affairs Office or the U.S. Bureau of Indian Affairs, Office of Education (1849 C Street, NW, Washington D.C. 20240-0001).

William D. Ford Federal Direct Loan (Subsidized and Unsubsidized)

Ford Federal Direct Loans enable needy students who are degree students and are enrolled at least half-time to meet educational expenses by borrowing from the federal government at a low interest rate. Dependent undergraduate students may borrow up to \$5,500 for the first year, \$6,500 the second year, and \$7,500 for each remaining year of undergraduate study. Unsubsidized Federal Direct Loans are available to students regardless of income. Applicants must file the FAFSA and a loan application. Students are responsible for the interest payments on unsubsidized loans. For details such as repayment and interest rates, consult the Financial Aid Office.

William D. Ford Federal Direct PLUS Loans

These loans are for parents who need additional funds for educational expenses. Parents may borrow up to the student's cost of attendance minus any financial aid. Each child must be at least a half-time dependent undergraduate student. The Financial Aid Office must determine student eligibility for a William D. Ford Federal Direct Loan

before a Federal Direct Plus Loan can be received. For details such as repayment and interest rates, consult the Financial Aid Office.

Aid for Part-Time Study and Part-Time TAP

These grant programs are financed by New York State and administered by participating colleges. Both programs provide help to part-time (6-11 credits) undergraduates for their educational expenses. Awards cannot exceed tuition costs. Recipients must file a FAFSA and a TAP application and be New York State residents who have not used up eligibility for the TAP program.

Alternative Loans

International students, non-matriculated and/or less than half-time students may be eligible to receive a private loan to help with their educational expenses. These loans may require a co-signer and a credit check. Contact the lending institution of your choice for these loans.

Short-Term Emergency Loans

The College operates a small loan program that enables students to meet emergencies. These loans must be repaid during the semester and usually within two weeks of the receipt of such funds. Failure to repay on schedule can lead to debarment from classes and delay in the processing of academic records. For further information contact the Office of Student Affairs.

City University Supplemental Tuition Assistance Program (CUSTA)

Depending on funding from the New York State Legislature, this program provides supplemental assistance of up to \$100 per year to students who would experience an automatic decrease in their TAP award beginning in the fifth semester. Recipients must be full-time undergraduates, New York State residents, and eligible for maximum TAP. Recipients are chosen from among TAP applicants; students need take no special action.

Search for Education, Elevation and Knowledge (SEEK)

SEEK is a comprehensive program which provides financial assistance as well as supportive educational services. New York State residency for at least one year is required for eligibility. The program is designed primarily for full-time students entering college for the first time, but also accepts transfer students from New York State-funded educational opportunity programs at other colleges and College Discovery graduates. Students who have been accepted into this program will be contacted by the SEEK Office.

Student's Aid Association

The Student's Aid Association of City College is an independent organization incorporated under the laws of New York State in 1965. Its members are alumni, faculty, staff, and friends of the College. This group gives approximately 150 scholarships per year to students who might otherwise have difficulty pursuing their studies. Applicants should have completed twenty-four credits at City College, must be undergraduate degree students in good standing, and must carry a full-time program (as defined by the College) in each semester for which grants are requested. Applications are available in the Office of the Registrar.

MERIT-BASED SCHOLARSHIPS

The City College of New York Scholarship Program

The City College offers a variety of scholarships to entering freshmen, transfer and continuing students. Criteria for selection vary but may include past academic performance, standardized test scores, evidence of creative promise, financial need, campus involvement, community service, volunteer activities or demonstrated leadership. Scholarship information can be obtained from the College's website or the Office of Admissions (212-650-6977).

**Peter F. Vallone Scholarships
(formerly New York City Council
Academic Scholarships)**

Graduates of New York City high schools who have achieved a "B" average, passed at least twelve college preparatory courses and who enroll as full-time students at a CUNY college can receive \$500 per year. Recipients must file the FAFSA each year and maintain a 3.0 cumulative G.P.A.

Academic Services

ACADEMIC ADVISING

The Gateway Advising Center

Freshman, transfer and continuing students who have not yet declared a major receive advising in the Gateway Advising Center (GAC). At Gateway, each student is assigned to an advisor, with whom he or she meets at least once each semester for mentoring and guidance in the selection of coursework before the registration period. The advisor will also review the student's academic progress and discuss any academic concerns.

GAC also offers programs that help students strengthen their skills in math, reading, and writing, providing test preparation for the CUNY/ACT Basic Skills Exams, bridge workshops to college courses, the University Skills Immersion Program (USIP), and orientation to college life through the New Student Seminar.

Freshmen begin their first year with the New Student Seminar (NSS), a four-week mandatory course. Students are introduced to the campus and the College community, and learn how to negotiate online registration and academic planning. In addition, they learn about the different areas of study and how these relate to career goals. GAC also offers workshops to prepare students for the CUNY/ACT Basic Skills Exams. The University Skills Immersion Program (USIP) is designed to help students gain enrollment to the College and also to allow continuing freshmen to advance in their college careers. Gateway also offers bridge courses that give students a head start in chemistry, physics and math. Among these is Math 80, a 60-hour workshop designed for those students who wish to pursue a scientific

or technical degree but who are not yet prepared to take a calculus course.

The Science Advising Center

Located on the Plaza level of Marshak Hall, the Advising Center serves as the main information source for all science majors. The staff of the center is responsible for monitoring the academic progress of the students in the division, referring them for research and internship opportunities, coordinating tutorial services, distributing information relating to scholarships and events taking place in the College, and, in general, developing a sense of community among students, faculty and staff.

CCAPP

The City College Academy for Professional Preparation (CCAPP) offers science (including pre-medical) students a full program of academic support and enrichment throughout their college careers. Tutoring is provided for introductory and advanced biology, chemistry, and earth and atmospheric science courses, referrals to research and internship experiences, advising, career and skills development workshops, an MCAT review course, and study space in the CCAPP Study Center (Marshak 1005).

Engineering Office of Student Programs

The Office of Student Programs (ST2M7) provides advising for engineering students as well as tutorial services for mathematics, computer science and engineering coursework through the Program for the Retention of Engineering Students (PRES) and assists in the coordination of tutorial services offered through engineering departments and engineering student honor societies and organizations.

PRES is a comprehensive program offering an array of academic and personal support services and programs to all engineering students, with a particular focus on underrepresented minorities, women, and persons with disabilities. Transfer Recruitment and Achievement at City College (TRACC) is similar to PRES, providing support to the entering transfer engineering student population through an intensive summer transition program, as well as throughout the academic year.

Student Support Services Program (SSSP)

The Student Support Services Program offers academic, career, financial and personal counseling to non-SEEK low-income first generation students with a demonstrated need for academic services. The program offers supplemental, individual and group tutoring in all subject areas. Group workshops in career exploration, financial aid options, GRE preparation, computer instruction, stress management, test anxiety, time management and research techniques are offered during the academic year. Cultural activities, mentoring, field trips, an awards ceremony and a laptop loan program are also part of the SSSP.

Freshmen and sophomores may be able to receive grant aid based on financial need. Upper division and outstanding lower division students may serve as paid tutors and interns within the program. Students with advanced academic standing may qualify for the Zitrin Peer/Tutor Scholarship Program (NA 6/148, 212-650-6829).

TUTORING SERVICES

Many programs and departments in the College offer tutoring services to students. Information on the major tutoring programs is provided below. Students should ask their instructors or academic advisors about other services.

Biology Resource Center

The Biology Resource Center, located in MR-502, is a drop-in multimedia facility designed to allow students to supplement classroom and laboratory instruction on their own. Computers offering access to software packages that feature practice problems, self-tests, faculty lecture tapes, models and slides are available for student use.

Chemistry Learning Center

The Chemistry Learning Center, located in MR-1029, provides drop-in tutoring services for Chemistry 10301, 10401 and 31606 (for engineering students), 24300, 26100, 26300, 26300, 27100 and 27200.

Math Physics Tutoring Center

The Math Physics Tutoring Center, located in MR-418S, is staffed by tutors who are advanced undergraduate and recent graduate students. Drop-in tutoring services are available for Physics 20300, 20400, 20700 and 20800 and Math 19000, 19500, 20100, 20200, 20300 and 20500.

City College Academy for Professional Preparation (CCAPP) Tutoring

CCAPP offers tutoring in the following courses: Biology 10100 and 10200, Biology 20600, Biology 22900, Chemistry 26100 and 263000 and EAS 10600. Tutoring takes place in the CCAPP Student Center, MR-1005. Workshops for additional courses are offered based on student demand.

SEEK Study Center

All SEEK students are eligible to use the resources of the SEEK Study Center which offers individual and small group tutoring in basic skills and academic subjects and access to computers (Harris 08; 212-650-8105).

The Samuel Rudin Academic Resource Center

The Samuel Rudin Academic Resource Center is a resource facility for CCNY students and teachers. The Center has a state-of-the-art electronic classroom and computers equipped with a learning management system that provides students with instructional solutions and assessments and gives faculty the ability to monitor and manage student progress. Rudin Center staff help teachers design customized curricula for students in designated classes and support excellence in academic performance. The Rudin Center also houses the CCNY Writing Center.

Writing Center

The CCNY Writing Center offers one-on-one and web-based tutoring for all CCNY students who are working on papers for their classes or who need advice in preparing to take the ACT and CPE exams. Students should make an appointment in advance but may drop by to see if tutors are available. Computers are also available for students to use and computer literacy workshops are offered throughout each semester.

HONORS PROGRAMS

The City College offers two college-wide honors programs for undergraduates, which are administered by the Honors Center (NA 4/150; 212-650-6917; cityhonors@ccny.cuny.edu).

The City College Honors Program

The City College Honors Program offers selected, high-achieving students in all disciplines a particularly challenging academic program in small classes. The core of the program is the Honors General Education Perspective Requirement, an enhanced and enriched version of the required general education curriculum that includes interdisciplinary courses in the humanities, sciences and social sciences. It provides an excellent academic base regardless of a student's eventual specialization. Classes are taught by outstanding faculty, who encourage student participation and rigorous study.

All students in the City College Honors Program take at least five Honors Perspective courses, with additional required courses depending on the student's degree objective. Retention in the program requires a cumulative G.P.A. of 3.0. Upon successful completion of the honors program, the designation "Liberal Arts Honors" is entered on the student's transcript.

To be eligible for the program as an entering first-year student, a student must have a high school average of at least 87% and appropriate performance on the SAT or ACT standardized tests. New first-year students will be considered for the program if they have applied to the Macaulay Honors College at The City College (see below) or if they have applied for scholarships at City College using the downloadable scholarship application available at <http://ccny.cuny.edu/admissions> under the headings Prospective Students/ Admissions/ Scholarships.

A small number of incoming transfer and continuing students are admitted to the program at the discretion of the director. To be considered, these students must have a cumulative G.P.A. of 3.2 or higher and should have at least five course requirements remaining, depending on the major. Transfer students must have applied for admission to City College and submitted the scholarship application form. Continuing students are considered only for fall term admission. They should submit the City College Continuing Student Honors Program Application, which is available from the Honors Center (cityhonors@ccny.cuny.edu).

The Macaulay Honors College at The City College

The City College participates in the University-wide Honors College, which accepts students with outstanding academic records. The program, which sponsors students at seven colleges, encourages the highest level of academic accomplishment, cross-campus community, career exploration and service.

The liberal arts General Education Requirement for Honors College students includes four special interdisciplinary seminars focusing on New York City and additional required honors courses depending on the student's degree objective. Students are expected to achieve an overall G.P.A. of 3.3 by the end of their first year and maintain a G.P.A. of 3.5 from the end of their second year until graduation. Upon successful completion of the program, the designation "William E. Macaulay Honors College at The City University of New York" is entered on the student's record.

The program admits only new first-year students. The special application is available for electronic completion and submission at <http://ccny.cuny.edu/admissions>. The application deadline is November 1 for early admission and December 15 for regular admission. Detailed information about additional benefits (including full-tuition scholarships) and requirements of the Macaulay Honors College can be accessed at www.macaulay.cuny.edu.

Research Honors in the Major

The City College is a research institution strongly committed to scholarship and research on the part of students as well as faculty. Almost every school, division and department has developed a structure within which qualified undergraduate students can pursue independent scholarly, creative or research projects under faculty guidance or can elect to assist a faculty member in a project. Students should have completed all basic requirements and be nearing completion of their specialization before they apply for independent study. In general, they should begin the departmental honors sequence three or four semesters before they graduate. Faculty will assist eligible students in devising and arranging for cross-disciplinary projects.

In most cases, departmental honors courses are numbered 30100-30300 or 30400. Consult the departmental chair or academic advisor for details. Application for Research Honors must be made to the department by December 10 for the spring term and by May 1 for the fall term.

Student Affairs and Student Services

DIVISION OF STUDENT AFFAIRS

The Division of Student Affairs is located in the Wille Administration Building, Room 204, and the telephone number is 212-650-5426.

The primary mission of the Division of Student Affairs is to support the academic mission of the College in ways that enable students to complete their course of study most effectively. One of the most important factors in promoting student success is the quality of campus life. The division seeks to enhance the experience of students on the City College campus through rich student life programs and vibrant student activities that help students achieve their academic goals and develop as a whole person. Each student affairs department plays a vital role in the overall development of students. Through these services and programs, students are afforded opportunities to strengthen academic skills, develop leadership skills, access support services, increase their social skills, and enhance their career development as they make progress towards their personal and academic goals.

The Vice President for Student Affairs has overall responsibility for the division. Additional information on services and programs may be obtained from the office.

Office of Student Services

The Office of Student Services (OSS) provides programmatic and informational supports to help students further their academic and personal growth goals. This office serves as a clearinghouse for the Division of Student Affairs where students are given help or guidance on different types

of problems, such as how to navigate the College bureaucracy to resolve an academic or personal dispute, where to get counseling within and outside of the institution, and how to locate the College's programs and resources that address student financial and social concerns. The goal is to provide clear and accessible information to allow students to feel empowered in their interactions with the institution. To provide information electronically to current and prospective students, the office operates a Student E-mail Helpline.

The Student E-mail Helpline address is support@ccny.cuny.edu. Access is also available through the College's website, www.ccny.cuny.edu.

The Campus Ministry is housed in OSS. Students in need of spiritual guidance and counseling, or who wish to engage in discussions related to spiritual development, should come to the Campus Ministry, located in Baskerville Hall, Room 204 (212-650-5866) for referrals.

The Office of Student Services is located in the Wille Administration Building, Room 204. The telephone number is 212-650-5907 and the fax number is 212-650-7080. The email address is studentservices@ccny.cuny.edu.

Office of Student Disability Services

The Office of Student Disability Services (SDS) is dedicated to providing students with disabilities equal access to the College curriculum. The Office ensures that, upon request, qualified students with disabilities are provided reasonable and effective accommodations, as mandated by law, as well as appropriate support services.

Students who contact SDS and indicate that they have a disability or believe that they might qualify for services will be asked to make an appointment for an intake interview with SDS staff. To qualify for services, students must register with SDS by providing appropriate documentation from a qualified professional describing the nature of their disability and functional limitations. Although academic adjustments are mandated by law, the College is not required to alter demonstrably essential academic requirements of a course of study nor is the College mandated to lower or effect substantial modifications of reasonable academic standards.

Early planning is essential for many of the resources, adjustments and accommodations; students are asked to contact SDS at the earliest possible date (NA 1/218; 212-650-5913 or 212-650-6910 for TTY/TTD).

Office of International Student and Scholar Services

The Office of International Student and Scholar Services facilitates the transition, adjustment, and ongoing counseling needs of non-immigrant international students, research scholars and visiting faculty members. Services include assisting students and scholars in complying with immigration mandates of the Federal government, providing documentation necessary for foreign currency exchange applications, and overseas travel and re-entry to the United States. Additionally, the Office provides an orientation program for new international students every semester, monitors students' academic progress and assists in coordinating the services of the other depart-

ments. The Office is located in the NA building, Room 1/107, 212- 650-8106.

Wellness and Counseling Center

The Wellness and Counseling Center (WCC) is an ambulatory care center for students enrolled at City College. Student fees support the operations of the WCC; services are free of charge. The WCC employs health care practitioners who provide students with quality medical and psychiatric care.

The WCC provides condoms and certain over-the-counter medications as well as Tuberculosis testing at no cost to students. Physical health services include providing immunization clinics for Measles, Mumps, Rubella, Flu and Hepatitis vaccines. The Center also provides medical clearance for CCNY's physical fitness center, initial physical examinations, pregnancy testing, and diagnosis and treatment for sexually transmitted diseases at no cost to students. The WCC has on-site back-up practitioners available including an L.P.N., a R.N. (5 days per week), and an M.D. and P.A. (2 days per week) with a late clinic on Tuesday evenings until 6:00 p.m.

The WCC also provides Psychological Counseling Services including crisis intervention and short term counseling at no cost. Workshops are provided to students in order to enhance their performance and provide a rich learning environment.

When necessary, students are referred to community-based health care clinics for more comprehensive treatment and services. These community clinics provide quality health care services for a nominal fee. In an effort to expand services not available for students at the WCC, an affiliation with New York City Technical College (NYCTC) in Brooklyn was established early in 2001 for free and low-cost ophthalmic services. Local community referrals are provided through arranged affiliations for ongoing medical care and for conditions not treated at the WCC site. There is a minimal fee for these services, including laboratory work and X-rays, provided outside the WCC.

Students clear their New York State Immunization Requirements, in accordance with Public Law 2165, at the WCC. Measles, mumps and rubella vaccination are provided free of charge on clinic days for those students, including international students, who need to meet this requirement. Students with their immunization records intact can fax their records to the WCC at 212-650-8227. The appropriate forms must be submitted to the WCC prior to registration.

Recently, New York State passed Public Health Law (PHL) 2167 addressing Meningococcal Meningitis. In compliance with PHL 2167 all New York State students, regardless of how many credits they take in college, must fill out a Meningococcal Meningitis response form within 30 days of registration or at the same time they send in their MMR compliance document.

Students may download both forms from the WCC website at: <http://origin.admin.cuny.cuny.edu/student-affairs/wellness/default.asp>. Students can also fax these forms to 212-650-8227. The fax must include name, social security number (or assigned City College identification number) and birth date. Applicants are advised to confirm the receipt of the fax by calling 212-650-8222.

Information on providers of Student Health Insurance as well as additional information concerning health, medical and counseling services may be obtained by calling the WCC (MR-15; 212-650-8222).

PSYCHOLOGICAL CENTER

In association with the Psychology Department's doctoral program in clinical psychology, the Psychological Center offers counseling by supervised graduate students. Access to the service is limited and is fee based (NA 8/109; 212-650-5672).

THE FINLEY STUDENT ACTIVITY CENTER

This multi-purpose facility houses the offices of the student governments, the student-run newspapers, a radio station, a video studio, and the Student Ombudsperson's office. It contains a game room, student lounge, ballroom, and several conference rooms for use by students and faculty.

This office assists the more than 100 student organizations on campus with chartering clubs, planning activities and leadership training. Clubs include the Caribbean Student's Association, Concrete Canoe Club, Salsa Mambo Club, Chinese Christian Fellowship, Urban Legal Studies Students Association, American Medical Student Association, American Institute of Chemical Engineers, Latin American Engineering Student Association and the Frederick Douglas Debate Society.

All students pay a student activity fee each semester. This fee is used for athletics and activities, and for supporting a myriad of organizations and programs related to students. Students also pay a technology fee, which is used to improve technology and access to technology. Elected undergraduate and graduate officers are chosen by their respective government to serve in a Student Association (known as the Student Services Corporation at CCNY), which plans and implements budgets and expenditures, with the advice and counsel of members of the faculty and the Division of Student Affairs. In addition, students have a role in decisions through representation on various college committees (NA 1/210; 212-650-5002).

INTERCOLLEGIATE ATHLETICS

The College offers an extensive fourteen-team program of competitive varsity sports for men and women. The College fully subscribes to the Division III philosophy that emphasizes the participants rather than the spectators. The program is supported by an athletic fee, which is part of the mandatory student activity fee. No athletic scholarships are offered by Division

III colleges. Membership on a team is open to all qualified undergraduate students in good academic standing who meet NCAA eligibility standards. Teams compete in various local, regional, national events and leagues, with the primary affiliation being the City University of New York Athletic Conference. For more information, contact the Athletics office (MR-20; 212-650-8228).

INTRAMURAL ATHLETICS AND RECREATIONAL SPORTS

The Intramural Athletics and Recreation program provides the campus community with structured competitive athletic events, tournaments, and leagues as well as access to a wide variety of athletic and fitness facilities. The structured activities of the Intramural Athletics program generally take place during club hours on Thursdays. Some of the events that take place during a given semester include basketball, volleyball, badminton, soccer, and tennis.

The recreation program offers the campus community opportunities to work out with cardiovascular equipment and weight train in the Wingate Fitness Center. Individuals can swim, and play tennis, basketball, volleyball, badminton, soccer, frisbee, touch football, or jog. The programs emphasize enjoyment, health and wellness, social interaction, camaraderie, physical activity, and the challenge of competition with one's peers.

Information on the Athletics or Intramural and Recreation program can be obtained from Baskerville Hall 05 or Wingate Hall 3rd floor.

WHCR-FM

The College's radio station, WHCR (90.3 FM), is a professionally managed community station. Through hands-on training at the station, students and community volunteers can learn many aspects of news gathering, reporting, programming and on-air broadcasting (NA 1/108; 212-650-8171).

CAREER CENTER

The Career Center is dedicated to providing quality programs and services that enable students and alumni to build rewarding careers in a global world of work. The Career Center serves the student population through active partnerships with 300 organizations and an online base of over 650 employers in the private, public, and not-for-profit sectors. (NAC 1/116; 212-650-5326).

CHILD DEVELOPMENT AND FAMILY SERVICE CENTER

The Child Development and Family Service Center provides on-campus, quality child care/educational services to students of City College, for children 2 to 6 years of age. The Center operates day and evening programs during the fall and spring semesters. The day program operates from 7:45 a.m.–5:30 p.m. and the evening program operates from 4:00 p.m.–9:00 p.m. Summer care is available Monday–Thursday for the same population. Breakfast, lunch and supper snack are served during the day program. The current fee is \$55.00 per week. Additionally, the Center is a site for field placement students in the Spitzer School of Architecture, the School of Education, the Sophie Davis School of Biological Education and the departments of Sociology and Psychology (Schiff House, 133rd Street & Convent Avenue; 212-650-8615).

OFFICE OF VETERAN'S AFFAIRS

The vision and goals of the Office of Veteran's Affairs (OVA) include educating the veterans, guardsmen and reservists of the United States Armed Forces whose courageous service to their country must be rewarded by investing in their future and ensuring their academic success. The OVA is committed to recruiting, enrolling and retaining veteran students. The OVA works in collaboration with the various offices on campus including student affairs, admissions, disability services,

financial aid, registrar, wellness and counseling center and affirmative action to assist veterans in becoming acclimated to college life while obtaining veteran educational benefits and other available resources. (Wingate Hall, Room 106; 212-650-5374).

CAFETERIA

A cafeteria serving a variety of hot and cold entrees, salads, and grilled foods is located on the second floor of the North Academic Center. Vending machines carrying a variety of snacks and drinks are located throughout the campus. (NA, 2nd floor; 212-650-6771).

THE CITY COLLEGE BOOKSTORE

The CCNY Bookstore stocks new and used textbooks, reference and general books, school supplies, computer software, sportswear, CCNY memorabilia, magazines, greeting cards and electronics. Major credit cards are accepted. The bookstore buys books back from students throughout the year. The bookstore is accessible to people with disabilities (NA 1/103; 212-650-7109).

Academic Regulations

Students are graded in courses according to the system described.

RESIGNATION FROM COURSES

A student must complete a Change of Program (Add/Drop) Form in order to withdraw from a course during the program adjustment or refund period. Forms are available at the "I" desk in the NA lobby, in an Academic Advisor's office or at the Registrar's Office in A-102.

