

PROGRAM FOR TEACHERS OF ADOLESCENCE EDUCATION

BIOL 600 Molecular Biology for Science Teachers.

Molecular aspects of cellular function; properties of biomolecules, their biosynthesis and breakdown; structure and function of proteins and enzymes, metabolites, membranes, and nucleic acids; cellular mechanisms of energy transduction; integration and control of cell metabolism.

*prereq: An undergraduate degree in biology and a course in organic chemistry, or permission of instructor
fall only*

BIOL 602.10 Molecular Genetics for Science Teachers

A comparison of viral, procaryotic, and eucaryotic systems; review of classical Mendelian principles and mechanisms; bacterial DNA replication, transcription, and their control; mechanisms of gene mutation, repair, recombination, and transposition; applications of recombinant DNA technology; organization of nucleic acid into chromosomes; control of gene expression in procaryotes, in the eucaryotic cell cycle, and in cell development.

*prereq: BIOL 600 or equivalent
spring only.*

BIOL 610.55 Laboratory Workshop in Biology Education

A series of laboratory-intensive experimental projects, each lasting one week or more, which introduce current research techniques and include individual participation in planning, preparation, and analysis of experiments. The focus is on broad biotechnology topics such as the isolation, cloning, and expression of a gene, utilizing the techniques of molecular genetics, and how these topics may be applied to the high school science classroom.

*prereq: a graduate course in biology or permission of instructor
120 hrs, 4 cr*

BIOL 630 Science and Society

A study of the interactions between technological and societal changes, with an emphasis on eliciting within the classroom productive oral and written critiques and debates concerning potentially controversial technological change. Focusing on present-day issues, students will learn various models for analyzing the impact scientific change has on society and how social change directs science.

prereq: BIOL 610.55 or permission of instructor

BIOL 660 Challenging Concepts in the Biological Sciences

Overview of research and theory related to misconceptions in biology. Students will be expected to develop a research proposal or to conduct the research in their own classrooms, and write a paper in the form of a journal article. The article will serve as the culminating project for the science portion of the MA.

*prereq: BIOL 610.55, BIOL 630, and one elective course or permission of instructor
4 hrs, 4 cr*

CHEMISTRY

Department Office: 1307 North Building;
(212) 772-5330

Chair: Dixie J. Goss,
1308 North Building; (212) 772-5330

PhD Adviser: Klaus Grohmann,
1401 North Building; (212) 772-5333;
gklaus@hunter.cuny.edu

MA in TEP Adviser: Pamela Mills,
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FACULTY

Joseph J. Dannenberg, Professor; PhD,
California Institute of Technology; Organic
and Physical Chemistry

Max Diem, Professor; PhD, Toledo; Physical
Chemistry

Charles M. Drain, Associate Professor; PhD,
Tufts; Bioinorganic Chemistry; Joint
Appointment with Graduate Center; Adjunct
Faculty, The Rockefeller University

Lynn Francesconi, Associate Professor; PhD,
Illinois; Inorganic Chemistry and Materials
Chemistry, Radiochemistry

**Richard W. Franck, Distinguished Professor
Emeritus;** PhD, Stanford; Organic Chemistry

Dixie J. Goss, Professor and Chair; PhD,
Nebraska; Biophysical Chemistry

Klaus Grohmann, Professor; PhD, Heidelberg;
Organic Chemistry

William E. L. Grossman, Professor Emeritus;
PhD, Cornell; Analytical Chemistry

Akira Kawamura, Assistant Professor; PhD,
Columbia; Bioorganic Chemistry, Genomics

Namby Krishnamachari, Assistant Professor;
PhD, CUNY; Vibration Spectroscopy

Louis Massa, Professor; PhD, Georgetown;
Physical Chemistry

Hiroshi Matsui, Associate Professor; PhD,
Purdue; Materials Chemistry; Joint
Appointment with Graduate Center

Pamela Mills, Professor; PhD, Wisconsin;
Theoretical Chemistry, Chemical Education

D. R. Mootoo, Professor; PhD, Maryland;
Organic Chemistry

Karen E. S. Phillips, Assistant Professor;
PhD, Columbia; Organic Chemistry

Tatyana Polenova, Assistant Professor; PhD,
Columbia; Biophysical Chemistry; Molecular
Biophysics and Structural Biology

Gary J. Quigley, Professor; PhD, SUNY
(Syracuse); Biophysical Chemistry

Angelo Santoro, Professor; PhD, Kansas;
Organic Chemistry

William Sweeney, Professor; PhD, Iowa;
Physical Biochemistry, Chemical Education

Maria Tomasz, Distinguished Professor;
PhD, Columbia; Biochemistry

MASTER OF ARTS

An MA in chemistry is no longer offered, but the department participates with the Department of Biological Sciences in an interdisciplinary program leading to an MA in biochemistry (see biochemistry listing, p. 25).

