

PHILOSOPHY

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Some members of the Hunter College Department of Philosophy participate in the MA and PhD programs in philosophy based at the City University Graduate School and University Center.

Information concerning degree requirements, courses, etc., may be obtained from Professor John Greenwood Executive Officer, PhD Program in Philosophy CUNY Graduate School and University Center, 365 Fifth Avenue New York, NY 10016-4309

It may also be obtained at <http://web.gc.cuny.edu/Philosophy/>

PHYSICS AND ASTRONOMY

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Website: www.ph.hunter.cuny.edu

Degrees Offered

Degrees Offered	BA*	MA	MA/MA	HEGIS
Physics	BA*			1902
Physics 7-12	BA*			1902
Physics		MA		1902
Physics 7-12		MA		1902.01
Physics		BA/MA		1902

* See Hunter College Undergraduate Catalog 2002-2004, p. 124 for information about undergraduate programs and courses in physics and astronomy.

FACULTY

Janos A. Bergou, Professor; PhD, Lorand Eotvos; Intense Field Electrodynamics, Multiphoton Processes, Nonlinear and Quantum Optics

Ying-Chih Chen, Professor; PhD, Columbia; Laser Physics, Quantum Electronics, Ultra-fast Optics, Light Matter Interaction

Leon Cohen, Professor; PhD, Yale; Quantum Mechanics, N-Body Self Gravitation Problem

Marten denBoer, Professor; PhD, Maryland; Experimental Condensed Matter, Surface Physics

Greg Foster, Assistant Professor; PhD, SUNY, Stony Brook; Quantum Optics/Computing

Steven G. Greenbaum, Professor; PhD, Brown; Magnetic Resonance, Solid State Physics, Polymer Physics

Godfrey Gumbs, Professor; PhD, Toronto; Theoretical Condensed Matter Physics, Optical and Transport Properties of Semiconductor Nanostructures

Mark Hillery, Professor; PhD, California (Berkeley); Quantum Optics, Non-linear Optics, Ferromagnetic Semiconductors

Neepa Tatyana Maitra, PhD, Harvard; Time-Dependent Density Functional Theory

Edward P. Tryon, Professor; PhD, California (Berkeley); Particle Physics, Cosmology

Rodney L. Varley, Associate Professor; PhD, Brandeis; Non-equilibrium Statistical Theory of Dense Gases and Liquids, Plasma Physics

Siu-Tung Yau, Associate Professor; PhD, Biophysics and Nanotechnology

Marilyn W. Rothschild, Associate Professor; PhD, Rutgers; Dir. Physical Sciences Learning Center, Credit Evaluation Adviser.

Bo T. Lawergren, Professor Emeritus; PhD, Australian National University; Musical Acoustics, Experimental Nuclear Physics

MASTER OF ARTS

The MA in physics is offered as a terminal degree, either separately or as part of the BA/MA program. The MA in physics may also, with the approval of the CUNY Graduate School and University Center, form part of the degree work required for the CUNY PhD degree. Thesis research toward the CUNY PhD may also be carried out at Hunter College.

Requirements for Admission

Applicants must meet Hunter's general admission requirements; however, the physics department no longer requires the Graduate Record Examination. In addition, the following departmental requirements must be met:

1. A minimum of 36 credits total in undergraduate physics and mathematics courses. These should include intermediate mechanics, electricity, modern physics, and differential equations. A B average is required for these courses.
2. Approval by the department's Graduate Physics Committee. If deficiencies are noted in certain undergraduate courses, the applicant may be required to take these courses without graduate credit.

Requirements for the Degree

1. A program of courses designed in consultation with the graduate adviser and approved by the department's Graduate Physics Committee.
2. Completion of 30 credits of graduate work including:
 - a. Not more than 6 credits earned at a graduate institution other than CUNY.
 - b. At least 15 credits earned at Hunter College.