During the Change of Program period, students may make program changes during the first week of classes. A student may drop a course without penalty (the course will not appear on the transcript) until approximately the end of the third week of classes. Refer to the academic calendar posted on the College's website (www.ccnycunyc.edu) for pertinent dates. The Add/Drop form must be signed by an academic advisor and returned to the Registrar's Office.

After the Change of Program period, and prior to the tenth week of classes, students may officially drop courses using a withdrawal form that must be signed by the instructor and the divisional dean. The grade of "W" is assigned only when it is clear that the student has good and sufficient reasons for withdrawing from the course. A grade of "WN" is assigned to students who never attended and did not officially withdraw.

After the tenth week of the term, students who withdraw will be assigned a grade of "WF." This is an unofficial withdrawal initiated by the student or the College, indicating that the student was failing the course at the time of withdrawal. A grade of

GRADING SYSTEM AND GLOSSARY

| Grade | Explanation | Quality Points |
|-------|--|----------------|
| A+ | | 4.00 |
| A | | 4.00 |
| A- | | 3.70 |
| B+ | | 3.30 |
| B | | 3.00 |
| B- | | 2.70 |
| C+ | | 2.30 |
| C | | 2.00 |
| C- | | 1.70 |
| D | | 1.00 |
| F | | 0.00 |
| P | Pass | |
| W | Withdrew without penalty (student initiated) | |
| WA | Administrative withdrawal (college initiated) | |
| WF | Withdrew Failing | |
| WN | Never Attended | |
| WU | Withdrew without approval | |
| INC | Incomplete | |
| FIN | F due to incomplete or absence from a final exam | |
| Z | No grade submitted by instructor (temporary grade) | |
| PEN | Grade Pending Resolution | |
| AUD | Auditing (no credit) | |
| Y | Year or longer course of study must continue to completion | |

"WU" is to be assigned to students who attended a minimum of one class, stopped attending, but did not officially withdraw.

Note: A student who withdraws from 12 credits or more within two academic years will be placed on academic warning; a student who drops 18 or more credits will be subject to dismissal. Dropping courses may cause a student to become ineligible for financial aid.

INCOMPLETE (INC) GRADES

The grade of INC is given by the instructor in consultation with the student, with the following guidelines:

- a. when the student has been doing passing work and the instructor believes the student can successfully complete the requirements of the course no later than the last day of the following semester, or its equivalent in calendar time, exclusive of Summer Session. The student must provide an acceptable and documented reason for not completing the course on time.
- b. when a student has been absent from the final exam and a make-up exam is scheduled no later than the last day of the following semester, or its equivalent in calendar time, exclusive of Summer Session. Students must pay the make-up exam fee to the Bursar before taking the make-up exam. Extensions may be granted only by the Committee on Course and Standing of the School offering the course.
- c. temporary grade awarded when the disposition of the final grade requires further evaluation for reasons other than the Procedures for Imposition of Sanctions related to the Board's Academic Integrity Policy.

When applying for an INC grade, an Incomplete Agreement Form must be completed and returned to the instructor. The instructor may insist that the student obtain the permission of the Committee on Course and Standing (of the School offering the course) to complete the course.

The Registrar's Office will change the temporary grade of INC to failure (FIN) by the tenth week of the following semester unless the instructor has submitted a passing grade.

PASS/FAIL OPTION

Students in the professional schools, except for the School of Education, may not take courses on a pass/fail basis, even if the courses are being

taken as free electives. Students in the College of Liberal Arts and Science and in the School of Education may take certain courses on a pass/fail basis, subject to the following restrictions:

1. The student must have completed at least 28 credits.
2. A student may take only one course per semester on a pass/fail basis.
3. No general education courses may be taken pass/fail.
4. No courses required for the major may be taken pass/fail.
5. Students must choose this option during registration. (Students are not permitted to change to or from pass/fail after the deadline published in the academic calendar.)
6. No more than 18 credits may be taken pass/fail.

AUDITING

Students wishing to audit a course must select audit status at the time of registration. Auditors must register in the normal manner and pay required tuition and fees. No credit or grade will be given for audited classes. Auditor status cannot be changed to credit status after the closing date for change of program. Likewise, credit status cannot be changed to auditor status after the change of program period.

GRADE POINT AVERAGE (G.P.A.)

A student's overall academic performance is measured by calculating the grade point average (G.P.A.). This average is found by using grades from each course on the student's record except those that have one of the following grades assigned: P, R, INC, W, WN, PEN, AUD.

Each grade received is assigned a numerical value called Quality Points, as described in the Grading System chart. The number of Quality Points multiplied by the number of credits the course carries is the total for the course. The G.P.A. is found by adding these totals and dividing this

amount by the total number of credits attempted.

THE MAJOR

Every student must complete the requirements of an approved major in order to obtain a degree. Each department or program sets specific course requirements for its majors. These requirements are outlined in the departmental listings in this *Bulletin*; students should consult with an appropriate advisor before declaring a major. Students must declare a major prior to completing 61 credits or risk losing eligibility to receive financial aid. Forms may be obtained in the Office of the Registrar or the "i" desk.

DUAL MAJORS

Students who wish to major in two fields should file a Major Form, which must be each signed by the appropriate department advisor and by the divisional dean. The requirements of both declared majors must be completed. Students wishing to complete two majors should discuss it at an early stage of their college career with an advisor in each of the two departments. No more than three courses may be credited to both majors.

THE MINOR

A number of departments offer a minor, a program of study of approximately 15 credits which can be taken in conjunction with the major. It should be noted that all degree candidates must have a major. The minor however is optional.

CONCENTRATION

Some majors require students to choose among concentrations offered for the degree. Students should follow the courses recommended by their advisor to ensure that they complete the appropriate concentration.

DEGREE PROGRESS/ON-LINE ADVISEMENT

DegreeWorks is an easy-to-use software application that gives students access to their degree progress via the web. It allows a student to view the courses required to complete the general education requirements, major and degree. Courses required for minors and concentrations also appear in DegreeWorks. A student can also conduct "What-If" audits to see the courses required to change the major.

DEAN'S LIST

Students are eligible for the Dean's List four times during their career at City College: the semester in which they become sophomores, the semester in which they become juniors, the semester in which they become seniors, and the semester in which they have completed twenty-four or more credits as seniors. Students are placed on the Dean's List for a particular year if for that year they have:

1. A 3.2 grade point average.
2. Completed at least 24 credits at City College.
3. No grades other than A, B, C, D, W or P.

GRADUATION HONORS

At graduation, there are three categories of honors for baccalaureate candidates.

- A degree *summa cum laude* is granted to students whose average in all subjects is at least 3.8.
- A degree *magna cum laude* is granted to students whose average in all subjects is at least 3.5.
- A degree *cum laude* is granted to students whose average in all subjects is at least 3.2.

In the computation of graduation honors, all college work taken by students at institutions other than the City College is taken into account even if some of the work is not transferred.

A student must be eligible for honors based exclusively on their City College work, as well as the combined

average of City College work and all work completed at other institutions.

A student may not obtain a higher honor (i.e. *magna cum laude* instead of *cum laude*) than their City College index indicates. Thus, if a student achieves a 3.3 index at The City College and has a combined index of 3.5, the honor of *cum laude* is awarded.

Second degree students are not eligible for graduation honors.

APPLICATION FOR GRADUATION

Degrees are conferred three times each year: February, May/June and September. Candidates for graduation must file an Application for a Degree Form online by the specified date in November for February graduation, in March for June graduation and July for September graduation. Candidates who do not comply with deadlines will not graduate on time. Please consult the College calendar published online each semester for the application deadline.

RESIDENCY REQUIREMENT

To be eligible for a degree, a student must complete a minimum of 84 credits or the last 32 credits at City College. In addition, at least 60% of the major must be completed at City College. All transfer students and second degree students (including those who are graduates of City College) are subject to the residency requirement. Graduates of City College who return for a second degree may not use coursework completed under the first degree to meet the residency requirement for a second degree from City College.

REQUIREMENTS FOR GRADUATION

Students who entered City College as first-time freshmen before September 1996 may be required to complete 128 credits.

Students who enrolled thereafter will be required to complete a total of 120 credits, to include major and general education/core requirements.

Exceptions are the degree programs in Architecture, Engineering and the Sophie Davis School of Biomedical Education, which require more than 120 credits.

Students are expected to be familiar with the requirements of their degree programs. All requirements for the degree must be met before the date of graduation. The temporary grade of INC (including those assigned in the final semester of attendance) must be resolved prior to the date of graduation.

In addition, all "stops" must be cleared by the date of graduation. Failure to clear "stops" will result in the delay of the distribution of diplomas and the processing of requests for transcripts.

Upper-division students should have a preliminary graduation check conducted two semesters before the anticipated date of graduation by an advisor in their department or division. The final graduation check and certification is conducted in the appropriate Dean's Office.

POLICY ON LATENESS AND ABSENCE

Students are expected to attend every class session of each course in which they are enrolled and to be on time. An instructor has the right to drop a student from a course for excessive absence. Students are advised to determine the instructor's policy at the first class session. They should note that an instructor may treat lateness as equivalent to absence. No distinction is made between excused and unexcused absences. Each instructor retains the right to establish his or her own policy, but students should be guided by the following general College policy:

In courses designated as clinical, performance, laboratory or field work courses, the limit on absences is established by the individual instructor. For all other courses, the number of hours absent may not exceed twice the number of contact hours the course meets per week.

When a student is dropped for excessive absence, the Registrar will enter the grade of "WU".

ACADEMIC APPEALS

The faculty of each of the Schools defines the degree requirements, academic standards, and rules, and in general has jurisdiction over all of the courses offered by that School. Each of the Schools has a Committee on Course and Standing charged with oversight and enforcement of these matters and dealing with special cases and appeals. Students have the right to appeal to the appropriate Committee on Course and Standing any decision made by individual faculty members or administrators about these academic matters. Students must consult with their academic advisor for the appropriate appeals procedure. The Committee on Course and Standing is the final authority on enforcement of curriculum, degree requirements, academic standards, grades and academic rules.

GRIEVANCES

Students with grievances concerning classroom matters other than grades should first attempt to resolve the grievance at the department level through discussion with the faculty member(s) or department chair. If the matter is not resolved, the student or department may refer the problem to the appropriate academic dean, the Ombudsman, or the Vice President for Student Affairs, who shall, if necessary, refer it to the Office of the Provost for further consideration and possible action.

COURSE LOADS FOR FULL-TIME STUDENTS

An average student program consists of twelve to fifteen credits. Students who are not on academic probation may take as many as eighteen credits. Students who wish to take more than eighteen credits must request permission from the dean of the school or division. Permission is granted only to students with outstanding records who

have compelling reasons for making the request. A student who is granted permission for more than eighteen credits is expected to complete all courses on time and is generally not permitted to drop any courses.

Students on probation must limit their programs to approximately twelve credits. Students in the Grove School of Engineering who are on academic probation may not take more than twelve credits per semester.

Many forms of financial aid are contingent on full-time student attendance. Ordinarily, a student must register for at least twelve credits to be full-time. Students receiving financial aid should verify their full-time status with the Financial Aid Office, particularly when changing majors.

ACADEMIC STANDARDS

Students are expected to maintain minimum G.P.A. requirements both overall and in major courses; not to withdraw from twelve credits during any two consecutive academic years; pass all required courses in sequence; and pass the ACT tests at the time of admission or, for non-CUNY transfer students, by the end of the first semester. ESL and SEEK students should consult with their advisors regarding compliance with this requirement. The CUNY Proficiency Examination (CPE) must also be passed prior to completing sixty-one credits.

Warning, Probation and Dismissal

Students who fail to meet the College's academic standards listed below are placed on probation, a warning that unless academic performance improves the student will be subject to dismissal. A student is placed on academic probation when he or she fails to achieve the required standards whether or not notification has been received from the College. Students must make satisfactory progress toward the degree. They should be aware that poor academic performance threatens their financial aid and scholarship eligibility. During this probationary period, students who make satisfactory academic progress will continue

to maintain their academic standing in the College but may lose their eligibility for financial aid.

Academic standards are enforced by each School's Committee on Course and Standing, which acts through a dean or director. The Committee may restrict the number of courses for which a student can register, require that a student take certain courses, or prohibit a student from taking certain courses.

Students who have been placed on probation will not be permitted to participate in intercollegiate athletics; serve as officers of student government; serve as editor of a student newspaper; serve as manager, producer or editor of a student radio or TV facility; or take part (in a principal role) in a College-sponsored theater, dance, music or film production unless doing so as part of a specific College course.

The professional schools may have additional or modified academic standards; students enrolled in the professional schools are advised to consult their advisors and appropriate sections of this *Bulletin*.

| Total Credits Earned | Minimum Cumulative G.P.A. |
|----------------------|---------------------------|
| 0-12 | 1.5 |
| 13-24 | 1.75 |
| 25 and over | 2.0 |

Dismissal

Students who fail to achieve the above academic averages while on probation will be dismissed from the College.

Appeals

Students may appeal warning, probation or dismissal decisions by writing to the Committee on Course and Standing of the School in which they are enrolled.

Dismissed students must expect to wait a minimum of one semester before they apply for re-entry. Students are advised to use this time improving their academic skills.

ESL DISMISSAL

CUNY policy stipulates that all senior college students may not repeat an ESL course more than once after September 1996. If after the second attempt, a student has not passed or completed the course, the student will be subject to Academic Dismissal from the College. The dean of the division in which the student is enrolled will notify the student of this action along with information regarding the appeal process as well as educational alternatives.

REPEATING COURSES

Students may not repeat a course they have already passed unless that course has been designated as repeatable in this *Bulletin*. In instances in which a course is repeated, the repeated course does not confer additional credit. This limitation applies to courses taken at City College, courses taken at other colleges, and to courses for which credit is granted by exemption examination or advanced placement examination. Courses designated as repeatable may confer additional credit, up to the maximum number of allowable credits, as stated in this *Bulletin*. Students are ultimately responsible for determining if the coursework they select is a repeat of prior coursework.

"F" REPEAT POLICY

The "F" repeat policy only applies to courses taken after 1990. The number of failing credits that can be deleted from the G.P.A. shall be limited to sixteen for the duration of the student's undergraduate enrollment in institutions of the University. If the second grade is C or higher (C- does not qualify) the original grade of "F" will not be used in the calculation of the G.P.A. (although the course and grade remain on the record). The revised G.P.A. will be used for admissions, academic progress and graduation minimum standards. The F grades will, however, apply to graduation honors and can affect other requirements for progress in the major. Consult with

the Office of the Registrar for specific applications of this policy.

UNDERGRADUATE COURSE NUMBERING

As a general rule, course numbers reflect the level of difficulty of the course content. For a variety of reasons, some course numbers may not adhere to the description below. If in doubt about the level of a particular course, consult a departmental advisor.

- | | |
|--------------|---|
| 10000-19900: | introductory courses for lower division students |
| 20000-29900: | beginning major courses intended for sophomores and juniors |
| 30000-39900: | first level upper division courses; intermediate major courses |
| 40000-49900: | advanced undergraduate courses intended for juniors and seniors |
| 50000-59900: | advanced undergraduate courses which may carry graduate credit |

Degree Requirements at The City College

All students are required to successfully complete the requirements listed below:

1. One of the following:
 - A. General Education Requirements (for B.A. and B.F.A. students who entered beginning Fall 2007 and B.S. and B.Arch students who entered beginning Fall 2008)
 - or
 - B. Old Core Curriculum (for B.A. and B.F.A. students who entered before Fall 2007 or B.S. and B.Arch. students who entered before Fall 2008)

The new General Education requirements and the old Core Curriculum are two separate sets of requirements meant to provide students with a broad introduction to the liberal arts and sciences and are the basis of every student's education at City College.

2. Foreign Language Requirements
3. Major-field Coursework
4. Free-elective Courses
5. CPE Examination
6. Speech 11100 or the Speech Proficiency Test

1.A. THE NEW GENERAL EDUCATION REQUIREMENT

A summary table of the requirements for the B.A., B.F.A, B.S. and B.Arch. follows. Students enrolled in the Grove School of Engineering or the Sophie Davis School of Biomedical Education should consult the section of the *Bulletin* describing their requirements. The basic components of the New General Education Requirement are as follows:

- a. **FIQWS:** The Freshman Inquiry Writing Seminar. FIQWS is a six-

credit course taught by two instructors that combines a specific topic and an intensive writing seminar. In any semester, an exciting variety of FIQWS sections are offered. In the topic component of FIQWS, a student might explore a famous writer or artist, a particular school of philosophy, a scientific discovery or key historical event. In the writing component of FIQWS, an instructor will guide a student in writing essays and research papers concerning the subject of the seminar.

- b. **FQUAN:** Before reaching 60 credits a student will be required to take a course that focuses on quantitative skills. Most typically, this is Math 15000: Mathematics for the Contemporary World or a one of a selected list of higher-level mathematics classes (Math 17300, 19500 or higher). As an alternative, the College has been developing FQUANs, courses outside of the Math department that teach these same quantitative skills, which would also meet this requirement.

- c. **Perspectives:** The Perspective requirements allow students to explore a variety of fields of study while touching on key issues, values and ways of thinking. Students choose courses from a list of approved Perspectives in eight categories. These courses are also designed to develop a range of Proficiencies, critical abilities that will help prepare the student for academic success and life-long learning, including: writing and oral communication skills, quantitative reasoning, critical analysis, information literacy, and technological literacy.

A student in CLAS must take one course in each of the following categories. (The list of courses offered in each category varies each semester and can be found online at: <http://www1.ccny.cuny.edu/current/gened/index.>)

- U.S. History and Society
- Global History and Culture
- Self and Society
- Artistic
- Literary
- Logical-Philosophical
- Natural/Scientific
- Natural/Scientific with Experimental Component

In-depth requirement: In addition, students must take at least one additional advanced course in a department/program outside their major.

Three stage requirement: Students are required to complete the General Education requirement in stages.

Stage I: Completed by 45 credits

- Freshman Inquiry Writing Seminar (FIQWS) (English 11000 fulfills this requirement for students entering in 2007-2008)
- Freshman Quantitative Analysis of the Contemporary World (FQUAN)
- Satisfaction of Speech requirement

Stage II: Completed by 60 credits

- Three Perspective courses
- CPE
- Foreign Language requirement

Stage III: Completed by Graduation

- Additional Perspective courses until one course is taken from each Perspective
- One advanced course to meet in-depth requirement

SUMMARY TABLE OF GENERAL REQUIREMENTS FOR STUDENTS ENTERING AFTER FALL 2007

| B.A. and B.F.A | B.S | B.ARCH |
|---|---|---|
| FIQWS | FIQWS | A literature FIQWS |
| Speech 11100 or 00308 or Proficiency Exam | Speech 11100 or 00308 or Proficiency Exam | Speech 11100 or 00308 or Proficiency Exam |
| Foreign Language Requirement | Foreign Language Requirement | Foreign Language Requirement |
| CPE (CUNY Proficiency Exam) | CPE (CUNY Proficiency Exam) | CPE (CUNY Proficiency Exam) |
| Math 15000, 17300, 19500 or FQUAN | English 21000 Either Math 20500 and 20900 OR Math 20100, 20200 and 20300 | Math 19500 (or exempt) |
| A Natural Science Perspective | Four courses from the following (outside of the student's major): Bio 10100, Bio 10200 Chem 10300, Chem 10400, EAS 10600, EAS 22700, PHYS 20300, PHYS 20400 | Physics 21900 |
| A Natural Science Perspective with an Interactive Component | N/A | EAS 10600 or equivalent |
| Perspective: Artistic | (Only 5 Perspective classes required.) Perspective: Artistic | Perspective: Artistic |
| Perspective: Global | Perspective: Global | Perspective: Global or US Society |
| Perspective: Literary | Perspective: Literary | |
| Perspective: Logical/Philosophical | Perspective: Logical/Philosophical | Perspective: Logical/Philosophical |
| Perspective: Self and Society | Perspective: Self and Society | Perspective: Self and Society |
| Perspective: US Society | Perspective: US Society | Perspective: A choice between US Society or Global Perspectives |

SUMMARY TABLE FOR GENERAL EDUCATION REQUIREMENTS FOR B.A. DEGREE IN THE COLLEGE OF LIBERAL ARTS AND SCIENCE (FOR STUDENTS ENTERING FALL 2007 OR AFTER)

| | | |
|-----------|-------------------------|--|
| Stage I | Completed by 45 credits | <ul style="list-style-type: none"> Freshman Inquiry Writing Seminar (FIQWS) (English 11000 fulfills this requirement for students entering in 2007-8) Freshman Quantitative Analysis in Contemporary World (FQUAN) Satisfaction of Speech requirement |
| Stage II | Completed by 60 credits | <ul style="list-style-type: none"> 3 Perspective courses CPE Foreign Language requirement |
| Stage III | Completed by Graduation | <ul style="list-style-type: none"> Additional Perspective courses until one course is taken from each Perspective One advanced course to meet in-depth requirement |

THE CITY COLLEGE GENERAL EDUCATION REQUIREMENT FOR HONORS STUDENTS

There are variations in the General Education Requirement depending on the degree you will pursue i.e., BA/BFA(students entering Fall 2007 or later); BS; or B.ARCH or B. Eng.(students entering Fall 08 or later)

CITY COLLEGE HONORS PROGRAM: GENERAL EDUCATION REQUIREMENT

| B.A. and B.F.A | B.S science | B.ARCH | B. Engineering |
|--|--|---|---|
| FIQWS Honors | FIQWS Honors | FIQWS Honors | FIQWS Engineering |
| Speech 11100 or 00308 or Proficiency Exam | Speech 11100 or 00308 or Proficiency Exam | | Speech 11100 or 00308 or Proficiency Exam |
| Foreign Language Requirement | Foreign Language Requirement | Foreign Language Requirement | |
| CPE (CUNY Proficiency Exam) | CPE (CUNY Proficiency Exam) | CPE (CUNY Proficiency Exam) | CPE (CUNY Proficiency Exam) |
| | English 21003 | | English 21007 |
| Math 15000, 17300, 19500 or FQUAN | Either Math 20500 and 20900 OR Math 20100, 20200 and 20300 depending on major | Math 19500 | Math 20100, 20200, 20300 and additional math courses depending on major |
| PERSPECTIVES: 9 total | PERSPECTIVES: 5 total, choose 5 of 6 | PERSPECTIVES: 4 total | PERSPECTIVES: 5 or 6 total |
| Perspective : Artistic c Choose one: Art 10001or Music 10101 | Perspective : Artistic Choose one: Art 10001 or Music 10101 | Perspective: Artistic choose one: Art 10001 or Music 10101 | Choose 4 or 5 Honors Perspective courses, depending on major, that meet School of Engineering Gen Ed objectives: Art 10001 Music 10101 World Civ. 10101 World Hum. 10101 Anthro 10101 Economics 10101 Psychology 10101 Sociology 10501 US Society 10101 Pol. Science 10101 |
| Perspective: US Society Choose one: Pol. Science 10101 US Society 10101 | Perspective : US Society Choose one: Pol. Science 10101 US Society 10101 | Perspective : US Society or Global History Choose one: Pol. Science 10101 US Society 10101 World Civ. 10101 | |
| Perspective: Global History and Culture World Civ. 10101 | Perspective: Global History and Culture World Civ. 10101 | | |
| Perspective: Literary World Hum. 10101 | Perspective: Literary World Hum. 10101 | | |
| Perspective: Logical- Philosophical Philosophy 30001 | Perspective: Logical- Philosophical Philosophy 30001 | Perspective: Logical- Philosophical Philosophy 30001 | |
| Perspective: Self & Society - Choose one: Anthro 10101 Economics 10101 Psychology 10101 Sociology 10501 | Perspective: Self & Society - Choose one: Anthro 10101 Economics 10101 Psychology 10101 Sociology 10501 | Perspective: Self & Society - Choose one: Anthro 10101 Economics 10101 Psychology 10101 Sociology 10501 | |
| Perspective: Natural Science Interactive Science 10001 | Science core | Science Courses: Physics 21900 AES 10600 or equivalent | Science courses: which courses and number differ by major |
| Perspective: Natural Science Interactive Science 10101 | | | |
| Perspective: One additional Honors perspective course, not in the major | | | |

MACAULAY HONORS COLLEGE AT THE CITY COLLEGE: GENERAL EDUCATION REQUIREMENT

| B.A. and B.F.A | B.S science | B.ARCH | B. Engineering |
|--|--|---|--|
| FIQWS Honors | FIQWS Honors | FIQWS Honors | FIQWS Engineering |
| Speech 11100 or 00308 or Proficiency Exam | Speech 11100 or 00308 or Proficiency Exam | | Speech 11100 or 00308 or Proficiency Exam |
| Foreign Language Requirement | Foreign Language Requirement | Foreign Language Requirement | |
| CPE (CUNY Proficiency Exam) | CPE (CUNY Proficiency Exam) | CPE (CUNY Proficiency Exam) | CPE (CUNY Proficiency Exam) |
| | English 21003 | | English 21007 |
| Math 15000, 17300, 19500 or FQUAN | Math 20500 and 20900 or Math 20100, 20200 and 20300 depending on major | Math 19500 | Math 20100, 20200, 20300 and additional math courses depending on major |
| PERSPECTIVES: 9 total | PERSPECTIVES: 5 total | PERSPECTIVES: 4 total | PERSPECTIVES: 5 or 6 total |
| Perspective: Artistic CHC 10101 | Perspective: Artistic CHC 10101 | Perspective: Artistic CHC 10101 | Perspective: Artistic CHC 10101 |
| Perspective: Self & Society CHC 10201 | Perspective: Self & Society CHC 10201 | Perspective: Self & Society CHC 10201 | Perspective: Self & Society CHC 10201 |
| Perspective: Natural Science CHC 20301 | Perspective: Natural Science CHC 20301 | Perspective: Natural Science CHC 20301 | Perspective: Natural Science CHC 20301 |
| Perspective: US Society CHC 20401 | Perspective: US Society CHC 20401 | Perspective: US Society CHC 20401 | Perspective: US Society CHC 20401 |
| Perspective: Global History and Culture World Civ. 10101 | Perspective: choose 1 from among: World Civ. 10101 World Hum. 10101 Philosophy 30001 US Society 10101 Pol. Science 10101 | | Choose 1 or 2 additional Honors Perspective courses, depending on major, that meet School of Engineering Gen Ed objectives: |
| Perspective: Literary World Hum. 10101 | | | Art 10001 Music 10101 World Civ. 10101 World Hum. 10101 Anthro 10101 Economics 10101 Psychology 10101 Sociology 10501 US Society 10101 Pol. Science 10101 |
| Perspective : Logical-Philosophical Philosophy 30001 | | | |
| Perspective: Natural Scientific Interactive choose one: Science 10001 or Science 10101 | Science core | Science Courses: Physics 21900 EAS 10600 or equivalent | Science courses: which courses and number of courses differ by major |
| Perspective: One additional Honors perspective course, not in the major | | | |

1.B. OLD CORE (STUDENTS WHO ENROLLED BEFORE FALL 2007)

Students who enrolled at The City College before Fall of 2007 must complete the old Core Curriculum. Each degree program has slightly different requirements, which are summarized in the chart at the end of this chapter. For more information, students should consult their academic advisor.