Degrees offered HEGIS

Chemistry I	BA*	1905
Chemistry II	BA*	1905
Biochemistry (see Biochemistry listing)	MA	0414
Chemistry 7-12	MA	1905.01

* See Hunter College Undergraduate Catalog 2002-2004, p. 69 for information about undergraduate programs in chemistry.

The prefix "U" indicates that the course is listed in the Schedule of Classes at the CUNY Graduate Center and may be taken by students enrolled in Graduate Center programs.

PROGRAM FOR TEACHERS OF ADOLESCENCE EDUCATION (Grades 7-12) — CHEMISTRY MA

Departmental requirements for admission are an undergraduate degree with a minimum of 29 credits in science and mathematics courses including one year of general chemistry and one year of organic chemistry with laboratory, one year of introductory physics with laboratory, and one semester of calculus. A grade point average of 2.8 or better is required in both the applicant's overall undergraduate course work and in the applicant's science courses.

Applicants who have an overall GPA between 2.5 and 2.79 and meet all other requirements for matriculation may be considered for admission to nonmatriculant status. Only students who demonstrate strong verbal skills in addition to other indices of ability to do graduate work will be admitted as nonmatriculants. Applicants will be required to provide an on-site writing sample (essay) and participate in a face-to-face interview. Academically relevant data, such as scores on the General Aptitude Test of the Graduate Record Exam or on the Liberal Arts and Sciences Test of the NYS Teacher Certification Examination, may also be submitted in support of admission.

See the School of Education section of this catalog for additional information on admission and program requirements.

Meeting the minimum requirements for admission does not guarantee acceptance to the program, which is based, by necessity, on the limitations of space and resources.

Requirements for the Degree

Chemistry (minimum 15 credits)

CHEM 655	3 cr
Demonstrations, Models, and Technology	
CHEM 630	3 cr
Science and Society	
CHEM 660	4 cr
Challenging Concepts in Chemistry	
Plus two electives chosen from 600- or *700-level courses in chemistry or biochemistry.	

Students who have not taken physical chemistry MUST TAKE, as part of their electives:

CHEM 650	4 cr
Biophysical Chemistry	

Education

See the School of Education section of this catalog for pedagogical courses and other requirements.

Culminating Project

Students will be expected either to prepare a research proposal or to conduct a research project while enrolled in **CHEM 660**, which serves as the capstone course in chemistry.

DOCTOR OF PHILOSOPHY

Students are encouraged to apply directly to the PhD program, which is offered through the CUNY Graduate School and University Center. PhD dissertation research is carried out in the Hunter College Department of Chemistry. A PhD in biochemistry is also offered through the CUNY Graduate School and University Center. For further information contact Professor Klaus Grohmann, 1401 North Building, (212) 772-5333 or visit the website at <http://web.gc.cuny.edu/chemistry>.

COURSE LISTINGS

Courses 45 hrs, 3 cr unless otherwise noted.

CHEM 630 Science and Society

A study of the interactions between technological and societal changes, with an emphasis on eliciting within the classroom productive oral and written critiques and debates concerning potentially controversial technological change. Focusing on present-day issues, students will learn various models for analyzing the impact scientific change has on society and how social change directs science.

prereq: permission of instructor

CHEM 640 Biochemistry 1

Proteins, enzymes, bionergetics

prereq: 1 year of organic chemistry fall only

CHEM 641 Biochemistry 2

Metabolism, biomedical genetics, immuno-biochemistry, hormones, muscle biochemistry

prereq: CHEM 640 or BIO 710.13 or 300 spring only.

CHEM 655 Demonstrations, Models, and Technology**CHEM 660 Challenging Concepts in Chemistry**

Overview of research and theory related to misconceptions in chemistry. Students will be expected to develop a research proposal or to conduct the research in their own classrooms, and write a paper in the form of a journal article. The article will serve as the culminating project for the science portion of the MA.