- c. The following courses or their equivalents:
- PHYS U701** Mathematical Physics (4 cr)
 - PHYS U711** Analytical Dynamics (4 cr)
 - PHYS U715** Electromagnetic Theory (4 cr)
 - PHYS U725** Quantum Mechanics (4 cr)
- d. No more than 6 credits in 600-level courses. The courses listed in sections 2(c) and 2(d) are generally offered during the daytime hours.
3. A maximum of 9 credits may be accepted in approved graduate courses in mathematics, astronomy, engineering, and physical chemistry.
 4. The candidate will be required to pass a comprehensive examination based on the required courses listed in section 2(c) above or complete a thesis, under a faculty member's supervision, that is approved by the department's Graduate Physics Committee. The first PhD exam may be substituted for the comprehensive examination.
 5. A minimum residence of two semesters at Hunter College Courses taken as a nonmatriculant may be counted toward the degree upon matriculation with the approval of the department's Graduate Physics Committee.
 6. There are no foreign-language requirements.

Financial Aid

Financial aid in the form of teaching assistantships is generally available, and there is a small amount of aid in the form of grants. In addition, opportunities exist to engage in paid research with various members of the staff.

PROGRAM FOR TEACHERS OF ADOLESCENCE EDUCATION (Grades 7-12) – PHYSICS MA

Departmental requirements for admission are an undergraduate degree with a major in physics. 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

Physics (minimum 16 credits):

PHYS 630 Science and Society	3 cr
PHYS 660 Challenging Concepts in Physics	4 cr

Plus three electives chosen from:

PHYS 605 Mathematical Physics	3 cr
PHYS 615 Electromagnetic Theory	3 cr
PHYS 625 Introduction to Quantum Mechanics	3 cr
PHYS 645 Solid State Physics	3 cr
PHYS 685 Numerical Methods I	3 cr

700-level physics courses offered at the Graduate Center can be substituted for 600-level courses with permission of the graduate adviser.

Education

See the School of Education section of this catalog p. 96 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 **PHYS 660**, which serves as the capstone course in physics.

ACCELERATED BA/MA PROGRAM IN PHYSICS

This special program for a limited number of well-qualified undergraduate students leads to a bachelor of arts and a master of arts degree. Students are offered the opportunity quickly to reach a level where they can stand in competition for admission into any doctoral program in physics. The program requires 124-126 credits (including the 30 credits required for a physics major BA degree and 30 credits from the graduate curriculum). Because this program requires a large number of physics courses, many of which have other physics courses as prerequisites, students in this program should begin taking physics courses in their first or second undergraduate semester. Students should consult the department chair, undergraduate adviser, or graduate adviser for details as early as possible. Consult the Hunter College Undergraduate Catalog 2002-2004, pp. 124-127 for further information.

DOCTOR OF PHILOSOPHY

Hunter College is a member of the CUNY PhD program in physics. Students applying to Hunter College may be accepted into the PhD program with the joint approval of the Hunter College Department of Physics and the Graduate School and University Center.

Students enrolled in the Hunter College MA program who achieve satisfactory records may enter the PhD program by passing CUNY's first PhD examination (an exam required of all PhD applicants). If they are enrolled in the PhD program, the courses taken in the Hunter MA program may be counted as part of the course work required for the PhD. Thesis research toward the doctorate may also be carried out at Hunter College.

COURSE LISTINGS

First-level Courses: Each course 45 hrs, 3 cr, unless otherwise noted.

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

PHYS U605 Mathematical Physics

Introduction to basic mathematical techniques used in physics.

PHYS U615 Electromagnetic Theory

Electrostatics; electromagnetics; Maxwell's equations with application to waves; waves in guides; radiation.

PHYS U621 Electronics

Fundamental ideas of electronic circuits with special emphasis on solid state devices.

PHYS U625 Introduction to Quantum Mechanics

Fundamental ideas in the study of atomic sized systems.

PHYS 630 Science and Society

Study of the interactions between technological and societal changes, with an emphasis on directing productive critiques and debates over potentially controversial technological change within the classroom. Focusing on present-day issues, students will learn various models of analyzing the impact of scientific change on society and how social change directs science.

prereq: one graduate-level physics course or permission of instructor

PHYS U645 Solid State Physics

Introduction to basic theory and techniques in study of matter on solid state.