The basic components of the Core Curriculum Requirement are as follows:

Writing-Across-The Curriculum:

Students completing the "Old Core" in the College of Liberal Arts and Science must pass two introductory writing courses: English 11000 and 21000. For the 21000 writing course, students have several options. They may choose among the following:

- English 21001: Writing for the Humanities and the Arts
- English 21002: Writing for the Social Sciences
- English 21003: Writing for the Sciences
- English 21007: Writing for Engineering
- Anthropology 21002: Writing in Anthropology
- Music 21000: Writing about Music
- Political Science 21000: Writing in Political Science: Politics and Leadership
- Other 21000 courses that may be offered by individual departments

Students following the old Core requirement are required to enroll in a 21000 course before they have completed 60 credits. Ordinarily, students will select a 21000 writing course most in line with their intended major, although students are free to choose any 21000 course. Students should check the prerequisites for the course before registering.

Additional Writing Requirement:

Students completing the Core Curriculum are required to pass three elective-level courses that are identified as requiring at least 3,500 words of writing. These electives are designated with a (W) at the end of the

course descriptions in the departmental listing.

2. FOREIGN LANGUAGE REQUIREMENT

For the B.A degree

One of the following:

- A. Four years of a foreign language in high school;
- B. Fourth-semester college-level course of any foreign language.

For the B.S. (including Computer Science), B.E. and B.F.A degrees

One of the following:

- A. Two years of a foreign language in high school;
- B. Second-semester college-level course of any foreign language.

A student may qualify to take a competency test to fulfill this requirement. Information on this option can be obtained from the Department of Foreign Languages and Literatures.

For the B.S. Degree in Education

Candidates for the B.S. in Education must demonstrate competence in Spanish in one of the following ways:

- A. Students with less than two years of Spanish in high school take Spanish 12100 and 12200.
- B. Students who have had two years of Spanish in high school take Spanish 22300.
- C. Students who have a satisfactory speaking knowledge of Spanish may be exempted from these courses by passing an oral Spanish competency test given each semester by the Department of Foreign Languages and Literatures. Students may apply for the test in NA 6/204. In lieu of Spanish, a waiver may be obtained from a School of Education advisor to substitute another language spoken by the multilingual populations in New York City schools.

Restrictions on Foreign Language Courses

Students who have taken a foreign language in high school will not be permitted to take the equivalent course for credit unless they are placed there by the Department of

Foreign Languages and Literatures and they continue the study of the language to a level beyond that completed in high school. Native speakers of a foreign language will not be permitted to take introductory courses in that language for credit, except for those courses specifically designed for native speakers.

3. THE MAJOR

Undergraduate majors are offered throughout the College in approximately fifty fields. They prepare students for a variety of careers as well as for professional and graduate schools. Advisors assist students in making their initial choice of major and, on occasion, in reconsidering chosen fields of study. Every student must complete an approved major. Each department or program sets specific course requirements for its majors, which are outlined in the departmental listings in this *Bulletin*. Students should consult their advisor periodically for updates on major requirements. While some courses in the major may be completed at other accredited colleges, at least 60% of the major must be taken at City College.

4. FREE ELECTIVES

Free electives are those courses taken in addition to required courses to bring the total to the minimum number of credits required for graduation. Students use free electives to take additional work in the major, concentrate in a second field, or to explore particular interests. No more than five core courses may be taken for credit as free electives.

Students may take almost any course for which they have the prerequisites in the College of Liberal Arts and Science as a free elective, and they are encouraged to take advantage of the wide range of offerings in the professional schools and special programs at the College. However, CLAS students should remember that not all courses offered by the schools of Architecture, Education, and Engineering carry credit in CLAS. CLAS students should

consult the Office of Academic Standards (NA 5/216) before taking courses in the professional schools. In many cases the focused training of both professional and technical personnel will be too highly specialized for inclusion in a broad liberal arts curriculum. While a major department may approve certain courses in the professional schools for a given student's major program, only six credits of free electives from the professional schools will be granted toward the CLAS degree requirements.

5. CUNY PROFICIENCY EXAMINATION (CPE)

All students must pass the CUNY Proficiency Examination to advance from the lower to the upper division of the College. The exam must be taken for the first time after completing the 45th credit. Students must pass the exam by the completion of the 60th credit. Students have three opportunities to pass the CPE. Those who do not pass after three attempts or absences are subject to dismissal. Some students may be eligible to appeal to the designated CPE liaison.

6. PROFICIENCY IN SPOKEN ENGLISH

All students are required to demonstrate an ability to communicate effectively in spoken English. Students may satisfy this requirement either by passing a Speech Proficiency Test or by passing Speech 11100 or 00308. The test, given by appointment, should be taken in the freshman or sophomore year or upon transfer to the College, so that any necessary improvement can be accomplished before graduation. Students in the School of Education meet this requirement by taking Speech 11100. Students in the Grove School of Engineering meet this requirement by passing English 21007, which has an oral presentation component.

NEW GENERAL EDUCATION REQUIREMENTS AND OLD CORE CURRICULUM AND COURSES FOR TRANSFER STUDENTS

Transcripts of transfer students will be evaluated on a course-by-course basis by an adviser who will determine the outstanding General Education/Core and proficiency requirements to be met, including language and speech proficiencies. Students should note that there is a planned sequence to courses. Therefore, some courses must be taken before others. Prerequisites are listed in individual course descriptions.

The only exception to the fulfillment of these requirements is granted to those students who have transferred from CUNY schools with either an A.A. or an A.S. degree. These students are exempt from any further Core/General Education requirements. However, it should be remembered that if any such student does not possess the prerequisite work necessary to undertake the required upper-level coursework in their intended area of study, that student may be required to complete appropriate additional coursework. No student will be allowed to take a course for which he or she is not academically prepared.

Spitzer School of Architecture

Students with previous college coursework may be exempted from some or all of the required and elective general education courses. An evaluation of a student's transfer credits is made by the divisional director of admissions and academic advisement. Additional information regarding transfer students is to be found in the section of this *Bulletin* devoted to the Spitzer School of Architecture.

Grove School of Engineering

Major courses taken under a program accredited by ABET (Accreditation Board for Engineering and Technology) and passed with a grade of C or better will receive transfer credit at City College. Subject to the C-minimum requirement, transfer credit for

engineering courses may also be awarded as follows:

1. Courses taken at an institution that has a formal articulation agreement with City College will receive transfer credit. Courses taken at an institution that has a formal articulation agreement with an ABET accredited program at another institution may also receive transfer credit at City College, if such courses are covered by the articulation agreement.
2. Foreign students may receive credit by examination. Before being allowed to take such an examination, the student must provide evidence of completion of similar courses. At the discretion of the evaluator, foreign students may also receive transfer credit by submitting sufficiently detailed curricular materials. The above notwithstanding, the Grove School of Engineering reserves the right to withhold transfer credit for any academic reason it considers justifiable.

School of Education

Students seeking to transfer into the School of Education must consult with the advisor in the program into which they wish to transfer. Appointments with the program advisor may be made through the School's Office of Student Services.

SUMMARY TABLE FOR CORE REQUIREMENTS FOR DEGREE CANDIDATES IN THE COLLEGE OF LIBERAL ARTS AND SCIENCE (INCLUDING B.A. STUDENTS ENTERING BEFORE FALL 2007)

| | Bachelor of Arts/ Fine Arts (B.A.)/(B.F.A.) | Bachelor of Science Non-Science Majors (Psychology) (B.S.) | Bachelor of Science For Science Majors (B.S.) |
|--|---|--|---|
| Philosophy 30000 (3) | X | X | X |
| U.S. Society 10100 (3) | X | X | X |
| World Civilizations 10100 or 10200 (3) | X | X | X |
| World Humanities 10100 or 10200 (3) | X | X | X |
| Human Behavior/Social Science | | | |
| Political Science 10100 (3) | X choose two | X choose one | X choose one |
| Economics 10000 (3) | | | |
| Anthropology 10100 (3) | | X choose one | |
| Psychology 10200 (3) | | | |
| Sociology 10500 (3) | | | |
| Science-Interdisciplinary | | | |
| Science 10300 & 10400 (6) | X | | |
| Science 20000 (3) or EAS 32000 (3) | | | X |
| Other Lab Science | | | |
| Earth & Atmospheric Science 10600 (4) | | X choose four laboratory sciences | X |
| Biology 10100 (& 10200*) (4/8) | | | X |
| Chemistry 10301 & 10401 (8) | | | X |
| Physics 20300 & 20400 (8) | | | X choose one sequence |
| Physics 20700 & 20800 (8) | | | |
| Mathematics | | | |
| Mathematics 15000 (3) | X | | |
| Mathematics 20100, 20200 & 20300 (10) | | X choose one sequence | X choose one sequence |
| Mathematics 20500 & 20900 (8) | | | |
| World Arts | | | |
| Art 10000 or Music 10000 (3) | X | X | X |
| Total Credits | 30 | 37-39 | 57-59 |

* Biology and Biochemistry majors must take Bio 10200 in addition to 10100 to complete this requirement.

B.S., B.E., B.S.Ed. Requirements

Consult the introductory section of each professional school for applicable core requirements.

Foreign Language Requirement

The Foreign Language Requirement for the Bachelor of Science and the Bachelor of Architecture Degrees is two years of the same language in high school or two semesters for the same language at the college level. The foreign language requirement for the Bachelor of Arts/Bachelor of Fine Arts Degree is four semesters of the same language at the college level. Students may be exempted from all or part of the requirement by passing a proficiency test administered by the Foreign Language and Literatures Department (NAC 5/223); or by equivalent coursework in high school. Check with your advisor in the Division or Professional School of your major.

Writing Requirement

In addition to English 11000 and English 21000 (or equivalent), students are required to complete three courses with a (W) designation.

Core Course Descriptions

Anthropology 10100: General

Anthropology

Humankind from its beginnings in Africa to the present. Course focuses on human biological and cultural evolution through prehistoric times, identification of cultural bias in attempts to understand the human past and present, and exploration of the fallacies of racial and cultural superiority. Topics include the development of social stratification, cultural definitions of reality, language and thought, alternative ways of generating cooperation and handling conflict, culture change and "modernization." 3 hr./wk.; 3 cr.

Anthropology 10101: General

Anthropology (Honors)

For students in the City College Honors Program and the Macaulay Honors College. An alternative version of the introductory course designed to provide greater student participation, more writing, and student-instructor interaction. 4 hr./wk.; 4 cr.

Art 10000: Introduction to the Visual Arts of the World

Concepts underlying content, formal structure and historical development of the visual arts; art as a global phenomenon from prehistory to the present; relationship of art to the natural world, the built environment, political and other human institutions, and the realm of spirituality. 3 hr./wk.; 3 cr.

Art 10001: Introduction to the Visual Arts of the World (Honors)

For students in the City College Honors Program and the Macaulay Honors College. Introduction to the historical development of visual arts from prehistory to the present. An overview of art from around the world analyzed for its content through its visual components and compositional structures. An alternative version to provide more student participation, extensive reading, and written assignments. 3 hr./wk.; 3 cr.

Astronomy 10000: Ideas of Astronomy

Explores the entire realm of the universe, its origins and history, and establishes our time and place and role in it. Our solar system, our galaxy, the expanding universe of many galaxies will be discussed

along with more recent discoveries such as quasars, pulsars and black holes. 3 lect., 1 rec. hr./wk., slides, films, planetarium shows; 3 cr.

Biology 10000: Biology: The Strategy of Life

The basic properties of living systems with emphasis on human beings as functioning biological entities. 3 lect., 1 rec. hr./wk.; 3 cr.

Biology 10500: Introductory Biology

The molecular basis of life, structure, and function in living organisms, reproduction and patterns of inheritance, and human ecology. Intended primarily for chemistry, earth systems science, and physics majors as well as non-science B.S. majors, also for potential premedical students and biology majors who have not taken a high school biology course. 2 lect., 4 lab hr./wk.; 4 cr.

Biology 10800: Organismic Biology: Lecture

A comparative study of the functional unity and common requirements of all organisms is used to examine the strategies and mechanisms displayed by organisms in adapting to a variety of habitats. Prereq.: 1 year of high school biology. Required for Biology Majors. 3 lect. hr./wk.; 3 cr.

Biology 10900: Biological Processes of Organisms: Laboratory for Organismic Biology

Digestion, gas exchange, circulation, excretion, neural control of behavior, and basic plant functions. Emphasis is placed on use of the scientific method and scientific writing skills. Prereq.: Bio 10800; coreq.: Math 19500. Required for biology majors. 4 lab hr./wk.; 2 cr.

CHC Seminar 10101: The Arts in New York City (Honors)

For students in the Macaulay Honors College. A broad exposure to the arts in New York City. Attendance at performances, exhibitions and other cultural events is central to the course. Students examine these events from the multiple perspectives of scholarship, creativity and production and enhance their appreciation by investigating the social, historical and aesthetic context of the cultural works.

Prereq.: admission to the Macaulay Honors College. 4 hr./wk.; 4 cr.

CHC Seminar 10201: The Peopling of New York (Honors)

For students in the Macaulay Honors College. Investigation of the role immigration and migration have played and will play in shaping New York City's identity. Prereq.: CHC 10101. 3 hr./wk.; 3 cr.

CHC Seminar 20301: Science and Technology in New York City (Honors)

For students in the Macaulay Honors College. Study of scientific and technological topics that have had an impact on contemporary New York. Prereq.: CHC 10201. 3 hr./wk.; 3 cr.

CHC Seminar 20401: Shaping the Future of New York City (Honors)

For students in the Macaulay Honors College. Study of the ongoing interplay of social, economic, and political forces that shape the physical form and social dynamics of New York City. Prerequisite: CHC 20301. 3 hr./wk.; 3 cr.

Chemistry 10000: Chemistry and Society

The fundamental principles of chemistry and their application to social issues. (Open to Science majors only with permission of instructor.) 3 hr./wk.; 3 cr.

Chemistry 10301-10401: General Chemistry

Coreq.: Math 19500. 3 lect., 2 wrkshp., 2-4 lab. hr./wk.; 4 cr./sem.

Chemistry 10800: Basic Laboratory Techniques

Prereq.: Chem 10300; Coreq.: Chem 10400. 5 lab hr./wk.; 3 cr.

Earth and Atmospheric Science 10000: The Dynamic Earth

Basic concepts of geology. The materials, structures, and surface features of the earth, and the processes which have produced them. 3 lect. hr./wk.; 3 cr.

Earth and Atmospheric Science 10100: The Atmosphere

An introduction to the processes and phenomena of our atmosphere. Topics include clouds, sky color, greenhouse

effect, storms, climates and Ice Ages. 3 lect. hr./wk.; 3 cr.

Earth and Atmospheric Science 10600: Earth Systems Science

A systematic global view of the features, processes, and underlying scientific concepts of the earth, atmosphere, and oceans, emphasizing environmental applications. 3 lect., 3 lab. hr./wk.; 4 cr.

Economics 10000: Modern United States Economy

Analysis of fundamental microeconomic and macroeconomic principles, issues and policies in the contemporary economy of the United States; examination of goals of full employment, stable price level, economic growth, and balanced international economic relationships; role of government fiscal policies and national monetary policies in macroeconomy of the United States. 3 hr./wk.; 3 cr.

Economics 10101: Introduction to Economics (Honors)

For students in the City College Honors Program and the Macaulay Honors College. An alternative version of the introductory course designed to provide more student participation and writing. 4 hr./wk.; 4 cr.

Mathematics 20100: Calculus I

Limits, derivatives, rules of differentiation, trigonometric functions and their derivatives, Newton's Method, differentials, graph sketching, maximum and minimum problem, related rates, introduction to integration, areas. Interpretation and use of methods of calculus with graphing calculators. Prereq.: grade of C or higher in Math 19500 or placement by the Department. Credit will not be given for both Math 20100 and either Math 20101 or 20500. (Part of sequence Math 20100 (20102), 20200 (20202), 20300). 4 hr. lect./wk., 2 hr. lab./wk.; 4 cr.

Mathematics 20500: Elements of Calculus

Limits, derivatives, rules of differentiation, differentials, graph sketching, maximum and minimum problems, related rates, exponential and logarithmic functions, differential equations, antiderivatives, area, volume, applications to economics. Prereq.: grade of C or higher in Math 10000 or placement by the Department. Credit will not be given for both Math 10100 and Math 10500. 4 hr./wk.; 4 cr.

Mathematics 20200: Calculus II

Areas between curves; volumes of solids of revolution; integration of trigonometric, exponential and logarithmic functions; analytical and numerical methods of integration; improper and infinite integrals; conic sections; polar coordinates; parametric representation of curves; vectors in the

plane. Interpretation and use of methods of calculus with graphing calculators. Prereq.: grade of C or higher in Math 20100 or 20102 or placement by the Department. After completion of Math 20900, only 3 credits will be given for Math 20200. Credit will not be given for both Math 20200 and 20202. (Part of sequence Math 20100 (or 20102), 20200 (or 20202), 20300.) 4 hr. lect./wk., 2 hr. lab./wk.; 4 cr.

Mathematics 20300: Calculus III

Vectors, infinite series, Taylor's theorem, solid analytic geometry, partial derivatives, multiple integrals with applications. Prereq: Math 20200 or Math 20202. (Part of sequence Math 20100 (20102), 20200, (20202) 20300.) 4 hr./wk.; 4 cr.

Mathematics 20900: Elements of Calculus and Statistics

Exponential and logarithmic functions, equations of growth and decay, integration techniques, improper integrals, differential equations, counting techniques, probability on finite sample spaces, binomial distributions; continuous distributions, normal distribution, statistical measures, statistical inference, biological applications. Prereq.: Math 10500 or placement by the Department. (Part of sequence 20500, 20900 for Biology majors.) 4 hr./wk.; 4 cr.

Music 10100: Introduction to Music

Concepts underlying the understanding and enjoyment of music. Examples from around the world highlight matters of form and content. Attendance at concerts, both on and off campus, as well as guided classroom listening aid in the development of perceptual and conceptual skills. Pre- or coreq: English 11000. 3 hr./wk.; 3 cr.

Music 10101: Introduction to Music

For students in the City College Honors Program and the Macaulay Honors College. An alternate version of Music 10100. Concepts underlying the understanding and enjoyment of music. Examples from around the world highlight matters of form and content. Attendance at concerts, both on and off campus, as well as guided classroom listening aid in the development of perceptual and conceptual skills. Pre- or coreq: English 11000 or FIQWS. 3 hr./wk.; 3 cr.

Philosophy 30000: The Rational Animal: Dimensions of Understanding

A critical analysis of the nature of and relationships between a variety of intellectual disciplines (such as the natural and social sciences, humanities and education) and of a number of contemporary, philosophical problems relating to mind, self and consciousness, and authority, rights and responsibilities. Prereq.: 15 credits of core courses and Eng 11000. (W) 3 hr./wk.; 3 cr.

Philosophy 30001: The Rational Animal: Dimensions of Understanding (Honors)

For students in the City College Honors Program and the Macaulay Honors College. An alternative version of the introductory course designed to provide more student participation and writing. Prereq: 15 credits of core courses and Eng 11000. 3 hr./wk.; 3 cr.

Physics 10000: Ideas of Physics

A course with two themes: 1. How nature works the interplay of space, time, matter and energy; 2. Structures are born, live out their life cycles, and die. These include us, the stars, and perhaps the universe. This theme may be called the scientific story of genesis. 3 lect., 1 rec. hr./wk., demonstrations, slides, films; 3 cr.

Physics 20300-20400: General Physics

For majors in the life sciences (biology, medicine, dentistry, psychology, physical therapy) and for liberal arts students. Fundamental ideas and laws of physics from mechanics to modern physics. Included are Newton's laws of motion, electricity and magnetism, heat, optics, relativity, quantum mechanics and nuclear physics. Emphasis is on basic principles and general laws. Use of mathematics is restricted to elementary algebra and some trigonometry. Physics 20300 is prereq. for Physics 20400. (Required for Premed., Predent., Bio-Med., and all Life Science students). 3 lect., 1 rec. hr./wk., 3 lab. hr. alt. wks.; 4 cr./sem.

Physics 20305-20405: Laboratory Sections for 20300 and 20400

Department permission required for registration, which is limited to students having passed lecture part via exemption exam or via equivalent course elsewhere. Not open to students who have previously taken or are planning to register for Math 20300 or 20400. 3 lab. hr. alt. wks.; 1 cr./sem.

Physics 20700-20800: General Physics

Vectors, equilibrium, rectilinear motion. Newton's laws, gravitation, motion in a plane, work and energy, impulse and momentum, rotation and angular momentum, simple harmonic motion, fluids, heat and thermodynamics, waves and acoustics, electrostatics, magnetism and electromagnetism, direct and alternating current, geometrical and physical optics. Pre- or coreq.: Math 20200 for Phys 20700. Phys 20700 is prereq. for Phys 20800. Math 20300 is pre- or coreq. for Phys 20800. (Required for all students in the Physical Sciences, Engineering and Computer Science.) 3 lect., 2 rec. hr./wk., 2 lab/wrkshp. hrs. (20700); 2 lab. hrs. alt. wks. (20800); 4 cr.