4 hrs, 4 cr

prereq: CHEM 655, CHEM 630, and one elective course or permission of instructor.

**Courses at the 700 level are offered at the graduate center and can be taken only with permission of the program adviser.*

CLASSICS**Department Office:**

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Director, MA in Adolescence**Education (Grades 7-12), Latin:****Ronnie Ancona,**

1402 West Building;
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rancona@hunter.cuny.edu

Website: www.hunter.cuny.edu/classics/classics/Grad_Prog.html

FACULTY**Ronnie Ancona, Associate Professor;** PhD,

Ohio State; Latin Poetry, Latin Pedagogy, Horace, Women in Classical Antiquity

Tamara M. Green, Professor and Chair; PhD,

NYU; Ancient History, Late Antiquity, Greek and Roman Religion

Adele J. Haft, Associate Professor; PhD,

Princeton; Classical Epic and Tragedy, Classical Mythology, Greek and Roman Civilization

Robert B. Koehl, Associate Professor; PhD,

Pennsylvania; Classical Archaeology

William J. Mayer, Lecturer; MA, Columbia;

Latin Pedagogy, Cicero, Vergil

Joanne M. Spurza, Assistant Professor; PhD,

Princeton; Classical Archaeology, Ancient Roman Architecture and Urban Studies

Robert J. White, Professor; PhD, Yale; Greek

Literature, Classical Mythology, Greek Tragedy, Classics in Translation, Caesar

Faculty Emeriti**Sarah B. Pomeroy, Distinguished Professor**

Emerita; PhD, Columbia; Women and the Family in Classical Antiquity; Social History, Papyrology

In addition to its undergraduate majors in the fields of Latin, Greek, Classical Studies, and archaeology, the Department of Classical and Oriental Studies offers undergraduate majors in Chinese, Hebrew, and Russian as well as a six-semester sequence in Japanese. It also participates in the interdepartmental programs in Russian and East European Area Studies, and Religion.

PROGRAM FOR TEACHERS OF ADOLESCENCE EDUCATION (Grades 7 - 12) — LATIN MA

The MA program in the teaching of Latin is designed for students who have majored in Latin on the undergraduate level and want to pursue a teaching career in grades 7-12; and for teachers certified in another area who wish to gain certification in Latin. This program is not for individuals with initial or provisional certification in Latin.

This program differs from the traditional MA program in Latin in two ways. First, each of the language courses provides the student with both increased linguistic competency and a pedagogical methodology for teaching Latin

Degrees Offered**HEGIS**

Latin	BA*	1109
Greek	BA*	1110
Latin and Greek	BA*	1504
Classical Studies	BA*	1504
Archaeology	BA*	2203
Latin — Grades 7-12	MA	1109.01

** See the Hunter College Undergraduate Catalog, 2002-2004, p. 73 for description of undergraduate degrees and courses in classics.*

more effectively. In addition, the program requires courses in ancient culture and literature in translation; these can be useful later in designing humanities courses suited to the junior and senior high school curricula.

Classes meet in the late afternoon and evening, making the program accessible to people who work during the day.

Requirements for Admission

Applicants must present a bachelor's degree from an accredited institution acceptable to Hunter College. An undergraduate major in Latin or classics or the equivalent (24 credits in Latin) is required for admission. Students with 18 credits in undergraduate Latin courses may be admitted provisionally if they are certified to teach languages other than Latin.

An undergraduate average of 3.0 (B) in the major and an overall cumulative average of 2.8 (B-) are required for admission. The selection process includes a personal interview to determine the applicant's suitability for the program as well as an application essay and two professional letters of references.

A general education core in the liberal arts and sciences to include the following: 6 credits in English, 6 credits in the arts, 6 credits in social studies (to include at least one course in U.S. history and geography), and 12 credits in math/science/technology.

Applicants must be approved for admission by both the Classics Department and the School of Education. See the School of Education section of this catalog for any additional admission requirements.

Requirements for the Degree

The course of study for the MA in the teaching of Latin has three components which typically total 52-54 credits except for students already certified in another academic subject in grades 7-12.

1. 18 credits in Latin, including Latin composition. Up to two courses (6 credits) in Latin may be taken in the graduate program in classics at the CUNY Graduate Center.
2. 12 credits in classical culture, including **CLA 705**
3. 22-24 credits in education