PHYS 660 Challenging Concepts in Physics: Using Research to Identify Student Misconceptions and Assess Student Learning

Overview of research and theory related to misconceptions in physics. 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 comprehensive examination for the science portion of the MA degree.

*prereq: PHYS 630 and two elective courses in physics or permission of instructor
60 hrs, 4 cr*

PHYS U671 Modern Physics Laboratory

Selected experiments from various fields of physics using modern techniques.

PHYS 685 Numerical Methods I

Accuracy and precision, convergence, iterative and direct methods. Topics selected from: solution of polynomial equations and linear systems of equations, curve fitting and function approximation, interpolation, differentiation and integration, differential equations. (Cross-listed with **MATH 685**.)

prereq: MATH 155

PHYS 695 Numerical Methods II

Topics in numerical methods selected from solutions of linear equations, interpolating functions, root finding methods, nonlinear equations, Fourier series and the fast Fourier transform, partial differential equations. A major term project will be assigned. (Cross-listed with **MATH 695**.)

prereq: PHYS 685

PHYSICS AND ASTRONOMY

Second-level Courses: Each course 60 hrs, 4 cr, unless otherwise noted.

PHYS U701, U702 Mathematical Physics

Study of the basic mathematical techniques used in physics.

PHYS U711 Analytical Dynamics

Study of advanced classical mechanics.

prereq or coreq: **PHYS U701**

PHYS U715, U716 Electromagnetic Theory

Advanced concepts of static and time-dependent electromagnetic fields.

prereq or coreq: **PHYS U701**

PHYS U725, U726 Quantum Mechanics

Basic study of quantum theory of matter including introduction to relativistic theory.

prereq or coreq: **PHYS U701**

PHYS U771, U772, U773

Research or Independent Study

Research or independent study done under supervision of faculty member.

each 30-120 hrs, 1-4 cr

Courses offered according to student demand:

PHYS U738 Introduction to Non-equilibrium Statistical Mechanics

Introduction to basic techniques for study of matter in non-equilibrium situations.

Prereq: **PHYS U711**

PHYS U741 Kinetic Theory and Statistical Mechanics

Study of physical properties of systems consisting of very large numbers of particles.

PHYS U745, U746 Solid State Physics

Basic theory and techniques for study of matter in solid state are developed including solid state devices.

prereq for **PHYS U746:** **PHYS U725**

800-level university courses are periodically offered at Hunter College according to student demand.

PHYS U611 Analytical Mechanics

PHYS U624 Plasma Physics

PHYS U757 Astrophysics

POLITICAL SCIENCE

Department Office: 1724 West Building; (212) 650-5500

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Many members of the department participate in a PhD program based at the CUNY Graduate Center. Information can be obtained from the Department of Political Science, CUNY Graduate Center, 365 Fifth Avenue, New York, NY 10016 or <http://web.gc.cuny.edu/dept/POLIT/index.htm>

PSYCHOLOGY

Department Office: 611 North Building; (212) 772-5550

Chair: Vita Rabinowitz,

611 North Building; (212) 772-5550; vita.rabinowitz@hunter.cuny.edu

MA Program Director and Adviser:

Martin Chodorow, 514 Thomas Hunter Hall; (212) 772-5558; gradpsych@hunter.cuny.edu

Program Head for Biopsychology (CUNY PhD Program): Peter Moller, 611 North Building; (212)772-5621

Website: <http://maxweber.hunter.cuny.edu/psych/maprog/>

FACULTY

Gordon A. Barr, Professor; PhD, Carnegie-Mellon; Developmental Psychobiology: Developmental Neuropharmacology, Pain Perception, Drug Abuse, Opiate Analgesia, Reward and Withdrawal

Christopher Braun, Assistant Professor; PhD, California (San Diego); Sensory Psychology: Sensory Systems in Animals; Neural Substrates of Vibration and Sound Detection; Sensory Variation, Ecology, and Evolution

Sheila Chase, Professor; PhD, CUNY; Experimental Psychology: Animal Cognition, Memory and Decision Processes, Computer Models

Martin Chodorow, Professor; PhD, MIT; Experimental Cognition: Models of Memory, Psycholinguistics, Computational Linguistics