Physics 21900: Physics for Architecture Students

A one-semester course for students of Architecture. Translational and rotational equilibrium. Newton's laws of motion and vibrations. Work, energy and power. Fluids and temperature. Heat and energy transfer. Prereq.: completion of all remedial mathematics requirements through trigonometry, or eligibility for Math 20500. 3 lect., 2 rec. hr./wk.; 4 cr.

Political Science 10100: American Government and Politics

An analysis of processes, values and problems of American government and democracy. Special emphasis is given to national political institutions and issues. 3 hr./wk.; 3 cr.

Political Science 10101: American Government and Politics

For students in the City College Honors Program and the Macaulay Honors College. This course covers more intensively and more comprehensively the subject matter of Political Science 10100. The student is expected to read several additional books, prepare papers, and participate actively in class discussions. 4 hr./wk.; 4 cr.

Political Science 10200: Politics and Leadership

The dynamics and dilemmas of leadership and power. Various definitions of politics and systems of government will be related to current political controversies. Use of case studies, novels, films, essays, and other materials to illustrate political processes and concepts. 3 hr./wk.; 3 cr.

Psychology 10101: Psychology for Honors Students

For students in the City College Honors Program and the Macaulay Honors College. Designed to provide for greater student participation. In addition to attendance at Psychology 10101 lectures, students will participate in a 2-hour seminar. (W) 2 lect., 2 seminar hr./wk.; 4 cr.

Psychology 10200: Applications of Psychology in the Modern World

An introduction to the study of human development and learning, personality and motivation, sex differences, attitudes, aggressions, interpersonal attraction, behavior in groups and work settings, abnormal behavior and its treatment. Emphasis on the ways in which psychological theory and research can be applied to individual and social problems. May not be taken for credit by students who have already passed Psy 10101 or 10292 or 10299. (W) 3 hr./wk.; 3 cr.

Psychology 10299: Applications of Psychology in the Modern World

For SEEK students. 6 hr./wk.; 3 cr.

Science 10001: Man and Nature: Life (Honors)

For students in the City College Honors Program and the Macaulay Honors College. An exploration of the biological basis of life on earth and the impact of man's activities on its quality and continued survival. Those enrolled will participate in a seminar designed to permit in-depth examination of important issues related to the course content. 3 lect., 2 rec./lab hr./wk.; 4 cr.

Science 10101: The Physical Universe (Honors)

For students in the City College Honors Program and the Macaulay Honors College. A broad exposure to the physical sciences with heavy stress on the scientific method of inquiry and investigation. The basic principles of physics and chemistry; application to some phenomena of astronomy, geosciences, chemistry and physics. 3 lect., 2 rec./lab hr./wk.; 4 cr.

Science 10300: Science I

Explores the basic scientific principles that underlie major modern discoveries with an emphasis on the common themes among the sciences and their applications to everyday life. Presents important principles of physics and chemistry through lectures, demonstrations, and hands-on experiments with simple materials. This is the first semester of a two semester sequence that integrates all the major branches of the natural sciences. Coreq.: Eng 11000. 3 lect., 2 rec./lab hr./wk.; 3 cr.

Science 10400: Science II

Continues the exploration of the basic scientific principles that underlie major modern discoveries with an emphasis on the common themes among the sciences and their applications to everyday life. Presents principles of the structure and genesis of the universe and solar system, our planet's features and history, and the basic properties of life, including its molecular basis, evolution and ecology. This is the second semester of a two semester sequence that integrates all the major branches of the natural sciences. 3 lect., 2 rec./lab hr./wk.; 3 cr.

Science 20000: Measurements, Modeling, and Computing

Techniques common to the sciences in the analysis of measurements; mathematical models descriptive of scientific phenomena and introduction of scientific computer programming. (Not open to engineering students.) Prereq.: Math 20100 or 20500. Pre- or coreq.: one Science laboratory course (Same as CSc 10100). 3 hr./wk.; 3 cr.

Sociology 10500: Individual, Group and Society: An Introduction to Sociology

The language of sociology, the sociological perspective, and basic areas of sociological inquiry. Topics include: culture, socialization, self and society, social stratification and social class, the family, religion, policy, community organization, collective behavior, mass culture, social order and social change. 3 hr./wk.; 3 cr.

Sociology 10501: Introductory Sociology (Honors)

For students in the City College Honors Program and the Macaulay Honors College. Provides a basic framework for sociological investigation and some knowledge of the institutions which constitute the fabric of society. The emphasis will be on concepts, hypotheses and theories which explain social behavior. Although social problems of contemporary relevance are often discussed, the focus of most of the material is on sociological problems and on analytical issues in the study of society. 3 hr./wk.; 3 cr.

U.S. Society 10100: Development of the U.S. and its People

Analysis of how a powerful nation-state evolved from a tiny offshoot of European colonial expansion. Elucidates major forces that have shaped the modern world: religion, land policies, technology, industrial capitalism, democracy, nationalism, socialism, racism, sexism, and imperialism. Prereq: Eng 11000, World Civilizations 10100 and 10200. 3 hr./wk.; 3 cr.

U.S. Society 10101: Development of the U.S. and its People (Honors)

For students in the City College Honors Program and the Macaulay Honors College. An alternative version of the introductory course designed to provide more student participation and writing. Prereq.: Eng 11000. 3 hr./wk.; 3 cr.

World Civilizations 10100: Prehistory to 1500 A.D.

An examination of the civilizations of Asia, Africa, Europe and the Americas through a comparative study of selected places and themes. The dynamics of hunter/gatherer, pastoral and agrarian societies, urbanization, trade, imperialism, slavery, feudalism, the centralization of the state, religion and secular thought are among the topics discussed. Pre or coreq.: Eng 11000. 3 hr./wk.; 3 cr.

World Civilizations 10101: World Civilizations (Honors)

For students in the City College Honors Program and the Macaulay Honors College. A transcultural, geographically and regionally balanced study of specific themes

found in both World Civilizations 10100 and 10200 courses. Emphasis on a theoretical perspective of the topics and their significance today. Pre or coreq.: Eng 11000. 4 hr./wk.; 4 cr.

World Civilizations 10200: 1500 A.D. to the Present.

A study of the major forces that have shaped the modern world of Asia, Africa, Europe and the Americas. Selected themes include the interaction of the Western and non-Western world, the scientific revolution, capitalism, imperialism, industrialization, economic growth and stagnation, revolutions, counter-revolutions, modern political ideologies, the global crisis of the 20th century and emerging global interdependence. Prereq.: Eng 11000. 3 hr./wk.; 3 cr.

World Humanities 10100

An introduction to world literature and its relationship to the traditions and societies from which it springs. Study of major works from antiquity to the seventeenth century. Prereq.: Eng 11000. 3 hr./wk.; 3 cr.

World Humanities 10101: Literature in the Human Experience (Honors)

For students in the City College Honors Program and the Macaulay Honors College. Defines what literature is and determines its relationship to human existence. The various types of literature and the role of form and structure in the meaning of the whole. Literature as a mirror of the variety and continuity of human experience. Extensive reading and individualized writing assignments. 4 hr./wk.; 4 cr.



Appendices

Appendix A

GOVERNANCE

The Governance of The City College is the concern of all its members. All its constituencies—students, faculty, and administration—contribute to the maintenance and development of the College; each of the constituencies has its particular area of concern.

Because each constituency has the right to govern itself in areas that are its exclusive concern and responsibility, the Governance Charter sets forth the powers and organization of the various bodies within the College, and guarantees their autonomy on matters exclusively within their jurisdiction. But because the constituencies are interrelated, and because all must participate in the well being of the College as a whole, the Governance Charter also provides for communication between constituencies and advisory roles and joint participation on matters of mutual or general concern.

The following governance bodies carry out these duties.

The Undergraduate Student Senate and the Graduate Student Council, elected annually from and by their appropriate constituencies, represent the interests of the students. It is from among these bodies that student representation on college-wide bodies is drawn for consultative purposes.

The Faculty of each school (organized into a representative, elected council when there are more than 100 faculty members) approve courses, curricula, degree requirements, and criteria for student progress and retention. The College of Liberal Arts and Science has a general Faculty Council, plus one each for its divisions—Education, Humanities and the Arts, Science and Social Science. Each of

the College's professional schools—the CUNY Medical School, Engineering, and Architecture—also has its own Faculty.

The Faculty Senate draws its elected representatives from the constituent academic units of the College and deals with such college-wide matters as academic freedom, educational policy, the role of administrators, and the allocation of the College's resources. Senators are elected by the faculty for three-year terms. In addition to the faculty, the following are members *ex officio*, without vote: the President, all deans and vice presidents, and representatives of the student senates.

The Policy Advisory Council serves as a consultative body to the President on all major policy matters affecting the College and its members. It draws its members from all groups at the College, including the part-time instructional staff and the non-teaching staff.

ALUMNI ASSOCIATION OF THE COLLEGE

The first graduating class of 1853 of the New York Free Academy (as The City College of New York was originally known) organized the Alumni Association to form a community of friends with a shared experience and common goals. In 1913, the Association was incorporated, and is governed by a Board of Directors. At the Annual Meeting held in the Spring, dues paying members elect the officers of the corporation who guide its affairs. Officers who are elected annually include the President, three Vice Presidents, Secretary, Treasurer and Historian. In addition, thirty-six Directors from the membership-at-large are selected for staggered three-

year terms. Two to three Directors from each of the special interest groups (affiliate groups and constituent societies), including their respective Presidents, are elected annually for one-year terms. Completing the Board of Directors are Honorary Directors selected by the President of the Corporation, and Life Directors, who are former Presidents. The Board of Directors meets a minimum of five times a year.

The purpose and objectives of the Alumni Association are to advance the interests and welfare of the College, foster a spirit of fraternity/sorority and goodwill among graduate, service alumni and to offer financial, technical and networking support for today's students.

Representing special concerns, interests and educational specialties, the Association serves as the umbrella or parent to thirteen affiliate groups and two constituent societies including Alumni Varsity, Architecture Alumni, Art Alumni, Asian Alumni, Black Alumni, Business and Economics Alumni Society, Center for Worker Education Alumni, Communications Alumni, Education Alumni, Engineering School Alumni, Latino Alumni, Nursing Alumni, Political Science Alumni, ROTC Alumni, and Science Alumni. The groups are each governed by a voluntary Board of Directors with officers and conduct activities to benefit alumni and today's students.

In recognition of the growing geographical diversity of alumni, the chartering of Alumni Chapters began after World War II. Fifty dues paying members living in a city outside the New York metropolitan area can secure a charter from the Alumni Association as an official chapter. There are

currently ten active chapters across the country including Washington D.C.; Palm Beach; South Florida; Northern California; Southern California; Orange County/San Diego, California; Northern Nevada; Houston, Texas; Northern New Jersey, Chicago, New England and Greater Phoenix, Arizona.

Appendix B

STUDENTS RIGHTS, RULES AND REGULATIONS

APPENDIX B.1

Rules and Regulations for the Maintenance of Public Order Pursuant to Article 129-A of the Education Law

The tradition of the University as a sanctuary of academic freedom and center of informed discussions is an honored one, to be guarded vigilantly. The basic significance of that sanctuary lies in the protection of intellectual freedom: the rights of professors to teach, of scholars to engage in the advancement of knowledge, of students to learn and express their views, free from external pressures or interference. These freedoms can flourish only in an atmosphere of mutual respect, civility, and trust among teachers and students, only when members of the University community are willing to accept self-restraint and reciprocity as the condition upon which they share in its intellectual autonomy.

Academic freedom and the sanctuary of the University campus extend to all who share these aims and responsibilities. They cannot be invoked by those who would subordinate intellectual freedom to political ends, or who violate the norms of conduct established to protect that freedom. Against such offenders the University has the right, and indeed the obligation, to defend itself. We accordingly announce the following rules and regulations to be in effect at each of our colleges which are to be administered in accordance with the requirements of due process as provided in the Bylaws of the Board of Trustees.

With respect to enforcement of these rules and regulations we note that the Bylaws of the Board provide that:

“THE PRESIDENT. The president, with respect to his education unit, shall:

Have the affirmative responsibility of conserving and enhancing the educational standards of the college and schools under his jurisdiction;

Be the advisor and the executive agent of the Board and of his respective College Committee and as such shall have the immediate supervision with full discretionary power in carrying into effect the Bylaws, resolutions, and policies of the Board, the lawful resolutions of the several faculties;

Exercise general superintendence over the concerns, officers, employees, and students of his educational unit”

A. Rules

1. A member of the academic community shall not intentionally obstruct and/or forcibly prevent others from the exercise of their rights. Nor shall he intervene with the institution’s educational processes or facilities, or the rights of those who wish to avail themselves of any of the institution’s instructional, personal, administrative, recreational, and community services.

2. Individuals are liable for failure to comply with lawful directions issued by representatives of the University/College when they are acting in their official capacities. Members of the academic community are required to show their identification cards when requested to do so by an official of the college.

3. Unauthorized occupancy of University/College facilities or blocking access to or from such areas is prohibited. Permission from appropriate college authorities must be obtained for removal, relocation, and use

of University/College equipment and/or supplies.

4. Theft from, or damage to University/College premises of property, or theft of or damage to property of any person on University/College premises is prohibited.

5. Each member of the academic community or an invited guest has the right to advocate his position without having to fear abuse, physical, verbal, or otherwise, from others supporting conflicting points of view. Members of the academic community and other persons on the college grounds shall not use language or take actions reasonably likely to provoke or encourage physical violence by demonstrators, those demonstrated against, or spectators.

6. Action may be taken against any and all persons who have no legitimate reason for their presence on any campus within the University/College, or whose presence on any such campus obstructs and/or forcibly prevents others from the exercise of the rights or interferes with the institution’s educational processes or facilities, or the rights of those who wish to avail themselves of any of the institution’s instructional, personal, administrative, recreational, and community services.

7. Disorderly or indecent conduct on University/College-owned or controlled property is prohibited.

8. No individual shall have in his or her possession a rifle, shotgun, or firearm or knowingly have in his possession any other dangerous instruments or material that can be used to inflict bodily harm on an individual or damage upon a building or the grounds of the University/College

without the written authorization of such educational institution. Nor shall any individual have in his possession any other instrument or material which can be used and is intended to inflict bodily harm on any individual or damage upon a building or the grounds of the University/College.

9. Any action or situation which recklessly or intentionally endangers mental or physical health or involves the forced consumption of liquor or drugs for the purpose of initiation into or affiliation with any organization is prohibited.

10. The unlawful manufacture, distribution, dispensation, possession, or use of illegal drugs or other controlled substances by University students or employees on University/College premises, or as part of any University/College activities is prohibited. Employees of the University must also notify the College Personnel Director of any criminal drug statute conviction for a violation occurring in the workplace not later than (5) days after such conviction.

11. The unlawful possession, use, or distribution of alcohol by students or employees on University /College premises or as part of any University/College activities is prohibited.

B. Penalties

1. Any student engaging in any manner in conduct prohibited under substantive Rules 1-11 shall be subject to the following range of sanctions as hereafter defined in the attached Appendix: admonition, warning, censure, disciplinary probation, restitution, suspension, expulsions, ejection, and/or arrest by the civil authorities.

2. Any tenured or non-tenured faculty member, or other member of the instructional staff, or member of the classified staff engaging in any manner in conduct prohibited under substantive Rules 1-11 shall be subject to the following range of penalties: warning, censure, restitution, fine not exceeding those permitted by law or by the Bylaws of The City University of New York or suspension with/without

pay pending a hearing before an appropriate college authority, dismissal after a hearing, ejection, and/or arrest by the civil authorities, and, for engaging in any manner in conduct prohibited under substantive rule 10, may, in the alternative, be required to participate satisfactorily in an appropriately licensed drug treatment or rehabilitation program. A tenured or non-tenured faculty member, or other member of the instructional staff, or member of the classified staff charged with engaging in any manner in conduct prohibited under substantive Rules 1-11 shall be entitled to be treated in accordance with applicable provisions of the Education Law, or the Civil Service Law, or the applicable collective bargaining agreement, or the Bylaws or written policies of The City University of New York.

3. Any visitor, licensee, or invitee, engaging in any manner in conduct prohibited under substantive Rule 1-11 shall be subject to ejection, and/or arrest by the civil authorities.

4. Any organization which authorized the conduct prohibited under substantive rules 1-11 shall have its permission to operate on campus rescinded.

Penalties 1-4 shall be in addition to any other penalty provided by law or The City University Trustees.

Sanctions Defined:

A. Admonition.

An oral statement to the offender that he/she has violated university rules.

B. Warning.

Notice to the offender, orally or in writing, that continuation or repetition of the wrongful conduct, within a period of time stated in the warning, may cause far more severe disciplinary action.

C. Censure.

Written reprimand for violation of specified regulation, including the possibility of more severe disciplinary sanction in the event of conviction for the violation of any University regulation within a period stated in the letter of reprimand.

D. Disciplinary Probation.

Exclusion from participation in privileges or extracurricular University activities as set forth in the notice of disciplinary probation for a specified period of time.

E. Restitution.

Reimbursement for damage to or misappropriation of property. Reimbursement may take the form of appropriate service repair or otherwise compensate for damages.

F. Suspension.

Exclusion from classes and other privileges or activities as set forth in the notice of suspension for a definite period of time.

G. Expulsion.

Termination of student status for an indefinite period. The conditions of readmission, if any is permitted, shall be stated in the order of expulsion.

H. Complaint to Civil Authorities.

I. Ejection.

APPENDIX B.2

Article XV – Students

Section 15.0. Preamble.

Academic institutions exist for the transmission of knowledge, the pursuit of truth, the development of students, and the general well-being of society. Student participation, responsibility, academic freedom, and due process are essential to the operation of the academic enterprise. As members of the academic community, students should be encouraged to develop the capacity for critical judgment and to engage in a sustained and independent search for truth.

Freedom to learn and to explore major social, political, and economic issues are necessary adjuncts to student academic freedom, as is freedom from discrimination based on racial, ethnic, religious, sex, political, and economic differentiations.

Freedom to learn and freedom to teach are inseparable facets of academic freedom. The concomitant of this freedom is responsibility. If members of the academic community are

to develop positively in their freedom; if these rights are to be secure, then students should exercise their freedom with responsibility.

Section 15.1. Conduct Standard Defined.

Each student enrolled or in attendance in any college, school or unit under the control of the board and every student organization, association, publication, club or chapter shall obey the laws of the city, state and nation, and the bylaws and resolutions of the board, and the policies, regulations, and orders of the college.

The faculty and the student body at each college shall share equally the responsibility and the power to establish, subject to the approval of the board, more detailed rules of conduct and regulations in conformity with the general requirement of this article.

This regulatory power is limited to the right of students to the freedoms of speech, press, assembly and petition as applied to others in the academic community and to citizens generally.

Section 15.2. Student Organizations

A. Any group of students may form an organization, association, club or chapter by filing with the duly elected student government organization of the college or school at which they are enrolled or in attendance and with an officer to be designated by the faculty of the college or school at which they are enrolled or in attendance (1) the name and the purposes of the organization, association, club or chapter, (2) the names and the addresses of its president and secretary or other officers corresponding in function to president and secretary.

However, no group, organization or student publication with a program against the religion, race, ethnic origin or identification or sex of a particular group or which makes systematic attacks against the religion, race, ethnic origin or sex of a particular group shall receive support from any fees collected by the college or be permitted to organize or continue at any college or school. No organizations,

military or semi-military in character, not connected with established college or school courses, shall be permitted without the authorization of the faculty and the duly elected student government and the board.

B. Extra-curricular activities at each college or school shall be regulated by the duly elected student government organization to insure the effective conduct of such college or school as an institution of higher learning and for the prevention of activities which are hereafter proscribed or which violate the standards of conduct of the character set forth in bylaw 15.1. Such powers shall include:

1. The power to charter or otherwise authorize teams (excluding intercollegiate athletics), publications, organizations, associations, clubs or chapters, and, when appropriate in the exercise of such regulatory power, the power to refuse, suspend or revoke any charter or other authorization for cause after hearing on notice.

2. The power to delegate responsibility for the effective implementation of its regulatory functions hereunder to any officer or committee which it may appoint. Any aggrieved student or group whose charter or other authorization has been refused, suspended or revoked may appeal such adverse action by such officer or committee of student government to the duly elected student government. On appeal an aggrieved student or group shall be entitled to a hearing following the due process procedures as set forth in section 15.3. Following such hearing the duly elected student government shall have the authority to set aside, decrease or confirm the adverse action.

C. Any person or organization affiliated with the college may file charges with an office of the dean of students** alleging that a student publication has systematically attacked the religion, race, ethnic origin, or sex of a particular group, or has otherwise contravened the laws of the city, state

or nation, or any bylaw or resolution of the board, or any policy, regulation or order of the college, within a reasonable period of time after such occurrence. If the dean of students determines, after making such inquiries as he/she may deem appropriate, that the charges are substantial, he/she shall attempt to resolve the dispute, failing which he/she shall promptly submit the charges to the faculty-student disciplinary committee for disposition in accordance with the due process procedures of section 15.3. thereof.

If the committee sustains the charges or any part thereof against the student publication, the committee shall be empowered to (1) reprimand the publication, or (2) recommend to the appropriate funding bodies the withdrawal of budget funds. The funding body shall have the authority to implement fully, modify or overrule the recommendations.

D. Each college shall establish a student elections review committee in consultation with the various student governments. The student elections review committee shall approve the election procedures and certify the results of elections for student governments, and student body referenda.

E. Student government elections shall be scheduled and conducted, and newly elected student governments shall take office, in accordance with policies of the board, and implementing regulations.

Section 15.3. Student Disciplinary Procedures.

Complaint Procedures:

A. Any charge, accusation, or allegation which is to be presented against a student, and, which if proved, may subject a student to disciplinary action, must be submitted in writing in complete detail to the office of the dean of students promptly by the individual, organization or department making the charge.

B. The chief student affairs officer of the college or his or her designee will conduct a preliminary investigation in order to determine whether

disciplinary charges should be preferred. The chief student affairs officer or his or her designee will advise the student of the charge(s) against him or her, consult with other parties who may be involved or who have information regarding the incident, and review other relevant evidence. Following this preliminary investigation, which shall be concluded within thirty (30) calendar days of the filing of the complaint, the chief student affairs officer or designee shall take one of the following actions:

1. Dismiss the matter if there is no basis for the allegation(s) or the allegation(s) does not warrant disciplinary actions. The individuals involved shall be notified that the complaint has been dismissed;
2. Refer the matter to conciliation. If a matter is referred to conciliation the accused student shall receive a copy of the notice required pursuant to section 15.3.e. of this bylaw; or prefer formal disciplinary charges.
3. Prefer formal disciplinary charges.

Conciliation Conference:

C. The conciliation conference shall be conducted by the counselor in the office of the dean of students or a qualified staff or faculty member designated by the chief student affairs officer. The following procedures shall be in effect at this conference:

1. An effort will be made to resolve the matter by mutual agreement.
2. If an agreement is reached, the counselor shall report his/her recommendation to the chief student affairs officer for approval and, if approved, the complainant shall be notified.
3. If no agreement is reached, or if the student fails to appear, the counselor shall refer the matter back to the chief student affairs officer who will prefer disciplinary charges.
4. The counselor is precluded from testifying in a college hearing

regarding information received during the conciliation conference.

Notice of Hearing and Charges:

D. Notice of the charge(s) and of the time and place of the hearing shall be personally delivered or sent by the chief student affairs officer of the college to the student at the address appearing on the records of the college, by registered or certified mail and by regular mail. The hearing shall be scheduled within a reasonable time following the filing of the charges or the conciliation conference. Notice of at least five business days shall be given to the student in advance of the hearing unless the student consents to an earlier hearing.

E. The notice shall contain the following:

1. A complete and itemized statement of the charge(s) being brought against the student including the rule, bylaw or regulation he/she is charged with violating, and the possible penalties for such violation.
2. A statement that the student has the following rights:
 - to present his/her side of the story;
 - to present witnesses and evidence on his/her behalf;
 - to cross-examine witnesses presenting evidence against the student;
 - to remain silent without assumption of guilt; and
 - to be represented by legal counsel or an advisor at the student's expense.

A warning that anything the student says may be used against him/her at a non-college hearing.

Faculty-Student Disciplinary Committee Procedures:

F. The following procedures shall apply at the hearing before the faculty-student disciplinary committee:

1. The chairperson shall preside at the hearing. The chairperson shall inform the student of the charges,

the hearing procedures and his or her rights.

2. After informing the student of the charges, the hearing procedures, and his or her rights, the chairperson shall ask the student charged to plead guilty or not guilty. If the student pleads guilty, the student shall be given an opportunity to explain his/her actions before the committee. If the student pleads not guilty, the college shall present its case. At the conclusion of the college's case, the student may move to dismiss the charges. If the motion is denied by the committee the student shall be given an opportunity to present his or her defense.

3. Prior to accepting testimony at the hearing, the chairperson shall rule on any motions questioning the impartiality of any committee member or the adequacy of the notice of the charge(s). Subsequent thereto, the chairperson may only rule on the sufficiency of the evidence and may exclude irrelevant, immaterial or unduly repetitive evidence. However, if either party wishes to question the impartiality of a committee member on the basis of evidence which was not previously available at the inception of the hearing, the chairperson may rule on such a motion. The chairperson shall exclude all persons who are to appear as witnesses, except the accused student.

4. The college shall make a record of each fact-finding hearing by some means such as a stenographic transcript, a tape recording or the equivalent. A disciplined student is entitled upon request to a copy of such a transcript, tape or the equivalent without cost.

5. The student is entitled to a closed hearing but has the right to request an open public hearing. However, the chairperson has the right to hold a closed hearing when an open public hearing would adversely affect and be disrupt-

tive of the committee's normal operations.

6. The college bears the burden of proving the charge(s) by a preponderance of the evidence.

7. The role of the faculty-student disciplinary committee is to listen to the testimony, ask questions of the witnesses, review the testimony and evidence presented at the hearing and the papers filed by the parties and render a determination as to guilt or innocence. In the event the student is found guilty, the committee shall then determine the penalty to be imposed.

8. At the end of the fact-finding phase of the hearing, the student may introduce additional records, such as character references. The college may introduce a copy of the student's previous disciplinary record, where applicable, provided the student was shown a copy of the record prior to the commencement of the hearing. The disciplinary record shall be submitted to the committee in a sealed envelope and shall not be opened until after the committee has made its findings of fact. In the event the student has been determined to be guilty of the charge or charges the records and documents introduced by the student and the college shall be opened and used by the committee for dispositional purposes, i.e., to determine an appropriate penalty if the charges are sustained.

9. The committee shall deliberate in closed session. The committee's decision shall be based solely on the testimony and evidence presented at the hearing and the papers filed by the parties.

10. The student shall be sent a copy of the faculty-student disciplinary committee's decision within five days of the conclusion of the hearing. The decision shall be final subject to the student's right of appeal.

11. Where a student is represented by legal counsel the president of the college may request that a lawyer from the general counsel's office appear at the hearing to present the college's case.

Section 15.4. Appeals.

A. An appeal from the decision of the faculty-student disciplinary committee may be made to the president who may confirm or decrease the penalty but not increase it. His/her decision shall be final except in the case of dismissals or suspension for more than one term. An appeal from a decision of dismissal or suspension for more than one term may be made to the appropriate committee of the board. Any appeal under this section shall be made in writing within fifteen days after the delivery of the decision appealed from. This requirement may be waived in a particular case for good cause by the president or board committees as the case may be. If the president is a party to the dispute, his/her functions with respect to an appeal shall be discharged by an official of the university to be appointed by the chancellor.

Section 15.5. Committee Structure.

A. Each faculty-student disciplinary committee shall consist of two faculty members and two student members and a chairperson. A quorum shall consist of the chair and any two members. Hearings shall be scheduled at a convenient time and efforts shall be made to insure full students and faculty representation.

B. The president shall select in consultation with the head of the appropriate campus governance body or where the president is the head of the governance body, its executive committee, three (3) members of the instructional staff of that college to receive training and to serve in rotation as chair of the disciplinary committee. If none of the chairpersons appointed from the campus can serve, the president, at his/her discretion, may request that a chairperson be selected by lottery from the entire group of chairpersons appointed by other colleges. The chairperson shall preside

at all meetings of the faculty-student disciplinary meetings and decide and make all rulings for the committee. He/she shall not be a voting member of the committee but shall vote in the event of a tie.

C. The faculty members shall be selected by lot from a panel of six elected annually by the appropriate faculty body from among the persons having faculty rank or faculty status. The student members shall be selected by lot from a panel of six elected annually in an election in which all students registered at the college shall be eligible to vote. In the event that the student or faculty panel or both are not elected, or if more panel members are needed, the president shall have the duty to select the panel or panels which have not been elected. No individuals on the panel shall serve on the panel for more than two consecutive years.

D. In the event that the chairperson cannot continue, the president shall appoint another chairperson. In the event that a student or faculty seat becomes vacant and it is necessary to fill the seat to continue the hearing, the seat shall be filled from the faculty or student panel by lottery.

E. Persons who are to be participants in the hearings as witnesses or have been involved in preferring the charges or who may participate in the appeals procedures or any other having a direct interest in the outcome of the hearing shall be disqualified from serving on the committee.

Section 15.6. Suspension or Dismissal.

The board reserves full power to dismiss or suspend a student, or suspend a student organization for conduct which impedes, obstructs, or interferes with the orderly and continuous administration and operation of any college, school, or unit of the university in the use of its facilities or in the achievement of its purposes as an educational institution.

The chancellor or chancellor's designee, a president or any dean may in an emergency or extraordinary circumstances, temporarily suspend a

student, or temporarily suspend the privileges of a student organization or group for cause, pending an early hearing as provided in bylaw section 15.3. to take place within not more than seven (7) school days. Prior to the commencement of a temporary suspension of a student, the college shall give such student an informal oral explanation of the evidence supporting the charges and the student may present informally his/her explanation or theory of the matter. When a student's presence poses a continuing danger to person or property or an ongoing threat of disrupting the academic process, notice and opportunity for denial and explanation may follow suspension, but shall be given as soon as feasible thereafter.

Section 15.7. The University Student Senate.

There shall be a university student senate responsible, subject to the board, for formulation of university-wide student policy relating to the academic status, role, rights and freedoms of the students. The authority and duties of the university student senate shall not extend to areas of interest which fall exclusively within the domain of the student governments of the constituent units of the university. Consistent with the authority of the board of trustees in accordance with the education law and the bylaws of the board of trustees, the university student senate shall make its own bylaws providing for the election of its own officers, the establishment of its own rules and procedures, for its internal administration and for such other matters as is necessary for its existence. The university student senate shall have the full rights and responsibilities accorded student organizations as provided in these bylaws. The delegates and alternate delegates to the university student senate shall be elected by their respective constituencies, or by their student governments from the elected members of the respective student governments.

Section 15.8. College Plans.

The provisions in a duly adopted college governance plan shall not be inconsistent with the provisions contained in this article.

APPENDIX B.3

CUNY Policy on Academic Integrity

Academic Dishonesty is prohibited in The City University of New York and is punishable by penalties, including failing grades, and expulsion, as provided herein.

Definitions and Examples of Academic Dishonesty

Cheating is the unauthorized use or attempted use of material, information, notes, study aids, devices or communication during academic exercise.

- The following are some examples of cheating, but by no means is it an exhaustive list:
- Copying from another student during an examination or allowing another to copy your work.
- Unauthorized collaboration on a take home assignment or examination.
- Using notes during a closed book examination.
- Taking an examination for another student, or asking or allowing another student to take an examination for you.
- Changing a graded exam and returning it for more credit.
- Submitting substantial portions of the same paper to more than one course without consulting with each instructor.
- Preparing answers or writing notes in a blue book (exam booklet) before an examination.
- Allowing others to research and write assigned papers or do assigned projects, including use of commercial term paper services.
- Giving assistance to acts of academic misconduct/dishonesty.
- Fabricating data (all or in part).
- Submitting someone else's work as your own.

- Unauthorized use during an examination of any electronic devices such as cell phones, palm pilots, computers or other technologies to retrieve or send information.

Plagiarism is the act of presenting another person's ideas, research or writings as your own. The following are some examples of plagiarism, but by no means is it an exhaustive list:

- Copying another person's actual words without the use of quotation marks and footnotes attributing the words to their source.
- Presenting another person's ideas or theories in your own words without acknowledging the source.
- Using information that is not common knowledge without acknowledging the source.
- Failing to acknowledge collaborators on homework and laboratory assignments.
- Internet Plagiarism includes submitting downloaded term papers or parts of term papers, paraphrasing or copying information from the internet without citing the source, and "cutting and pasting" from various sources without proper attribution.
- Obtaining Unfair Advantage is any activity that intentionally or unintentionally gives the student an unfair advantage in his/her academic work over another student.

The following are some samples of obtaining an unfair advantage but by no means is it an exhaustive list:

- Stealing, reproducing, circulating, or otherwise gaining advance access to examination materials.
- Depriving other students of access to library materials by stealing, destroying, defacing, or concealing them.
- Retaining, using or circulating examination materials which clearly indicate that they should be returned at the end of the exam.
- Intentionally obstructing or interfering with another students' work.
- Falsification of Records and Official Documents

The following are some examples of falsification, but by no means is it an exhaustive list:

- Forging signatures of authorization.
- Falsifying information on an official academic record.
- Falsifying information on an official document such as a grade report, letter of permission, drop/add form, ID card, or other college documents.

Faculty Senate of the City College Procedures to Address Violations of the CUNY Policy on Academic Integrity

WHEREAS the College must develop a range of procedures to implement the University's Academic Integrity Policy, and

WHEREAS the College's Office of Academic Standards and the Faculty Senate's Education Policy Committee have collaborated to develop faculty procedures to address violations of the CUNY Policy on Academic Integrity, therefore

BE IT RESOLVED THAT the Faculty Senate endorses the procedures specified below.

Faculty Procedures to Address Violations of the CUNY Policy on Academic Integrity

A. Informal Resolution Procedure

When a faculty member suspects there has been a violation of academic policy. He/she should meet with the students to discuss the matter.

If the student does not deny the charge and agrees to an informal penalty, the instructor may impose an academic sanction.

It is strongly recommended that the faculty member file a faculty report form with the office of the Academic Integrity Official (AIO) in NA 5/216 within 15 business days of the incident. The office of the AIO will provide the student with a copy and maintain a record of the incident.

B. Formal Resolution Procedure

When a faculty member suspects there has been a violation of academic

policy, he/she should meet with the student to discuss the matter.

If the student denies the charge, and the faculty member seeks an academic and/or disciplinary sanction, the faculty member must file a faculty report form within fifteen days to the AIO in NA 5/216. The office of the AIO will provide the student with a copy.

While the case is under review by the AIO, the faculty member shall not assign a permanent grade, whether for the particular assignment(s) in question or for the course as a whole.

For the purpose of reporting grades to the Registrar, the faculty member shall use the grade of PEN until the case is resolved by the AIO.

The AIO will promptly inform the faculty member and the student when the case is resolved.

C. The Academic Integrity Office

In cases requiring a formal resolution, the AIO will review all original and relevant documentation submitted by the faculty member and will contact the student regarding the charges and request a written appeal from the student. The AIO will make every attempt to resolve the case prior to further referral. If there is no mutually acceptable resolution, the responsibility of the review will be forwarded to the Academic Integrity Committee or, if disciplinary sanctions are sought, to the Faculty Student Disciplinary Committee.

Resolution Passed: December 16, 2004

APPENDIX B.4

The City College University of New York Policy on Acceptable Use of Computer Resources

Introduction

City College's computer resources are dedicated to the support of the university's mission of education, research and public service. In furtherance of this mission, City College respects, upholds and endeavors to safeguard the principles of academic freedom, freedom of expression and freedom of inquiry.

City College recognizes that there is a concern among the university

community that because information created, used, transmitted or stored in electronic form is by its nature susceptible to disclosure, invasion, loss, and similar risks, electronic communications and transactions will be particularly vulnerable to infringements of academic freedom. City College's commitment to the principles of academic freedom and freedom of expression includes electronic information. Therefore, whenever possible, City College will resolve doubts about the need to access City College computer resources in favor of a user's privacy interest.

However, the use of City College computer resources, including for electronic transactions and communications, like the use of other university-provided resources and activities, is subject to the requirements of legal and ethical behavior. This policy is intended to support the free exchange of ideas among members of the City College community and between the City College community and other communities, while recognizing the responsibilities and limitations associated with such exchange.

Applicability

This policy applies to all users of City College computer resources, whether affiliated with City College or not, and whether accessing those resources on a City College campus or remotely.

This policy supersedes the City College policy titled "City College Computer User Responsibilities" and any college policies that are inconsistent with this policy.

Definitions

"City College Computer resources" refers to all computer and information technology hardware, software, data, access and other resources owned, operated, or contracted by City College. This includes, but is not limited to, personal computers, handheld devices, workstations, mainframes, minicomputers, servers, network facilities, databases, memory, and associated peripherals and software, and the applications they support, such as e-mail and access to the internet.

“E-mail” includes point-to-point messages, postings to newsgroups and listservs, and other electronic messages involving computers and computer networks.

Rules for Use of City College Computer Resources

1. Authorization. Users may not access a City College computer resource without authorization or use it for purposes beyond the scope of authorization. This includes attempting to circumvent City College computer resource system protection facilities by hacking, cracking or similar activities, accessing or using another person’s computer account, and allowing another person to access or use the user’s account. This provision shall not prevent a user from authorizing a colleague or clerical assistant to access information under the user’s account on the user’s behalf while away from a City College campus or because of a disability. City College computer resources may not be used to gain unauthorized access to another computer system within or outside of City College. Users are responsible for all actions performed from their computer account that they permitted or failed to prevent by taking ordinary security precautions.

2. Purpose. Use of City College computer resources is limited to activities relating to the performance by City College employees of their duties and responsibilities. For example, use of City College computer resources for private commercial or not-for-profit business purposes, for private advertising of products or services, or for any activity meant solely to foster personal gain, is prohibited. Similarly, use of City College computer resources for partisan political activity is also prohibited.

Except with respect to City College employees other than faculty, where a supervisor has prohibited it in writing, incidental personal use of computer resources is permitted so long as such use does not interfere with City College operations, does not compromise the functioning of City College computer resources, does not interfere

with the user’s employment or other obligations to City College, and is otherwise in compliance with this policy.

3. Compliance with Law. City College computer resources may not be used for any purpose or in any manner that violates City College rules, regulations or policies, or federal, state or local law. Users who engage in electronic communications with persons in other states or countries or on other systems or networks may also be subject to the laws of those other states and countries, and the rules and policies of those other systems and networks. Users are responsible for ascertaining, understanding, and complying with the laws, rules, policies, contracts, and licenses applicable to their particular use.

Examples of applicable federal and state laws include the laws of libel, obscenity and child pornography, as well as the following:

- Family Educational Rights and Privacy Act
- Electronic Communications Privacy Act
- Computer Fraud and Abuse Act
- New York State Freedom of Information Law
- New York State Law with respect to the confidentiality of library records

Examples of applicable City College rules and policies include the following:

- Sexual Harassment Policy
- Policy on Maintenance of Public Order
- Web Site Privacy Policy
- Gramm-Leach-Bliley Information Security Program
- University Policy on Academic Integrity
- Information Security policies

4. Licenses and Intellectual Property. Users of City College computer resources may use only legally obtained, licensed data or software and must comply with applicable licenses or other contracts, as well

as copyright, trademark and other intellectual property laws.

Much of what appears on the internet and/or is distributed via electronic communication is protected by copyright law, regardless of whether the copyright is expressly noted. Users of City College computer resources should generally assume that material is copyrighted unless they know otherwise, and not copy, download or distribute copyrighted material without permission unless the use does not exceed fair use as defined by the federal Copyright Act of 1976. Protected material may include, among other things, text, photographs, audio, video, graphic illustrations, and computer software.

5. False Identity and Harassment.

Users of City College computer resources may not employ a false identity, mask the identity of an account or computer, or use computer resources to engage in abuse of others, such as sending harassing, obscene, threatening, abusive, deceptive, or anonymous messages within or outside City College.

6. Confidentiality. Users of City College computer resources may not invade the privacy of others by, among other things, viewing, copying, modifying or destroying data or programs belonging to or containing personal or confidential information about others, without explicit permission to do so. City College employees must take precautions to protect the confidentiality of personal or confidential information encountered in the performance of their duties or otherwise.

7. Integrity of Computer Resources.

Users may not install, use or develop programs intended to infiltrate or damage a computer resource, or which could reasonably be expected to cause, directly or indirectly, excessive strain on any computing facility. This includes, but is not limited to, programs known as computer viruses, Trojan horses, and worms.

8. Disruptive Activities. City College computer resources must not be used in a manner that could reasonably be

expected to cause or does cause, directly or indirectly, unwarranted or unsolicited interference with the activity of other users. This provision explicitly prohibits chain letters, virus hoaxes or other intentional e-mail transmissions that disrupt normal e-mail service. Also prohibited are spamming, junk mail or other unsolicited mail that is not related to City College business and is sent without a reasonable expectation that the recipient would welcome receiving it, as well as the inclusion on e-mail lists of individuals who have not requested membership on the lists, other than the inclusion of members of the City College community on lists related to City College business. City College has the right to require users of City College computer resources to limit or refrain from other specific uses if, in the opinion of the IT director at the user's college, such use interferes with efficient operations of the system, subject to appeal to the President or, in the case of central office staff, to the Chancellor.

9. City College Names and Trademarks.

Trademarks. City College names, trademarks and logos belong to the university and are protected by law. Users of City College computer resources may not state or imply that they speak on behalf of City College or use a City College name, trademark or logo without authorization to do so. Affiliation with City College does not, by itself, imply authorization to speak on behalf of City College.

10. Security. City College employs various measures to protect the security of its computer resources and of users' accounts. However, City College cannot guarantee such security. Users are responsible for engaging in safe computing practices such as guarding and not sharing their passwords, changing passwords regularly, logging out of systems at the end of use, and protecting private information, as well as for following City College's Information Security policies and procedures. Users must report incidents of Information Security policy non-compliance or other security incidents to City College's

Chief Information Officer and Chief Information Security Officer.

11. Filtering. City College reserves the right to install spam, virus and spyware filters and similar devices if necessary in the judgment of City College's Office of Information Technology or a college IT director to protect the security and integrity of City College computer resources. Notwithstanding the foregoing, City College will not install filters that restrict access to e-mail, instant messaging, chat rooms or websites based solely on content.

12. Confidential Research

Information. Principal investigators and others who use City College computer resources to store or transmit research information that is required by law or regulation to be held confidential or for which a promise of confidentiality has been given, are responsible for taking steps to protect confidential research information from unauthorized access or modification. In general, this means storing the information on a computer that provides strong access controls (passwords) and encrypting files, documents, and messages for protection against inadvertent or unauthorized disclosure while in storage or in transit over data networks. Robust encryption is strongly recommended for information stored electronically on all computers, especially portable devices such as notebook computers, Personal Digital Assistants (PDAs), and portable data storage (e.g., memory sticks) that are vulnerable to theft or loss, as well as for information transmitted over public networks. Software and protocols used should be reviewed and approved by City College's Office of Information Technology.

13. City College Access to Computer Resources.

City College does not routinely monitor, inspect, or disclose individual usage of its computer resources without the user's consent. In most instances, if the university needs information located in a City College computer resource, it will simply request it from the author or custodian. However, City College IT professionals

and staff do regularly monitor general usage patterns as part of normal system operations and maintenance and might, in connection with these duties, observe the contents of web sites, e-mail or other electronic communications. Except as provided in this policy or by law, these individuals are not permitted to seek out contents or transactional information, or disclose or otherwise use what they have observed. Nevertheless, because of the inherent vulnerability of computer technology to unauthorized intrusions, users have no guarantee of privacy during any use of City College computer resources or in any data in them, whether or not a password or other entry identification or encryption is used. Users may expect that the privacy of their electronic communications and of any materials contained in computer storage in any City College electronic device dedicated to their use will not be intruded upon by City College except as outlined in this policy.

City College may specifically monitor or inspect the activity and accounts of individual users of City College computer resources, including individual login sessions, e-mail and other communications, without notice, in the following circumstances:

- a. when the user has voluntarily made them accessible to the public, as by posting to Usenet or a web page;
- b. when it is reasonably necessary to do so to protect the integrity, security, or functionality of City College or other computer resources, as determined by the college chief information officer or his or her designee, after consultation with City College's chief information officer or his or her designee;
- c. when it is reasonably necessary to diagnose and resolve technical problems involving system hardware, software, or communications, as determined by the college chief information officer or his or her designee, after consultation with City College's chief information officer or his or her designee;
- d. when it is reasonably necessary to protect City College from liability, or

when failure to act might result in significant bodily harm, significant property loss or damage, or loss of significant evidence, as determined by the college president or a vice president designated by the president, after consultation with the Office of General Counsel and the Chair of the University Faculty Senate (if a City College faculty member's account or activity is involved) or Vice Chair if the Chair is unavailable;

e. when there is a reasonable basis to believe that City College policy or federal, state or local law has been or is being violated, as determined by the college president or a vice president designated by the president, after consultation with the Office of General Counsel and the Chair of the University Faculty Senate (if a City College faculty member's account or activity is involved) or Vice Chair if the Chair is unavailable;

f. when an account appears to be engaged in unusual or unusually excessive activity, as indicated by the monitoring of general activity and usage patterns, as determined by the college president or a vice president designated by the president and the college chief information officer or his or her designee, after consultation with City College's chief information officer or his or her designee, the Office of General Counsel, and the Chair of the University Faculty Senate (if a City College faculty member's account or activity is involved) or Vice Chair if the Chair is unavailable; or

g. as otherwise required by law.

In those situations in which the Chair of the University Faculty Senate is to be consulted prior to monitoring or inspecting an account or activity, the following procedures shall apply: (i) the college president shall report the completion of the monitoring or inspection to the Chair and the City College employee affected, who shall also be told the reason for the monitoring or inspection, except where specifically forbidden by law; and (ii) if the monitoring or inspection of an account or activity requires physical

entry into a faculty member's office, the faculty member shall be advised prior thereto and shall be permitted to be present to observe, except where specifically forbidden by law.

A City College employee may apply to the General Counsel for an exemption from some or all of the circumstances under which City College may inspect and monitor computer resource activity and accounts, pursuant to subparagraphs (a)-(f) above, with respect to a City College computer resource used solely for the collection, examination, analysis, transmission or storage of confidential research data. In considering such application, the General Counsel shall have the right to require the employee to affirm in writing that the computer resource will be used solely for the confidential research. Any application for exemption should be made prior to using the computer resource for the confidential research.

City College, in its discretion, may disclose the results of any general or individual monitoring or inspection to appropriate City College personnel or agents, or law enforcement or other agencies. The results may be used in college disciplinary proceedings, discovery proceedings in legal actions, or otherwise as is necessary to protect the interests of the college.

In addition, users should be aware that City College may be required to disclose to the public under the New York State Freedom of Information Law communications made by means of City College computer resources in conjunction with college business.

Any disclosures of activity of accounts of individual users to persons or entities outside of City College, whether discretionary or required by law, shall be approved by the General Counsel and shall be conducted in accordance with any applicable law. Except where specifically forbidden by law, City College employees subject to such disclosures shall be informed promptly after the disclosure of the actions taken and the reasons for them.

The Office of General Counsel shall issue an annual statement of the instances of account monitoring or inspection that fall within categories (d) through (g) above. The statement shall indicate the number of such instances and the cause and result of each. No personally identifiable data shall be included in this statement. See City College's Web Site Privacy Policy for additional information regarding data collected by City College from visitors to the City College website at www.cuny.cuny.edu

14. Enforcement. Violation of this policy may result in suspension or termination of an individual's right of access to City College computer resources, disciplinary action by appropriate City College authorities, referral to law enforcement authorities for criminal prosecution, or other legal action, including action to recover civil damages and penalties.