Darlene DeFour, Associate Professor; PhD, Illinois; Personality and Social Psychology: Coping with Stress, Psychology of Women, Social Networks, Black Psychology, Culture and Psychology

Tracy Dennis, Assistant Professor; PhD, Pennsylvania State; Clinical and Developmental Psychology: Emotion Regulation, Motivation, Developmental Psychopathology, Cultural and Contextual Influences on Self Development and Social Relationships

Roseanne Flores, Assistant Professor; PhD, CUNY; Developmental Psychology: Language Acquisition, Cognitive Development, Children and Poverty, Children and Culture

Robert Fried, Professor; PhD, Rutgers; Psychophysiology: Biofeedback Behavior Physiology, EEG

James Gordon, Professor; PhD, Brown; Sensory Psychology: Color Vision, Visual Neuropsychology, Vision in Infants

Cheryl Harding, Professor; PhD, Rutgers; Behavioral Endocrinology: Hormone-Behavior Interactions, Sexual Differentiation of the Brain and Behavior, Brain Neurochemistry and Learning

Rebecca Farmer Huselid, Associate Professor; PhD, Kansas; Social Psychology: Gender Roles and Health, Links Between Ethnic Identity, Adjustment, and Achievement

Shirzad Jenab, Assistant Professor; PhD, Mount Sinai School of Medicine; Drugs of abuse, gene expression, neurochemistry and neuropharmacology, CNS degenerative diseases

Ellen Tobey Klass, Associate Professor; PhD, Chicago; Clinical Psychology: Guilt, Morality, Honesty

Degrees Offered	HEGIS	
Psychology	BA*	2001
Psychology	MA	2001

* See Hunter College Undergraduate Catalog 2002-2004, p. 132 for information about the bachelor's program in psychology

Kenneth Levy, Assistant Professor; PhD, CUNY; Clinical Psychology: Attachment Theory and Research, Mental Representations, Emotion Regulation, Psychotherapy Research, Psychopathology

Victoria Luine, Distinguished Professor; PhD, SUNY (Buffalo); Behavioral Endocrinology: Neurochemistry of Hormone-dependent Sexual Behavior, Hormonal Influences on Age-related Memory Loss

Peter Moller, Professor; PhD, Free University of Berlin; Animal Behavior: Multisensory Integration, Electrolocation and Electrocommunication in Electric Fish, Behavioral Physiology, Behavioral Endocrinology

Helen M. Newman, Associate Professor; PhD, CUNY; Communication and Psychotherapy: Intimate Relationships, Information-processing and Social Cognition, Psychoanalytic Theory, Mind-body Therapies

Jeffrey Parsons, Associate Professor; PhD, Houston; Developmental Psychology: Adolescent Development, Risk Taking, HIV/AIDS Prevention, Health Psychology, Gay/Lesbian Issues, Substance Abuse, Sexual Behavior

Sandeep Prasada, Assistant Professor; PhD, MIT; Cognitive and Developmental Psychology: Conceptual & lexical representation in mind and brain, Language acquisition

Vanya Quiñones-Jenab, Associate Professor; PhD, Rutgers; Molecular and Neuroendocrinological Bases of Behavior: Drug Abuse Effects on Maternal Behaviors and CNS/Endocrine Mechanism, Ovarian Hormones and Pain Pathways

Vita C. Rabinowitz, Professor; PhD, Northwestern; Social Psychology: Gender Issues in Health, Coping, Justice and Helping, Health

Salomon Rettig, Professor; PhD, Ohio State; Social Psychology: Therapeutic Group, the Kibbutz, Risk-taking, Philosophy and Sociology of Science

Bonnie Seegmiller, Associate Professor; PhD, NYU; Developmental Psychology: Intrafamily Abuse, Family Interactions, Cross-cultural Research, Second Language Acquisition

Joyce Slochower, Professor; PhD, Columbia; Clinical and Social Psychology: Psychotherapy, Psychoanalysis

Virginia Valian, Professor; PhD, Northeastern; Cognitive and Developmental Psychology: Language Acquisition, Sex Differences in Cognition and Achievement