Violations will normally be handled through the college disciplinary procedures applicable to the relevant user. For example, alleged violations by students will normally be investigated, and any penalties or other discipline will normally be imposed, by the Office of Student Affairs.

City College has the right to temporarily suspend computer use privileges and to remove from City College computer resources material it believes violates this policy, pending the outcome of an investigation of misuse or finding of violation.

15. Additional Rules. Additional rules, policies, guidelines and/or restrictions may be in effect for specific computers, systems, or networks, or at specific computer facilities at the discretion of the directors of those facilities. Any such rules which potentially limit the privacy or confidentiality of electronic communications or information contained in or delivered by or over City College computer resources will be subject to the substantive and procedural safeguards provided by this policy.

16. Disclaimer. City College shall not be responsible for any damages,

costs or other liabilities of any nature whatsoever with regard to the use of City College computer resources. This includes, but is not limited to, damages caused by unauthorized access to City College computer resources, data loss, or other damages resulting from delays, non-deliveries, or service interruptions, whether or not resulting from circumstances under the City College's control.

Users receive and use information obtained through City College computer resources at their own risk. City College makes no warranties (expressed or implied) with respect to the use of City College computer resources. City College accepts no responsibility for the content of web pages or graphics that are linked from City College web pages, for any advice or information received by a user through use of City College computer resources, or for any costs or charges incurred by a user as a result of seeking or accepting such advice or information.

City College reserves the right to change this policy and other related policies at any time. City College reserves any rights and remedies that it may have under any applicable law, rule or regulation. Nothing contained in this policy will in any way act as a waiver of such rights and remedies.

Last Updated: 7/25/07

APPENDIX B.5

Workplace Violence Policy and Procedures

The City University of New York has a long-standing commitment to promoting a safe and secure academic and work environment that promotes the achievement of its mission of teaching, research, scholarship and service. All members of the University community—students, faculty and staff—are expected to maintain a working and learning environment free from violence, threats of harassment, violence, intimidation or coercion. While these behaviors are not prevalent at the University, no organization is immune.

The purpose of this policy is to address the issue of potential workplace violence in our community, prevent

workplace violence from occurring to the fullest extent possible, and set forth procedures to be followed when such violence has occurred.

Policy

The City University of New York prohibits workplace violence. Violence, threats of violence, intimidation, harassment, coercion, or other threatening behavior towards people or property will not be tolerated. Complaints involving workplace violence will not be ignored and will be given the serious attention they deserve. Individuals who violate this policy may be removed from University property and are subject to disciplinary and/or personnel action up to and including termination, consistent with University policies, rules and collective bargaining agreements, and/or referral to law enforcement authorities for criminal prosecution. Complaints of sexual harassment are covered under the University's Policy Against Sexual Harassment.

The University, at the request of an employee or student, or at its own discretion, may prohibit members of the public, including family members, from seeing an employee or student on University property unless necessary to transact University-related business. This policy particularly applies in cases where the employee or student suspects that an act of violence will result from an encounter with said individual(s).

Scope

All faculty, staff, students, vendors, contractors, consultants, and others who do business with the University, whether in a University facility or off-campus location where University business is conducted, are covered by this policy. This policy also applies to other persons not affiliated with the University, such as former employees, former students, and visitors. When students have complaints about other students, they should contact the Office of Student Affairs at their campus.

Definitions

Workplace violence is any behavior that is violent, threatens violence, coerces, harasses or intimidates others, interferes with an individual's legal rights of movement or expression, or disrupts the workplace, the academic environment, or the University's ability to provide services to the public. Examples of workplace violence include, but are not limited to:

1. Disruptive behavior intended to disturb, interfere with or prevent normal work activities (such as yelling, using profanity, verbally abusing others, or waving arms and fists).
2. Intentional physical contact for the purpose of causing harm (such as slapping, stabbing, punching, striking, shoving, or other physical attack).
3. Menacing or threatening behavior (such as throwing objects, pounding on a desk or door, damaging property, stalking, or otherwise acting aggressively; or making oral or written statements specifically intended to frighten, coerce, or threaten) where a reasonable person would interpret such behavior as constituting evidence of intent to cause harm to individuals or property.
4. Possessing firearms, imitation firearms, knives or other dangerous weapons, instruments or materials. No one within the University community, shall have in their possession a firearm or other dangerous weapon, instrument or material that can be used to inflict bodily harm on an individual or damage to University property without specific written authorization from the Chancellor or the college President regardless of whether the individual possesses a valid permit to carry the firearm or weapon.

Reporting of Incidents

1. General Reporting Responsibilities

Incidents of workplace violence, threats of workplace violence, or observation of workplace violence are no to be ignored by any member of the University community. Workplace violence should promptly be reported

to the appropriate University official (see below). Additionally, faculty, staff, and students are encouraged to report behavior that they reasonably believe poses a potential for workplace violence as defined above. It is important that all members of the University community take this responsibility seriously to effectively maintain a safe working and learning environment.

2. Imminent or Actual Violence

Any person experiencing or witnessing imminent danger or actual violence involving weapons or personal injury should call the Campus Public Safety Office immediately, or call 911.

3. Acts of Violence Not Involving Weapons or Injuries to Persons

Any person who is the subject of a suspected violation of this policy involving violence without weapons or personal injury, or is a witness to such suspected violation, should report the incident to his/her supervisor, or in lieu thereof, to their respective Campus Public Safety Office. Students should report such incidents to the Office of Student Affairs at their campus or in lieu thereof, their campus Public Safety Office. The Campus Public Safety Office will work with the Office of Human Resources and the supervisor or the Office of Student Affairs on an appropriate response.

4. Commission of a Crime

All individuals who believe a crime has been committed against them have the right, and are encouraged, to report the incident to the appropriate law enforcement agency.

5. False Reports

Members of the University community who make false and malicious complaints of workplace violence, as opposed to complaints which, even if erroneous, are made in good faith, will be subject to disciplinary action and/or referral to civil authorities as appropriate.

6. Incident Reports

The University will report incidents of workplace violence consistent with the College Policies for Incident Reporting

Under the Campus Security Policy and Statistical Act (Clery Act).

Confidentiality

The University shall maintain the confidentiality of investigations of workplace violence to the extent possible. The University will act on the basis of anonymous complaints where it has a reasonable basis to believe that there has been a violation of this policy and that the safety and well being of members of the University community would be served by such action.

Retaliation

Retaliation against anyone acting in good faith who has made a complaint of workplace violence, who has reported witnessing workplace violence, or who has been involved in reporting, investigating, or responding to workplace violence is a violation of this policy. Those found responsible for retaliatory action will be subject to discipline up to and including termination.

APPENDIX B.6

Notice of Access to Campus Crime Statistics, the Campus Security Report, and Information on Registered Sex Offenders

The College Advisory Committee on Campus Safety will provide upon request all campus crime statistics as reported to the U.S. Department of Education, as well as the annual campus security report. The campus security report includes: (1) the campus crime statistics for the most recent calendar year and the two preceding calendar years; (2) campus policies regarding procedures and facilities to report criminal actions or other emergencies on campus; (3) policies concerning the security of and access to campus facilities; (4) policies on campus law enforcement; (5) a description of campus programs to inform students and employees to be responsible for their own security and the security of others; (6) campus crime prevention programs; (7) policy concerning the monitoring through the police of criminal activity at off-campus locations of students

organizations officially recognized by the college; (8) policies on illegal drugs, alcohol, and underage drinking; (9) where information provided by the State on registered sex offenders may be obtained (also see below); and (10) policies on campus sexual assault programs aimed at the prevention of sex offenders and procedures to be followed when a sex offense occurs. This information is maintained pursuant to the federal Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act.

The campus crime statistics and the annual campus security report are available at the reference desk of the library and the college website at www.ccnycuny.edu/public_safety/crime_stats.html. If you wish to be mailed copies of the campus crime statistics and the annual campus security report, you should contact Paul F. Occhiogrosso, Esq., Dean of Faculty & Staff Relations and Counsel to the President; Records Access Officer at (212) 650-8276 and copies will be mailed to you within 10 days. The U.S. Department of Education's website address for campus crime statistics is www.ed.gov/security/InstDetail.asp (then input City College of New York of The City University of New York).

In accordance with the federal Campus Sex Crimes Prevention Act, registered sex offenders now are required to register the name and address of any college at which he/she is a student or employee. The New York State Division of Criminal Justice maintains a registry of convicted sex offenders and informs the college's chief security (public safety) officer of the presence on campus of a registered sex offender as a student or employee. You may contact the college's chief security officer Edward D. Diaz CPP-Director of Public Safety and Security, located in the NA building, in the 4th floor, room 201, or you may contact him at (212) 650-6911 to obtain information about Level 2 or Level 3 registered sex offenders on campus. To obtain information about Level 3 offenders, you may contact the Division's registry website at www.

criminaljustice.state.ny.us/nsor/sor_about.htm and then click on "Search for Level 3 Sex Offenders" or access the directory at the college's public safety department or police precinct. To obtain information about Level 2 offenders, you need to contact the public safety department, local police precinct in which the offender resides or attends college, or the Division's sex offender registry at 800-262-3257.

APPENDIX B.7

Article XVI – Student Activity Fees and Auxiliary Enterprises

Section 16.1. Student Activity Fee

The student activity fee is the total of the fees for student government and other student activities. Student activity fees, including student government fees collected by a college of the university shall be deposited in a college central depository and, except where earmarked by the board, allocated by a college association budget committee subject to review by the college association as required in these bylaws.

Section 16.2. Student Activity Fees Use – Expenditure Categories

Student activity fee funds shall be allocated and expended only for the following purposes:

- Extracurricular educational programs;
- Cultural and social activities;
- Recreational and athletics programs;
- Student government;
- Publications and other media;
- Assistance to registered student organizations;
- Community service programs;
- Enhancement of the college and university environment;
- Transportation, administration and insurance related to the implementation of these activities;
- Student services to supplement or add to those provided by the university;
- Stipends to student leaders.

Section 16.3 Student Government Fee

The student government fee is that portion of the student activity fee levied by resolution of the board, which has been established for the support of the student government activities. The existing student government fees now in effect shall continue until changed. Student government fees shall be allocated by the duly elected student government, or each student government where more than one duly elected student government exists, for its own use and for the use of student organizations, as specified in section 15.2 of these by laws, provided, however, that the allocation is based on a budget approved by the duly elected student government after notice and hearing, subject to review of the college association. Where more than one duly elected student government exists, the college association shall apportion the student government fees to each student government in direct proportion to the amount collected from members of each student government.

Section 16.4. Student Government Activity Defined

A student government activity is any activity operated by and for the students enrolled at any unit for the university provided, (1) such activity is for the direct benefit of the students enrolled at the college, (2) that participation in the activity and the benefit thereof is available to all students enrolled in the unit or student government thereof, and (3) that the activity does not contravene the laws of the city, state or nation, or the published rules, regulations, and orders of the university or the duly established college authorities.

Section 16.5. College Association

A. The college association shall have responsibility for the supervision and review over college student activity fee supported budgets. All budgets of college student activity fees, except where earmarked by the board to be allocated by another body, should be developed by a college association budget committee and recommended

to the college association for review by the college association prior to expenditure. The college association shall review all college students activity fee, including student government fee allocations and expenditure for conformance with the expenditure categories defined in Section 16.2 of this article and the college association shall disapprove any allocation or expenditure it finds does not so conform, or is inappropriate, improper, or inequitable.

B. A college association shall be considered approved for purposes of this article if it consists of thirteen (13) members, its governing documents are approved by the college president and the following requirements are met:

1. The governing board of the college association is composed of:
 - The college president or his/her designee as chair.
 - Three administrative members appointed by the college president.
 - Three faculty members appointed by the college president from a panel whose size is twice the number of seats to be filled and the panel is elected by the appropriate college faculty governance body.
 - Six student members comprised of the student government president(s) and other elected students with the student seats allocated on a basis which will provide representation to each government, where more than one exists, as nearly as practicable in proportion to the student activity fees provided by the students from the respective constituencies.

2. The college association structure provides a budget committee composed of members of the governing board, at least a majority of whom are students selected in accordance with section 16.5.(b) (1)(iv) of these bylaws. The budget committee shall be empowered to receive and review student activity fee budget requests and to develop

a budget subject to the review of the college association. The college association may choose to not approve the budget or portions of the budget if in their opinion such items are inappropriate, improper, or inequitable. The budget shall be returned to the budget committee with the specific concerns of the college association noted for further deliberation by the budget committee and subsequent resubmittal to the college association. If the budget is not approved within thirty (30) days those portions of the budget voted upon and approved by the college association board will be allocated. The remainder shall be held until the college association and the budget committee agree.

3. The governing documents of the college association have been reviewed by the board's general counsel and approved by the board.

Section 16.6. Management And Disbursement Of Funds

The college and all student activity fee allocating bodies shall employ generally accepted accounting and investment procedures in the management of all funds. All funds for the support of student activities are to be disbursed only in accordance with approved budgets and be based on written documentation. A requisition for disbursements of funds must contain two signatures; one, the signature of a person with responsibility for the program; the other the signature of an approved representative of the allocating body.

Section 16.7. Revenues

All revenues generated by student activities funded through student activity fees shall be placed in a college central depository subject to the control of the allocating body. The application of such revenues to the account of the income generating organization shall require the specific authorization of the allocating body.

Section 16.8. Fiscal Accountability Handbook

The chancellor or his/her designee shall promulgate regulations in a fiscal accountability handbook, to regulate all aspects of the collection, deposit, financial disclosure, accounting procedures, financial payments, documentation, contracts, travel vouchers, investments and surpluses of student activity fees and all other procedural and documentary aspects necessary, as determined by the chancellor or his/her designee to protect the integrity and accountability of all student activity fee funds.

Section 16.9. College Purposes Fund

A. A college purposes fund may be established at each college and shall be allocated by the college president. This fund may have up to twenty-five(25) percent of the unearmarked portion of the student activity fee earmarked to it by resolution of the board, upon the presentation to the board of a list of activities that may be properly funded by student activity fees that are deemed essential by the college president.

B. Expenditures from the college purposes fund shall be subject to full disclosure under section 16.13. of these bylaws.

C. Referenda of the student body with respect to the use and amount of the college purposes fund shall be permitted under the procedures and requirements of section 16.12. of these bylaws.

Section 16.10. Auxiliary Enterprise Board

A. The auxiliary enterprise board shall have responsibility for the oversight, supervision and review over college auxiliary enterprises. All budgets of auxiliary enterprise funds and all contracts for auxiliary enterprises shall be developed by the auxiliary enterprise budget and contract committee and reviewed by the auxiliary enterprise board prior to expenditure or execution.

B. The auxiliary enterprise board shall be considered approved for the purposes of this article if it consists of at

least eleven(11) members, its governing documents are approved by the college president and the following requirements are met:

1. The governing board is composed of the college president or his/her designee as chair, plus an equal number of students and the combined total of faculty and administrative members.
2. The administrative members are appointed by the college president.
3. The faculty members are appointed by the college president from a panel whose size is twice the number of seats to be filled and the panel is elected by the appropriate college faculty governance body.
4. The student members are the student government president(s) and other elected students and the student seats are allocated on a basis which will provide representation to each government, where more than one exists, as nearly as practicable, in proportion to the student enrollment by headcount from the respective constituencies.
5. The auxiliary enterprise board structure provides for a budgets and contract committee composed of a combined total of faculty and administrative members that is one more than the number of student members. The budget and contract committee shall be empowered to develop all contract and budget allocation proposals subject to the review and approval of the auxiliary enterprise board.
6. The governing documents of the auxiliary enterprise board have been reviewed by the board's general counsel and approved by the board.

Section 16.11. The Review Authority Of College Presidents Over Student Activity Fee Allocating Bodies And Auxiliary Enterprise Boards

A. The president of the college shall have the authority to disapprove any student activity fee, including student government fee, or auxiliary enterprise

allocation or expenditure, which in his or her opinion contravenes the laws of the city, state, or nation or any by-law or policy of the university or any policy, regulation, or order of the college. If the college president chooses to disapprove an allocation or expenditure, he or she shall consult with the general counsel and vice chancellor for legal affairs and thereafter communicate his or her decision to the allocating body or auxiliary enterprise board.

B. The president of the college shall have the authority to suspend and send back for further review any student activity fee, including student government fee, allocation or expenditure which in his/her opinion is not within the expenditure categories defined in section 16.2. of this article. The college association shall, within ten (10) days of receiving a proposed allocation or expenditure for further review, study it and make a recommendation to the president with respect to it. The college president shall thereafter consider the recommendation, shall consult with the general counsel and vice chancellor for legal affairs, and thereafter communicate his/her final decision to the allocating body as to whether the allocation or expenditure is disapproved.

C. The chancellor or his/her designee shall have the same review authority with respect to university student activity fees that the college president has with respect to college student activity fees.

D. All disapprovals exercised under this section shall be filed with the general counsel and vice chancellor for legal affairs.

E. Recipients of extramural student activity fees shall represent an annual report to the chancellor for the appropriate board committee detailing the activities, benefits and finances of the extramural body as they pertain to the colleges where students are paying an extramural fee.

Section 16.12. Referenda

A referendum proposing changes in the student activity fee shall be initiated by a petition of at least ten (10)

percent of the appropriate student body and voted upon in conjunction with student government elections.

A. Where a referendum seeks to earmark student activity fees for a specific purpose or organization without changing the total student activity fee, the results of the referendum shall be sent to the college association for implementation.

B. Where a referendum seeks to earmark student activity fees for a specific purpose or organization by changing the total student activity fee, the results of such a referendum shall be sent to the board by the president of the college together with his/her recommendation.

C. At the initiation of a petition of at least ten(10) percent of the appropriate student body, the college president may schedule a student referendum at a convenient time other than in conjunction with student government elections.

D. Where the referendum seeks to affect the use or amount of student activity fees in the college purposes fund, the results of the referendum shall be sent to the board by the college president together with his/her recommendation.

Section 16.13. Disclosure

A. The college president shall be responsible for the full disclosure to each of the student governments of the college of all financial information with respect to student activity fees.

B. The student governments shall be responsible for the full disclosure to their constituents of all financial information with respect to student government fees.

C. The student activity fee allocating bodies shall be responsible for the full disclosure of all financial information to its membership, to the college and to the student governments with respect to all of its activities.

D. The auxiliary enterprise board shall be responsible for the full disclosure of all financial information to its membership, to the college and to the

student governments with respect to auxiliary enterprises.

E. For purposes of the foregoing paragraphs, full disclosure shall mean the presentation each semester of written financial statements which shall include, but need not be limited to, the source of all fee income by constituency, income from other sources creditable to student activity fee accounts, disbursements, transfers, past reserves, surplus accounts, contingency and stabilization funds. Certified independent audits performed by a public auditing firm shall be conducted at least once each year.

Section 16.14. Stipends

The payment of stipends to student leaders is permitted only within those time limits and amounts authorized by the board.

APPENDIX B.8

New York State Education Law, Article 5: S 224-a. Students unable because of religious beliefs to Register or attend classes on certain days.

1. No person shall be expelled from or be refused admission as a student to an institution of higher education for the reason that he or she is unable, because of his or her religious beliefs, to register or attend classes or to participate in any examination, study or work requirements on a particular day or days.

2. Any student in an institution of higher education who is unable, because of his or her religious beliefs, to attend classes on a particular day or days shall, because of such absence on the particular day or days, be excused from any examination or any study or work requirements.

3. It shall be the responsibility of the faculty and of the administrative officials of each institution of higher education to make available to each student who is absent from school, because of his or her religious beliefs, an equivalent opportunity to register for classes or make up any examination, study or work requirements which he or she may have missed because

of such absence on any particular day or days. No fees of any kind shall be charged by the institution for making available to the said student such equivalent opportunity.

4. If registration, classes, examinations, study or work requirements are held on Friday after four o'clock post meridian or on Saturday, similar or makeup classes, examinations, study or work requirements or opportunity to register shall be made available on other days, where it is possible and practicable to do so. No special fees shall be charged to the student for these classes, examinations, study or work requirements or registration held on other days.

5. In effectuating the provisions of this section, it shall be the duty of the faculty and of the administrative officials of each institution of higher education to exercise the fullest measure of good faith. No adverse or prejudicial effects shall result to any student because of his or her availing himself or herself of the provisions of this section.

6. Any student, who is aggrieved by the alleged failure of any faculty or administrative officials to comply in good faith with the provisions of this section, shall be entitled to maintain an action or proceeding in the supreme court of the county in which such institution of higher education is located for the enforcement of his or her rights under this section.

6-a. It shall be the responsibility of the administrative officials of each institution of higher education to give written notice to students of their rights under this section, informing them that each student who is absent from school, because of his or her religious beliefs, must be given an equivalent opportunity to register for classes or make up any examination, study or work requirements which he or she may have missed because of such absence on any particular day or days. No fees of any kind shall be charged by the institution for

making available to such student such equivalent opportunity.

7. As used in this section, the term "institution of higher education" shall mean any institution of higher education, recognized and approved by the regents of the University of the State of New York, which provides a course of study leading to the granting of a post-secondary degree or diploma. Such term shall not include any institution which is operated, supervised or controlled by a church or by a religious or denominational organization whose educational programs are principally designed for the purpose of training ministers or other religious functionaries or for the purpose of propagating religious doctrines. As used in this section, the term "religious belief" shall mean beliefs associated with any corporation organized and operated exclusively for religious purposes, which is not disqualified for tax exemption under section 501 of the United States Code.

APPENDIX B.9

Notification Under FERPA of Student Rights Concerning Education Records and Directory Information

The Family Educational Rights and Privacy Act (FERPA) affords students certain rights with respect to their education records. The FERPA rights of students are:

The right to inspect and review your education records.

Students should submit to the registrar, dean, head of the academic department, or other appropriate official, written requests that identify the record(s) they wish to inspect. If the records are not maintained by the college official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.

All requests shall be granted or denied in writing within 45 days of receipt. If the request is granted, you will be notified of the time and place where the records may be inspected. If the request is denied or not responded to within the 45 days, you may appeal

to the college's FERPA appeals officer. Additional information regarding the appeal procedures will be provided to you if a request is denied.

The right to request the amendment of the student's education records that the student believes are inaccurate or misleading.

You may ask the college to amend a record that you believe is inaccurate or misleading. You should write to the college official responsible for the record, clearly identify the part of the record you want changed, and specify why it is inaccurate or misleading.

If the college decides not to amend the record as requested by you, the college will notify you of the decision and advise you of your right to a hearing before the college's FERPA appeals officer regarding the request for amendment. Additional information regarding the hearing procedures will be provided to you when notified of your right to a hearing.

The right to consent to disclosure of personally identifiable information contained in your education records, except to the extent that FERPA authorizes disclosure without consent.

One exception which permits disclosure without consent is disclosure to college officials with legitimate educational interests. A college official is a person employed by the university in an administrative, supervisory, academic or research, or support staff position; a person or company with whom the university has contracted; a person serving on the Board of Trustees; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another college official in performing his or her tasks.

A college official has a legitimate educational interest if access is reasonably necessary in order to perform his or her instructional, research, administrative or other duties and responsibilities.

Upon request, the college discloses education records without consent to officials of another college or school in which the student seeks or intends to enroll.

You may appeal the alleged denial of FERPA rights to the:

General Counsel and Vice Chancellor
for Legal Affairs
The City University of New York
535 East 80th Street
New York, NY 10021

The right to file a complaint with the U.S. Department of Education concerning alleged failures by the college to comply with the requirements of FERPA. The name and address of the Office that administers FERPA are:

Family Policy Compliance Office
U.S. Department of Education
600 Independence Avenue, SW
Washington, D.C. 20202-4605

The college will make the following "directory information" concerning current and former students available to those parties having a legitimate interest in the information: name, attendance dates (periods of enrollment), address, telephone number, date and place of birth, photograph, e-mail address, full or part-time status, enrollment status (undergraduate, graduate, etc.), level of education (credits) completed, major field of study, degree enrolled for, participation in officially recognized activities and sports, height and weight of athletic team members, previous school attended, and degrees, honors and awards received. By filing a form with the Registrar's Office, you may request that any or all of this directory information not be released without your prior written consent. This form is available in the Registrar's Office and may be filed, withdrawn, or modified at any time.

APPENDIX B.10

No. 8. A. Amendment to the Policy on Withholding Student Records

RESOLVED, That the existing Board of Trustees policy with respect to the withholding of student records as last amended on February 22, 1993, Cal. No. 7.c., be amended as follows:

Students who are delinquent and/or in default in any of their financial accounts with the college, the university or an appropriate state or federal

agency for which the university acts as either a disbursing or certifying agent, and students who have not completed exit interviews as required by the Federal Perkins Loan Program, the federal Family Education Loan Programs, the William D. Ford Federal Direct Loan Program, and the Nursing Student Loan Program, are not to be permitted to complete registration, or issued a copy of their grades, a transcript of academic record, certificate, or degree, nor are they to receive funds under the federal campus-based student assistance programs or the federal Pell Grant Program unless the designated officer, in exceptional hardship cases and consistent with federal and state regulations, waives in writing the application of this regulation.

APPENDIX B.11

Freedom of Information Law Notice

Requests to inspect public records at the college should be made to the Registrar Customer Manager, Lucian Pinckney (160 Convent Avenue, Wille Administration Building, Room 102 (212) 650-7850). Public records are available for inspection and copying by appointment only at a location to be designated. You have the right to appeal a denial of a request for access to records to the CUNY General Counsel and Vice Chancellor for Legal Affairs. Copies of the CUNY procedures for Public Access to Public Records Pursuant to Article 6 of the Public Officers Law and the appeal form are available at the reference desk of the library and the college website.

APPENDIX B.12

Special Provisions for Students in the Military

The following policies apply to students who leave CUNY to fulfill military obligations.

I. Students called up to the reserves or drafted before the end of the semester.

Grades. In order to obtain a grade, a student must attend 13 weeks (five weeks for summer session).

Refunds. A student called up to the reserves or drafted who does not attend for sufficient time to qualify for a grade is entitled to a 100% refund of tuition and all other fees except application fees.

II. Students who volunteer (enlist) for the military.

Grades. Same provision as for students called up to the reserves. In order to obtain a grade, a student must attend 13 weeks (five weeks for summer session).

Refunds. The amount of the refund depends upon whether the withdrawal is before the 5th week of classes.

Withdrawal before the beginning of the 5th calendar week (3rd calendar week for summer session): 100% refund of tuition and all other fees except application fees.

Withdrawal thereafter: 50% refund.

III. Other Provisions for Military Service:

Resident Tuition Rates. These lower rates are applicable to all members of the armed services, their spouses and their dependent children, on full-time active duty and stationed in the State of New York.

Re-enrollment of Veterans. Veterans who are returning students are given preferred treatment in the following ways:

Veterans who were former students with unsatisfactory scholastic records, may be readmitted with a probation program.

Veterans, upon their return, may register even after normal registration periods, without late fees.

Granting of college credit for military service and armed forces instructional courses.

Veterans returning too late to register may audit classes without charge.

Late Admissions. Veterans with no previous college experience are permitted to file applications up to the date of registration, and are allowed to begin classes pending completion of their application and provision of supporting documents.

Readmission Fee. Upon return from military service, a student will not be charged a Readmission Fee to register at the same college.

Veterans Tuition Deferrals. Veterans are entitled to defer the payment of tuition pending receipt of veterans' benefits.

New York National Guard Tuition Waivers. Active members of the New York National Guard, who are legal residents of New York State and who do not have a baccalaureate degree, are eligible for a tuition waiver for undergraduate study.

APPENDIX B.13

Notification of Student Immunization Requirements

Students who do not submit proof of measles, mumps and rubella (MMR) immunization or who fail to return the meningococcal meningitis response form within a statutory grace period shall be prohibited from attending the institution. For additional information, you should contact the Wellness and Counseling Center located in the Science Building (MR), Room 15, at the following number (212) 650-8222.

Public Health Law 2165 requires that post-secondary students be immunized against measles, mumps, and rubella (MMR).

All registered full-time students and part-time students born on or after January 1, 1957 who are enrolled for at least six, but fewer than twelve semester hours (or equivalent) per semester in an approved degree program or registered certificate program must submit proof of MMR immunization. Students may be exempt from the required MMR immunizations for religious or medical reasons. To qualify for a religious exception, students must submit a signed statement, or in the event the student is a minor (under 18), a signed statement from their parent or guardian, that they hold sincere and genuine religious beliefs that prohibit immunization. To qualify for medical exception, students must submit a written statement from a licensed physician or nurse practitioner

indicating that such immunization may be detrimental to their health.

Public Health Law 2167 requires that post-secondary institutions provide written information about meningococcal meningitis to its students and that students complete, sign, and return a meningococcal meningitis response form. Public Health Law 2167 does not require that students be immunized against meningitis.

Public Health Law 2167 requires colleges to distribute written information about meningococcal meningitis disease and vaccination and students to complete, sign and return to the college, a meningococcal meningitis response form that: (a) confirms that the college has provided the information about meningococcal meningitis; and (b) indicates that either: (1) the student has received immunization against meningococcal meningitis within the 10 years preceding the date of the response form; or (2) the student has decided against receiving the vaccination. This law applies to students, who are enrolled in at least six semester hours (or the equivalent) per semester. No student may be exempt from receiving information or returning the response form.

APPENDIX B.14

Policy for City College Pages on the World Wide Web WWW PAGES Published by Faculty, Staff and Students

Faculty, staff, and students may create WWW pages for use in their various academic and administrative duties and activities and may install them on City College web servers. The contents of individuals' WWW pages published on the City College web servers must comply with the General Rules on Information Content stated in this policy.

Individuals' WWW pages are not College publications and the contents of these pages do not necessarily represent the views of the College.

Individual departments and administrative units may define additional conditions for the creation and installation of WWW pages by faculty, staff,

and students under their supervision. Any such additional conditions must be consistent with this overall policy but may include more detailed guidelines and, where necessary and appropriate, additional restrictions.

Recognized student organizations may create WWW pages and may install them on a City College web server. After verification by a designated member of the Office of the Dean of Students that the student organization is active and officially recognized by the College, a link may be created from an official City College home page to the student organization's home page.

Student organization WWW pages are not College publications and their contents do not necessarily represent the views of the College.

The contents of student organization WWW pages must comply with the General Rules on Information Content stated in this policy.

Terms and Conditions of Use

Any person who uses the WWW facilities at City College consents to all of the provisions of this policy and agrees to comply with all of its terms and conditions and with all applicable local, state, and federal laws and regulations.

Any user of the WWW whose actions involving the WWW violate this, or any other College policy or regulation, may be subject to limitations or eliminations of WWW privileges as well as other disciplinary actions.

APPENDIX B.15

Policy Against Sexual Harassment

Policy Statement

It is the policy of The City University of New York to promote a cooperative work and academic environment in which there exists mutual respect for all University students, faculty, and staff. Harassment of employees or students based upon sex is inconsistent with this objective and contrary to the University policy of equal employment and academic opportunity without regard to age, sex, sexual orientation, alienage or citizenship, religion,

race, color, national or ethnic origin, handicap, and veteran or marital status. Sexual harassment is illegal under State, and City laws, and will not be tolerated within the University.

The University, through its colleges, will disseminate this policy and take other steps to educate the University community about sexual harassment. The University will establish procedures to ensure that investigations of allegations of sexual harassment are conducted in a manner that is prompt, fair, thorough, and as confidential as possible under the circumstances, and that appropriate corrective and/or disciplinary action is taken as warranted by the circumstances when sexual harassment is determined to have occurred. Members of the University community who believe themselves to be aggrieved under this policy are strongly encouraged to report the allegations of sexual harassment as promptly as possible. Delay in making a complaint of sexual harassment may make it more difficult for the college to investigate the allegations.

A. Prohibited Conduct

It is a violation of University policy for any member of the University community to engage in sexual harassment or to retaliate against any member of the University community for raising an allegation of sexual harassment, for filing a complaint alleging sexual harassment, or for participating in any proceeding to determine if sexual harassment has occurred.

B. Definition of Sexual Harassment

For purposes of this policy, sexual harassment is defined as unwelcome sexual advances, requests for sexual favors, and other oral or written communications or physical conduct of a sexual nature when:

- submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment or academic standing;
- submission to or rejection of such conduct by an individual is used as a basis for employment or

academic decisions affecting such individual; or

- such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creating an intimidating, hostile or abusive work or academic environment.
- Sexual harassment can occur between individuals of different sexes or of the same sex. Although sexual harassment most often exploits a relationship between individuals of unequal power (such as between faculty/staff member and student, supervisor and employee, or tenured and untenured faculty members), it may also occur between individuals of equal power (such as between fellow students or co-workers), or in some circumstances even where it appears that the harasser has less power than the individual harassed (for example, a student sexually harassing a faculty member). A lack of intent to harass may be relevant to, but will not be determinative of, whether sexual harassment has occurred.

C. Examples of Sexual Harassment

Sexual harassment may take different forms. Using a person's response to a request for sexual favors as a basis for an academic or employment decision is one form of sexual harassment. Examples of this type of sexual harassment (known as quid pro quo harassment) include, but are not limited to, the following:

- requesting or demanding sexual favors in exchange for employment or academic opportunities (such as hiring, promotions, grades, or recommendations);
- submitting unfair or inaccurate job or academic evaluations or grades, or denying training, promotion, or access to any other employment or academic opportunity, because sexual advances have been rejected.

Other types of unwelcome conduct of a sexual nature can also constitute sexual harassment, if sufficiently severe or pervasive that the target does find, and a reasonable person would

find, that an intimidating, hostile or abusive work or academic environment has been created. Examples of this kind of sexual harassment (known as hostile environment harassment) include, but are not limited to, the following:

- sexual comments, teasing, or jokes;
- sexual slurs, demeaning epithets, derogatory statements, or other verbal abuse.

APPENDIX B.16

The City University of New York – Student Complaint Procedure

RESOLVED, that the procedures for handling student complaints about faculty conduct in formal academic settings be adopted, effective February 1, 2007.

EXPLANATION: Although the University and its Colleges have a variety of procedures for dealing with student related issues, those procedures generally have not covered student complaints about faculty conduct in the classroom or other formal academic settings. The University respects the academic freedom of the faculty and will not interfere with it as it relates to the content or style of teaching activities. At the same time, however, the University recognizes its responsibility to establish procedures for addressing student complaints about faculty conduct that is not protected by academic freedom and not addressed in other procedures. The proposed procedures will accomplish this goal.

Procedures for Handling Student Complaints about Faculty Conduct in Academic Settings

I. Introduction. The University and its Colleges have a variety of procedures for dealing with student-related issues, including grade appeals, academic integrity violations, student discipline, disclosure of student records, student elections, sexual harassment complaints, disability accommodations, and discrimination. One area not generally covered by other procedures concerns student complaints about faculty conduct in the classroom or other formal academic settings. The

University respects the academic freedom of the faculty and will not interfere with it as it relates to the content or style of teaching activities. Indeed, academic freedom is and should be of paramount importance. At the same time the University recognizes its responsibility to provide students with a procedure for addressing complaints about faculty treatment of students that are not protected by academic freedom and are not covered by other procedures. Examples might include incompetent or inefficient service, neglect of duty, physical or mental incapacity and conduct unbecoming a member of the staff.

II. Determination of Appropriate Procedure.

If students have any question about the applicable procedure to follow for a particular complaint, they should consult with the chief student affairs officer. In particular, the chief student affairs officer should advise a student if some other procedure is applicable to the type of complaint the student has.

III. Informal Resolution. Students are encouraged to attempt to resolve complaints informally with the faculty member or to seek the assistance of the department chairperson or campus ombudsman to facilitate informal resolution.

IV. Formal Complaint. If the student does not pursue informal resolution, or if informal resolution is unsuccessful, the student may file a written complaint with the department chairperson or, if the chairperson is the subject of the complaint, with the academic dean or a senior faculty member designated by the college president. (This person will be referred to below as the "Fact Finder.")

A. The complaint shall be filed within 30 calendar days of the alleged conduct unless there is good cause shown for delay, including but not limited to delay caused by an attempt at informal resolution. The complaint shall be as specific as possible in describing the conduct complained of.

B. The Fact Finder shall promptly send a copy to the faculty member about whom the complaint is made, along with a letter stating that the filing of the complaint does not imply that any wrongdoing has occurred and that a faculty member must not retaliate in any way against a student for having made a complaint. If either the student or the faculty member has reason to believe that the department chairperson may be biased or otherwise unable to deal with the complaint in a fair and objective manner, he or she may submit to the academic dean or the senior faculty member designated by the college president a written request stating the reasons for that belief; if the request appears to have merit, that person may, in his or her sole discretion, replace the department chairperson as the Fact Finder.

C. The Fact Finder shall meet with the complaining student and faculty member, either separately or together, to discuss the complaint and to try to resolve it. The Fact Finder may seek the assistance of the campus ombudsman or other appropriate person to facilitate informal resolution.

D. If resolution is not possible, and the Fact Finder concludes that the facts alleged by the student, taken as true and viewed in the light most favorable to the student, establish that the conduct complained of is clearly protected by academic freedom, he or she shall issue a written report dismissing the complaint and setting forth the reasons for dismissal and send a copy to the complaining student, the faculty member, the chief academic officer and the chief student affairs officer. Otherwise, the Fact Finder shall conduct an investigation. The Fact Finder shall separately interview the complaining student, the faculty member and other persons with relevant knowledge and information and shall also consult with the chief student

affairs officer and, if appropriate, the college ombudsman. The Fact Finder shall not reveal the identity of the complaining student and the faculty member to others except to the extent necessary to conduct the investigation. If the Fact Finder believes it would be helpful, he or she may meet again with the student and faculty member after completing the investigation in an effort to resolve the matter. The complaining student and the faculty member shall have the right to have a representative (including a union representative, student government representative or attorney) present during the initial meeting, the interview and any post-investigation meeting.

E. At the end of the investigation, the Fact Finder shall issue a written report setting forth his or her findings and recommendations, with particular focus on whether the conduct in question is protected by academic freedom, and send a copy to the complaining student, the faculty member, the chief academic officer and the chief student affairs officer. In ordinary cases, it is expected that the investigation and written report should be completed within 30 calendar days of the date the complaint was filed.

V. Appeals Procedure. If either the student or the faculty member is not satisfied with the report of the Fact Finder, the student or faculty member may file a written appeal to the chief academic officer within 10 calendar days of receiving the report. The chief academic officer shall convene and serve as the chairperson of an Appeals Committee, which shall also include the chief student affairs officer, two faculty members elected annually by the faculty council or senate and one student elected annually by the student senate. The Appeals Committee shall review the findings and recommendations of the report, with particular focus on whether the conduct in question is protected by academic freedom. The Appeals Committee shall not conduct a new factual

investigation or overturn any factual findings contained in the report unless they are clearly erroneous. If the Appeals Committee decides to reverse the Fact Finder in a case where there has not been an investigation because the Fact Finder erroneously found that the alleged conduct was protected by academic freedom, it may remand to the Fact Finder for further proceedings. The committee shall issue a written decision within 20 calendar days of receiving the appeal. A copy of the decision shall be sent to the student, the faculty member, the department chairperson and the president.

VI. Subsequent Action. Following the completion of these procedures, the appropriate college official shall decide the appropriate action, if any, to take. For example, the department chairperson may decide to place a report in the faculty member's personnel file or the president may bring disciplinary charges against the faculty member. Disciplinary charges may also be brought in extremely serious cases even though the college has not completed the entire investigative process described above; in that case, the bringing of disciplinary charges shall automatically suspend that process. Any action taken by a college must comply with the bylaws of the University and the collective bargaining agreement between the University and the Professional Staff Congress.

VII. Campus Implementation. Each campus shall implement these procedures and shall distribute them widely to administrators, faculty members and students and post them on the college website.

VIII. Board Review. During the spring 2009 semester, the Chancellery shall conduct a review of the experience of the colleges with these procedures, including consultation with administrators, faculty and students, and shall report the results of that review to the Board of Trustees, along with any recommended changes.

Appendix C

Section 494C(j) of the Higher Education Act of 1965, as amended, provides that a student, faculty member, or other person who believes he or she has been aggrieved by an institution of higher education has the right to file a written complaint.

In New York State, a complaint may be filed by any person with reason to believe that an institution has acted contrary to its published standards or that conditions at the institution appear to jeopardize the quality of the institution's instructional programs or the general welfare of its students. Any person who believes he or she has been aggrieved by an institution on or after May 4, 1994, may file a written complaint with the State Education Department within three years of the alleged incident.

How to File a Complaint

1. The person should first try to resolve the complaint directly with the institution by following the internal complaint procedures provided by the institution. An institution of higher education is required to publish its internal complaint procedure in a primary information document such as the catalog or student handbook. (The Department suggests that the complainant keep copies of all correspondence with the institution.)

2. If a person is unable to resolve the complaint with the institution or believes that the institution has not properly addressed the concerns, he or she may send a letter or telephone the Postsecondary Complaint Registry to request a complaint form. Please telephone (212) 951-6493 or write to:

New York State Education Department
Postsecondary Complaint Registry
One Park Avenue, 6th Floor
New York, NY 10016

3. The Postsecondary Complaint Registry Form should be completed, signed, and sent to the above address. The completed form should indicate the resolution being sought and any efforts that have been made to resolve the complaint through the institution's internal complaint processes. Copies of all relevant documents should be included.

4. After receiving the completed form, the Department will notify the complainant of its receipt and make any necessary request for further information. When appropriate, the Department will also advise the institution that a complaint has been made and, when appropriate, the nature of the complaint. The complainant will also be notified of the name of the evaluator assigned to address the specific complaint. The evaluator may contact the complainant for additional information.

5. The Department will make every effort to address and resolve complaints within ninety days from receipt of the complaint form.

Complaint Resolution

Some complaints may fall within the jurisdiction of an agency or organization other than the State Education Department. These complaints will be referred to the entity with appropriate jurisdiction. When a complaint concerns a matter that falls solely within the jurisdiction of the institution of higher education, the complainant will be notified and the Department will refer the complaint to the institution

in question and request that the matter receive a review and response.

Upon conclusion of the Department's complaint review or upon a disposition of the complaint by referral to another agency or organization, or to the institution of higher education, the Department will issue a written notice to the complainant describing the resolution of the complaint. The complainant may contact the Department evaluator directly for follow-up information or for additional assistance.

Appendix D

THE CITY UNIVERSITY OF NEW YORK

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Director, Human Resources

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Director, Career Center

Donna Lee Diane

Controller, Business Operations

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Appendix G

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B.A., Univ. College Galway; M.S.I.M., Thames Valley Univ.; M.F.A., CCNY

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B.A., York Univ.; MIST in L.I.S, Univ. of Toronto

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Ruth Henderson

Vira C. Hinds

Robert Kuhner

Marsha H. Ra

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Appendix H

FACULTY

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Ahmed, Samir Electrical Engineering
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Akinslure-Smith, Adeyinka Psychology
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Anderson, Robert Biology
Andreopoulos, Yiannis Mechanical Engineering
Anglin, Denise Psychology
Anshel, Michael M. Computer Science
Aponte, Sarah Library
Appelbaum, Lynn Media and Communication Arts
Auth, Matthew Mathematics
Bak, Joseph B. Mathematics
Balic, Emily History
Balogh-Nair, Valeria Chemistry
Bandosz, Teresa Chemistry
Banerjee, Sanjoy Chemical Engineering
Banerjee, Shailesh Microbiology and Immunology
Bapat, Charusheel N. Mechanical Engineering
Barba, Joseph Dean, Engineering/Electrical Engineering
Barkin, Doris English
Barnett, Philip Library
Baron, Beth A. History
Barron, Robert Theatre and Speech
Baver, Sherrie L. Political Science
Beckwith, Patterson Art
Bellosta, Paola Biology
Benenson, Gary F. Mechanical Engineering
Berechman, Joseph Economics
Berger, Carole Foreign Languages and Literatures
Berkov, Amy Biology
Berman, Marshall Political Science
Besse, Susan K. History
Betancourt, Octavio Computer Science
Bikson, Marom Biomedical Engineering
Biles, James Sociology
Binz-Scharf, Maria Economics
Birke, Ronald L. Chemistry
Birkland Adib Economics
Birman, Joseph L. Physics
Biscoe, Mark Chemistry
Blanchard, Maxime Foreign Languages and Literatures
Block, Karin Earth and Atmospheric Science
Blumenreich, Megan Childhood Education
Blustein, Jeffrey Philosophy
Bonaparte, Felicia English
Borman, Gregory Secondary Education
Boudreau, Vincent G. Political Science
Boyer, Timothy H. Physics
Bozorgmehr, Mehdi Sociology
Bradley, Darren Philosophy
Brandon, George Behavioral Medicine
Brass, Peter Computer Science
Braveboy-Wagner, Jacqueline Political Science
Braverman, Richard English
Brinkmann, Perter Mathematics
Brooks, Barbara History
Broderick, Patricia Physiology and Pharmacology
Brown, Hillary Architecture
Brown, Lance J. Architecture
Brown, Mark Mathematics
Brownlee, E. Maudette Director, SEEK
Burunat, Sylvia Foreign Languages and Literatures
Cakici, Nusret Economics
Calhoun, David H. Chemistry
Calichman, Richard Foreign Languages and Literatures
Callahan, Laura Foreign Languages and Literatures
Caplan, Avrom Biology
Cappetti, Carla G. English
Cardoso, Luis Biomedical Engineering
Carillo, Daniel Music
Carlson, Jerry Media and Communication Arts
Carnaval, Ana Biology
Carro, Gladys English
Ceruso, Marco Chemistry
Chan, Christopher Microbiology and Immunology
Chang, Mi Architecture
Chang, Ngee-Pong Physics
Chang-Rodriguez, Raquel Foreign Languages and Literatures
Chase, Colin Art
Chen, Ching-Jung Library
Chen, Cynthia Civil Engineering
Chen, YaChen Foreign Languages and Literature
Chinta, Gautam Mathematics
Chow, Peter C. Economics
Cintron, Doris Acting Dean, Education/Childhood Education
Clark, Marlene Interdisciplinary Arts and Sciences
Cleary, Sean Mathematics
Conner, Michael Electrical Engineering
Connorton, Judy Library
Conoly-Simmons, Joyce
Coppin, Joyce Leadership and Special Education
Couzis, Alexander Chemical Engineering
Cowin, Stephen Biomedical Engineering
Crain, William Psychology
Crismond, David Childhood Education
Cronin, Bruce Political Science
Crouse, David Electrical Engineering

- Dagan, Zeev** Provost, CCNY/Mechanical Engineering
- Dagliesh, Campbell** Media and Communication Arts
- Daigle, Craig** History
- Davidson, David G.** Media and Communication Arts
- Davis, Joseph** Childhood Education
- De, Prabal Kumar** Economics
- de Jongh, James** English
- Deane, Alison** Music
- De Carlo, Sacha** Chemistry
- Deen, Darwin D.** Community Health and Soc. Med.
- Dekel, Michal** English
- Del Tredici, David** Music
- Delale, Feridun** Mechanical Engineering
- Denn, Morton M.** Chemical Engineering
- Di Iorio, Lyn** English
- Diamond, Diana** Psychology
- Di Salvo, Daniel** Political Science
- Diyamandoglu, Vasil** Civil Engineering
- Dodds, Jerrilyn** Architecture
- Domiguez, Daisy** Library
- Donati, Eugene** Media and Communication Arts
- Dorsinville, Roger** Electrical Engineering
- Downs, Gregory** History
- Drabik, Grazyna** English
- Durden, Phyllis** Leadership and Special Education
- Eastzer, David** Interdisciplinary Arts & Sciences
- Edelman, Jay A.** Biology
- Edmiston, Jeremy** Architecture
- Elvin, Neill** Mechanical Engineering
- Erkuran-Yimaz, Cigdem** Cell Biology and Anat. Sci.
- Estévez, Angel L.** Foreign Languages and Literatures
- Falk, Beverly** Childhood Education
- Falk, Harold** Physics
- Fazio, Nelly** Computer Science
- Feigenberg, Alan L.** Architecture
- Fernando, Marina W.** Sociology
- Fillos, John** Civil Engineering
- Fishbein, William** Psychology
- Fisher, Joseph** Wellington Art
- Floyd, Tiffany** Psychology
- Fort, Lydia** Theatre and Speech
- Fosnot, Catherine T.** Childhood Education
- Foster, Kevin** Economics
- Foster, Megan Art**
- Fraenkel, Peter** Psychology
- Franklin, Catherine** Childhood Education
- Franklin, Laurel F.** Library
- Friedman, Eitan** Acting Dean, Sophie Davis School of Biomedical Education/Physiology and Pharmacology
- Fritton, Susannah** Biomedical Engineering
- Fu, Bingmei** Biomedical Engineering
- Fuentes, Leopoldo** Art
- Gallagher, Jane C.** Biology
- Gallon, Ray** Music
- Ganatos, Peter** Electrical Engineering
- Garavuso, Vicki** Interdisciplinary Arts and Sciences
- Garcia, Dulce** Foreign Languages and Literatures
- Gates, Gemina** Physician Assistant Program
- Gayen, Swapan** Physics
- Gebert, Gordon A.** Architecture
- Gedzelman, Stanley D.** Earth and Atmospheric Sciences
- Gersten, Joel I.** Physics
- Gertner, Izidor** Computer Science
- Ghilardi, Maria** Microbiology and Immunology
- Ghose, Ranjeet** Chemistry
- Ghosn, Michel J.** Civil Engineering
- Gibbons, William** Library
- Gilcrest, M. Lane** Chemical Engineering
- Gilerson, Alexander** Electrical Engineering
- Gill, Jacqueline** Library
- Gillespie, Pamela R.** Chief Librarian
- Gillody, John** History
- Gisolfi, Peter** Architecture
- Gladkova, Irina** Computer Science
- Gleason, Barbara** English
- Gresik, Edward** Cell Biology and Anat. Sci.
- Gomes, Hilary** Psychology
- Gonzalez, Orsini** Theatre and Speech
- Gonzalez-Cruz, Jorge** Mechanical Engineering
- Gosser, David K.** Chemistry
- Gottlieb, Paul** Microbiology and Immunology
- Govind, Shubha** Biology
- Goyert, Sanna** Microbiology and Immunology
- Grace, Cynthia** Psychology
- Grant, Keith** Theatre and Speech
- Green, Michael** Chemistry
- Green, Venus** History
- Greenberger, Daniel** Physics
- Greenwood, John D.** Philosophy
- Gresik, Edward** Cell Biology and Anat. Sci.
- Gross, Barry M.** Electrical Engineering
- Grossberg, Michael** Computer Science
- Grossman, Edward H.** Mathematics
- Guilhamet, Leon M.** English
- Gunner, Marilyn** Physics
- Gupta, Amita** Childhood Education
- Gutman, Marta** Architecture
- Guyden, Jerry** Biology
- Habib, Ibrahim** Electrical Engineering
- Hacker, Marilyn** English
- Ham, Ethan** Art
- Hamilton, Jo-Ann D.** English
- Han, Geoffrey** Art
- Handy, Ellen** Art
- Hanning, Barbara R.** Music
- Hartman, Hope** Leadership and Special Education
- Haslip-Viera, Gabriel** Sociology
- Helgesen, Martin** Library
- Helmreich, William B.** Sociology
- Hermanuz, Ghislaine** Architecture
- Hernandez, Ramona** Sociology
- Hein, Denise** Psychology
- Hinton, Laura** English
- Ho, Ping-Pei** Electrical Engineering
- Hoffman-Brandt, Denise** Architecture
- Hoffman, Lily M.** Sociology
- Holober, Michael** Music
- Hooper, W. Patrick** Mathematics
- Horn, Bradley** Architecture
- Horvitz, Jon** Psychology
- Hoskin, Marilyn** Dean, Social Science
- Hoskins, Sally G.** Biology
- Hu, Danian** History
- Huang, Carol** Leadership and Special Education
- Hubbard, Karen** Biology
- Indych-Lopez, Anna** Art
- Jablonsky, Stephen** Music
- Jackson, Lynne Scott** Media and Communication Arts
- James, Catti** Art
- Janakiraman, Anuradha** Biology
- Jans, Urs** Chemistry
- Jeffries, Leonard** Political Science
- Jenkins, Chadwick** Music
- Jiji, Latif** Mechanical Engineering
- John, George** Chemistry
- Johnson, David** History

- Johnson, Gretchen** Childhood Education
- Jorgenson, Jay** Mathematics
- Josephson, Ira** Physiology and Pharmacology
- Judell, Brandon** Theatre and Speech
- Jurist, Elliot** Psychology
- Kaku, Michio** Physics
- Kalia, Ravi** History
- Kashfi, Khosrow** General and Organic Chemistry
- Kassir, Mumtaz K.** Civil Engineering
- Kawaji, Masahiro** Mechanical Engineering
- Kawaguchi, Akira** Computer Science
- Keller, Edward** Media and Communication Arts
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- Kennedy, Debra** SEEK
- Kenyon, Patricia** Earth and Atmospheric Sciences
- Khanbilvardi, Reza M.** Civil Engineering
- Kierzenbaum, Abraham** Cell Biology and Anat. Sci.
- Killen, Andreas** History
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- King, William** Psychology
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- Kozel, Paul D.** Music
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- Kranc, George M.** Electrical Engineering
- Krasner, Orly** Music
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- Kretzschmar, Ilona** Chemical Engineering
- Krinsky, John** Political Science
- Kumar, Devendra** Computer Science
- Laderman, Carol** Anthropology
- Lakshman, Mahesh** Chemistry
- Lascar, Claudia** Library
- Laskin, Pamela** English
- Laurich, Robert** Library
- Lazaridis, Themis** Chemistry
- Leadon, Francis** Architecture
- Lee, Jae W.** Chemical Engineering
- Lee, John J.** Biology
- Lee, Myung J.** Electrical Engineering
- Lee, Soyoung** Childhood Education
- Lee, Taehun** Mechanical Engineering
- Lemons, Daniel E.** Dean, Division of Science/Biology
- Lenzer, Matthias** Physics
- Lerner, Bettina** Foreign Languages and Literature
- Levin, Kate** Theatre and Speech
- Levin, Michael E.** Philosophy
- Levinson, Jack** Sociology
- Levitt, Jonathan R.** Biology
- Lew, Herman** Media and Communication Arts
- Lewis, R. L'Heureux** Sociology
- Li, Christine** Biology
- Li, Jacqueline Jie** Mechanical Engineering
- Liaw, Been-Ming B.** Mechanical Engineering
- Lin, Feng-Bao** Civil Engineering
- Lipper, Stanley** Pathology
- Liu, Hubai** Civil Engineering
- Llonch, Fabian** Architecture
- Lohman, David** Biology
- Lombardi, John R.** Chemistry
- Lopez, Iris D.** Sociology
- Lu, Zhou** Economics
- Lubell, Michael** Physics
- Lubetkin, Erica** Community Health and Soc. Med.
- Lucci, Stephen J.** Computer Science
- Luo, Johnny** Earth and Atmospheric Sciences
- Lutz, Mary** Interdisciplinary Arts and Sciences
- Lynch, Arthur D.** Psychology
- Macari, Hanque** Architecture
- MacGowan-Gilhooly, Adele** Childhood Education
- Madamopoulos, Nicholas** Electrical Engineering
- Mahani, Shayesteh** Civil Engineering
- Makse, Hernan** Physics
- Maldarelli, Charles** Chemical Engineering
- Malone, Charles** Childhood Education
- Manassah, Jamal T.** Electrical Engineering
- Mano, Itzhak** Physiology and Pharmacology
- Marchese, Andrea** Mathematics
- Marcus, Jane** English
- Marcus, Michael B.** Mathematics
- Marinoff, Lou** Philosophy
- Martin, John** Physiology and Pharmacology
- Matthews, Elizabeth** Interdisciplinary Arts and Sciences
- Matos, Julio** Theatre and Speech
- Mazzola, Elizabeth** English
- McBeth, Dani** Microbiology and Immunology
- McCracken, Daniel D.** Computer Science
- McCran, Grace-Ellen** Library
- McDonald, Kathlene** Interdisciplinary Arts and Sciences
- McKnight, Claire E.** Civil Engineering
- McLurkin, Denis** Childhood Education
- Melara, Robert** Psychology
- Mendelsohn, Loren D.** Library
- Mercado, Juan Carlos** Dean, Interdisciplinary Studies at CWE/ Foreign Languages and Literatures
- Meriles, Carlos** Physics
- Miller, Renata K.** English
- Milstein, Glen** Psychology
- Mirsky, Mark** English
- Mittelman, Roy** Foreign Languages and Literatures
- Moderegger, Hajoe** Art
- Moore, Carol** Microbiology and Immunology
- Morgenstern, Mira** Political Science
- Morris, Jeffrey** Chemical Engineering
- Moshary, Fred** Electrical Engineering
- Mowshowitz, Abbe** Computer Science
- Murphy, Geraldine** English
- Naddeo, Barbara** History
- Nair, V.P.** Physics
- Nazon, Marie** SEEK
- Nesmith, Eugene** Theatre and Speech
- Netzer, Sylvia** Art
- Neujahr, James L.** Childhood Education
- Nguyen, Truong Thao** Electrical Engineering
- Nicoll, Steven** Biomedical Engineering
- Norton, Nadjwa** Childhood Education
- Nunes, Joao** Behavioral Medicine
- O'Brien, Stephen** Chemistry
- O'Donnell, Shaugn** Music
- O'Scanlain, Seamus** Library
- Ocken, Stanley** Mathematics
- Oppenheimer, Paul E.** English
- Oreffice, Sonia** Economics
- Paaswell, Robert E.** Civil Engineering
- Pach, Janos** Computer Science

- Paik, Leslie** Sociology
- Paolinio, Devid** Foreign Languages and Literature
- Pappas, Nicholas** Philosophy
- Park, Chun Sae** Mathematics
- Parker, Neville A.** Civil Engineering
- Parra, Lucas** Biomedical Engineering
- Patitucci, John** Music
- Perl, Jonathan** Music
- Petricovic, Vladimir** Physics
- Petty-Roberts, Adrienne** History
- Pezzano, Mark** Biology
- Pieslak, Jonathan** Music
- Pignataro, Thea** Mathematics
- Pittson, Suzanne** Music
- Pinol-Roma, Serafin** Cell Biology and Anat. Sci.
- Polychronakos, Alexis** Physics
- Poros, Maritsa** Sociology
- Potts, Kathleen** Theatre and Speech
- Proudfoot, Ruth E.** Psychology
- Punnoose, Alexander** Physics
- Raboteau, Emily** English
- Rader, Laura** Leadership and Special Education
- Ragnauth, Andre** Physiology and Pharmacology
- Raia, Frederica** Earth and Atmospheric Science
- Raj, Rishi** Mechanical Engineering
- Ranalli, George** Dean, Spitzer School of Architecture/Arch
- Rassi, Babak** Media and Communication Arts
- Ratner, Andrew** Secondary Education
- Ravindran, Kaliappa** Computer Science
- Reeves, Scott** Music
- Renique, Gerardo** History
- Reynolds, Fred** Dean, Humanities & Arts/English
- Rinard, Irvn H.** Chemical Engineering
- Ring, Rochelle M.** Mathematics
- Rings, Sherri** SEEK
- Riobo, Carlos** Foreign Languages and Literatures
- Ro, Tony** Psychology
- Roberts, Jennifer** Foreign Languages and Literatures
- Roberts, Sylvia** Leadership and Special Education
- Rockwell, Robert F.** Biology
- Rodriguez-Contraras, Adrian** Biology
- Rorschach, Elizabeth** Secondary Education
- Rosario, Margaret** Psychology
- Rosen, Jeffrey J.** Psychology
- Rosenberg, Clifford** History
- Ross, George G.** Computer Science
- Rossow, William** Electrical Engineering
- Roth, Millicent** Psychology
- Roytman, Leonid M.** Electrical Engineering
- Rumschitski, David S.** Chemical Engineering
- Ryan, Kevin** Chemistry
- Saadawi, Tarek N.** Electrical Engineering
- Sadegh, Ali M.** Mechanical Engineering
- Saint-Maurice, Nelly** Foreign Languages and Literatures
- Salame, Issa** Chemistry
- Salcedo, Julio** Architecture
- Saltz, Ina** Art
- Samad-Matias, M.A.** Anthropology
- Sank, Diane** Anthropology
- Santoro, Bianca** Mathematics
- Sarachik, Myriam P.** Physics
- Sargut, Gökçe** Economics
- Schaffler, Mitchell** Biomedical Engineering
- Scheinberg, Norman** Electrical Engineering
- Schmeltzer, David** Physics
- Schonfeld, Irvin** Psychology
- Schuetz, Jenny** Economics
- Semel, Susan** Secondary Education
- Senie, Harriet** Art
- Seo, Sang Woo** Electrical Engineering
- Shachmurove, Yochanan** Economics
- Shankar, Kameshwari** Economics
- Sharma, Sudha** Biology
- Shattuck, Mark** Physics
- Sheill, Niel** Mathematics
- Shen, Aidong** Electrical Engineering
- Shpilrain, Vladimir** Mathematics
- Silber, Irina** Interdisciplinary Arts & Sciences
- Silverstein, Brett** Psychology
- Simms, Simon A.** Chemistry
- Simon, Lisa** Childhood Education
- Skeith, William** Computer Science
- Slade, Arietta** Psychology
- Small, Gillian** Biology
- Smiley, Ellen E.** Psychology
- Smith, Beverly** Secondary Education
- Smith, Frederick W.** Physics
- Sobel, Kenneth M.** Electrical Engineering
- Sohler, Nancy** Community Health and Soc. Med.
- Sorkin, Michael** Architecture
- Sourian, Eve** Foreign Languages and Literatures
- Spatz, Linda** Microbiology and Immunology
- Spaulding, Ira** Music
- Spears, Arthur K.** Anthropology
- Spielman, Arthur J.** Psychology
- Staloff, Darren** History
- Starcevic, Elizabeth** Foreign Languages and Literatures
- Stark, Ruth** Chemistry
- Stein, Achva** Architecture
- Stein, Judith S.** History
- Steinberg, Mark** Chemistry
- Steinberg, Richard** Secondary Education
- Steiner, Carol A.** Chemical Engineering
- Steiner, Jeffrey** Earth and Atmospheric Sciences
- Steingart, Daniel** Chemical Engineering
- Stern, Nancy** Childhood Education
- Stewart, Charles C.** Library
- Stober, Marvin** Leadership and Special Education
- Strzewzewski, Mary Ruth** Foreign Languages and Literatures
- Stylianou, Despina** Secondary Education
- Subramaniam, Kolluru** Civil Engineering
- Sun, Yi** Electrical Engineering
- Syrrakos, Barbara** History
- Tag, Nancy** Media and Communication Arts
- Tamargo, Maria** Chemistry
- Tang, Hansong** Civil Engineering
- Tarbell, John** Biomedical Engineering
- Tardos, Gabriel I.** Chemical Engineering
- Tarlow, Lynn** Secondary Education
- Tartter, Vivien** Psychology
- Taylor, Shea** Library
- Tchernichovski, Ofer** Biology
- Tedesco, Marco** Earth and Atmospheric Sciences
- Thayer, Tom** Art
- Terragni, Elisa** Architecture
- Thomas, Reuben** Jack Sociology
- Thompson, Gordon E.** English
- Tian, YingLi** Electrical Engineering
- Tibaldi, Antonio,** Media and Communication Arts

- Tinajero, Araceli** Foreign Languages and Literatures
- Tres, Laura** Cell Biology and Anat. Sci.
- Troeger, Douglas R.** Computer Science
- Trugman, Leonard** Economics
- Tu, Jiufeng** Physics
- Tu, Raymond** Chemical Engineering
- Tuber, Steven B.** Psychology
- Uidhir, Christy** Mag Philosophy
- Uwazurike, Chudi P.** Sociology
- Uyar, Umit** Electrical Engineering
- Valdes, Vanessa** Foreign Languages and Literature
- Valladares, Michelle** English
- Valle, Jan** Childhood Education
- Van Nort, Sydney** Library
- Vazquez, Maribel** Biomedical Engineering
- Veaser, H. Aram** English
- Venkatesh, Tadmiri R.** Biology
- Vietze, Deborah** Psychology
- Villa, Robin** Library
- Vitaklov, Sergey A.** Physics
- Voiculesco, Ioana** Mechanical Engineering
- Volkman, Christian** Architecture
- Vorosmarty, Charles** Civil Engineering
- Vulis, Michael** Computer Science
- Wachtel, Paul L.** Psychology
- Wall, Diana** Anthropology
- Wall, Edward** Childhood Education
- Wallace, Michele** English
- Wallman, Joshua** Biology
- Walser, Ardie D.** Electrical Engineering
- Wang, Hoau-Yan** Microbiology and Immunology
- Wang, Sihong** Biomedical Engineering
- Washburn, Mara** SEEK
- Watkins, Charles** Mechanical Engineering
- Wei, Jie** Computer Science
- Weinstein, Lissa** Psychology
- Weintraub, Annette** Art
- Weintraub, Lee** Architecture
- Weiss, Andrea** Media and Communication Arts
- Weissman, David** Philosophy
- Wilgus, Ann** Childhood Education
- Williamson, June** Architecture
- Willinger, David P.** Theatre and Speech
- Wilner, Joshua** English
- Winslow, Margaret A.** Earth and Atmospheric Sciences
- Wittig, Ann** Civil Engineering
- Woessner, Martin** Interdisciplinary Arts and Sciences
- Wolberg, George** Computer Science
- Xiao, Jizhong** Electrical Engineering
- Yali, Ann-Marie** Psychology
- Yang, Fan** Civil Engineering
- Yu, Honghui** Mechanical Engineering
- Yu, Zhonghua** Chemistry
- Yurkovska, Ellen** Library
- Zahrn, Mohamed** Electrical Engineering
- Zajc, Barbara** Chemistry
- Zevallos, Ana** SEEK
- Zhang, Jianting** Computer Science
- Zhang, Pengfei** Earth and Atmospheric Sciences
- Zheng, Li** Economics
- Zhou, Yan** Economics
- Zhu, Zhigang** Computer Science

Appendix I

APPROVED UNDERGRADUATE DEGREE PROGRAMS

| | | Hegis Code |
|--|-----------------------|------------------|
| THE COLLEGE OF LIBERAL ARTS AND SCIENCE | | |
| American Studies | B.A. | 0313.00 |
| Anthropology | B.A. | 2202.00 |
| Area Studies—Asian-Latin American & Latino-Russian | B.A. | 0399.00 |
| Area Studies—Black-Puerto Rican-Jewish | B.A. | 0399.00 |
| Art | B.A. | 1002.00 |
| Electronic Design and Multimedia | B.F.A. | 0605.00 |
| Biology | B.A., B.S., B.A./M.A. | 0401.00 |
| Chemistry | B.S. | 1905.00 |
| Communications | B.A. | 0601.00 |
| Comparative Literature | B.A. | 1503.00 |
| Economics | B.A., B.A./M.A. | 2204.00 |
| English | B.A. | 1501.00 |
| Environmental Earth System Science | B.S. | 1917.00 |
| Film | B.F.A. | 1010.00 |
| Geology | B.A., B.S. | 1914.00 |
| History | B.A., B.A./M.A. | 2205.00 |
| Interdisciplinary Liberal Arts and Sciences* | B.A., B.S. | 4901.00 |
| International Studies | B.A. | 2210.00 |
| Management and Administration | B.A. | 0506.00 |
| Mathematics | B.A., B.S., B.A./M.A. | 1701.00 |
| Math in Scientific and Industrial Applications | B.S. | 1703.00 |
| Music | B.A., B.F.A. | 1005.00, 1004.00 |
| Philosophy | B.A. | 1509.00 |
| Physics | B.A., B.S. | 1902.00 |
| Political Science | B.A. | 2207.00 |
| Pre-Law | B.A. | 4903.00 |
| Psychology | B.A., B.S., B.A./M.A. | 2001.00 |
| Publishing | Certificate | 5008.00 |
| Romance Languages—French, Italian, Spanish | B.A. | 1101.00 |
| Sociology | B.A., B.A./M.A. | 2208.00 |
| Theatre | B.A. | 1007.00 |
| THE SPITZER SCHOOL OF ARCHITECTURE | | |
| Architecture | B.Arch | 0202.00 |
| Architecture | B.S. | 0202.00 |
| Landscape Architecture | B.S. | 0204.00 |

Hegis Code

THE SCHOOL OF EDUCATION

| | | |
|-------------------------------|---------|---------|
| Art Education "K-12" | B.A. | 0831.00 |
| Bilingual Childhood Education | B.S.Ed. | 0899.00 |
| Childhood Education | B.S.Ed. | 0802.00 |
| Early Childhood Education* | B.S. | 0823.00 |
| Music Education "K-12" | B.A. | 0832.00 |

THE GROVE SCHOOL OF ENGINEERING

| | | |
|--|------|---------|
| Biomedical Engineering | B.E. | 0905.00 |
| Chemical Engineering | B.E. | 0906.00 |
| Civil Engineering | B.E. | 0908.00 |
| Computer Engineering | B.E. | 0999.00 |
| Computer Science | B.S. | 0701.00 |
| Electrical Engineering | B.E. | 0909.00 |
| Earth System Science and Environmental Engineering | B.E. | 0922.00 |
| Mechanical Engineering | B.E. | 0910.00 |

THE SCHOOL OF BIOMEDICAL EDUCATION

| | | |
|-------------------------------|------|---------|
| Biomedical Science | B.S. | 0499.00 |
| Physician's Assistant Program | B.S. | 1299.10 |

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DIRECTIONS TO THE CITY COLLEGE CAMPUS

By Train

IRT #1 local to 137th Street and Broadway, walk up 138th Street three blocks to Convent Avenue.

IND "A" or "D" express or "B" or "C" local to 145th Street and St. Nicholas Avenue, walk west one block to 145th Street and Convent Avenue, then south to 138th Street.

IRT #4 or #5 express or #6 local to 125th Street and Lexington Avenue, change there for the M-100 or M-101 bus to Amsterdam Avenue and 138th Street, walk east one block to Convent Avenue.

Metro North to 125th Street and Park Avenue, change there for the M-100 or M-101 bus to Amsterdam Avenue and 138th Street, walk east one block to Convent Avenue.

Note: City College operates shuttle buses between the campus and the 137th Street (Broadway) and 145th Street (St. Nicholas) and 125th Street (St. Nicholas) subway stations.

By Bus

M-18 to 138th Street and Convent Avenue. M-4 or M-5 to Broadway and 137th Street, walk up 138th Street three blocks to Convent Avenue.

M-100 or M-101 to Amsterdam Avenue and 138th, walk east one block to Convent Avenue.

M-11 to 135th and Amsterdam Avenue, change to the M-100 or M-101 or walk north to 138th Street, then east one block to Convent Avenue.

BX-19 to 145th and Convent Avenue, walk south on Convent Avenue to 138th Street.

By Car

From the West Side: Westside Highway traveling north, exit at 125th Street, right to Amsterdam Avenue, left to 133rd Street, right one block to Convent Avenue. Traveling south from the George Washington Bridge, exit at 125th Street, first left onto 132nd Street, one block to Broadway, left to 133rd Street, right two blocks to Convent Avenue.

From the East Side: Triborough Bridge to Harlem River Drive, exit at 135th Street to end, turn right on St. Nicholas Avenue, then left onto 141st Street, make left on Convent Avenue to campus.

Parking on Campus

Parking on campus is extremely limited. Parking permits are sold on annual basis. Please check the website: www.ccny.cuny.edu/public_safety/parking.html for complete details.