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The City University of New York

The Graduate School and University Center

Ph.D. Subprogram in Biopsychology and Behavioral Neuroscience

at Hunter College

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Biopsychology subprogram website: http://www.hunter.cuny.edu/biopsych/home

GC CUNY Psychology doctoral program and application:

http://web.gc.cuny.edu/dept/psych/pages/admissions.html

The Subprogram Faculty

Prof. Mark E. Hauber, Subprogram Head

STUDENT HANDBOOK

This program publication supplements the official Graduate Center *Bulletin* (http://www.gc.cuny.edu/About-the-GC/Resource-Services/Bulletin-of-the-GC), and the announcement of courses. Please make sure to consult these publications for official Graduate Center information. The content is subject to change without notice.

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Welcome and Program Organization

We welcome you as an entering graduate student in the ***Ph.D. Subprogram in Biopsychology and Behavioral Neuroscience***. To help you navigate through the exciting research opportunities, unique collaborations, academic challenges, and the occasional bureaucratic thickets and to understand the various curricular requirements, we have prepared this booklet for your convenience. This document is designed to provide guidance during your years as doctoral candidates and deals with some important aspects of your graduate student experience at GC CUNY.

We hope it will be of good use, particularly during your first year in the program. Of course, you are always welcome to see me or my assistant, or any other faculty member if you feel overwhelmed, confused, or just need advice. You have chosen us for your specific academic interests, and we will do our best to meet your expectations. We wish you good luck and great success during your tenure with us.

You should asked to be assigned to a faculty member for your first laboratory rotation who will serve as your ***temporary adviser***. You will most likely choose a ***dissertation adviser*** during your second year in the program. Please feel free at any time to seek advice or assistance of the program head, any member of the Executive Committee (currently: Professors J. Gordon, D. Reiss, P. Zeigler), or the Assistant Program Officer, Ms. Ellen Breheny.

THE GRADUATE SCHOOL AND **HUNTER COLLEGE**. Some organizational details: The Biopsychology and Behavioral Neuroscience subprogram is administered at two locations: at The Graduate School and University Center of CUNY at 365 Fifth Avenue and at Hunter College at 695 Park Avenue. All doctoral programs are technically administered through The Graduate Center, which houses the Registrar, Admissions, Financial Aid, and other offices. The President of the Graduate School is Dr. William Kelly. The Executive Officer of the Doctoral. Programs in Psychology is

Dr. Maureen O'Connor and the Deputy Executive Officer, is Dr. Tracy Revenson. The

CUNY Psychology Doctoral Program is somewhat unusual in that it is comprised of ***11 subprograms*** which are located at The Graduate Center and at different campuses of the CUNY system.

Biopsychology and Behavioral Neuroscience is an interdisciplinary field that combines the concepts and methods of neuroscience, cognitive science, the biological disciplines, and behavior analysis. It offers a comparative and ontogenetic perspective on species-typical behavior acquired and modified during the organism's life cycle. Basic psychological processes are studied in conjunction with contributions from neurobiology, ethology, ecology, evolutionary biology, genetics, molecular genetics, endocrinology, pharmacology, and related sciences to illuminate the many ways in which species adapt, survive, reproduce, and evolve. Through diversified laboratory experience plus core courses, electives, seminars, colloquia, and field studies, students develop an interdisciplinary perspective. The subprogram in biopsychology provides unique training in basic research and teaching in the field of animal and human behavior, as well as in the application of biobehavioral information to a variety of problems in industrial, business, institutional, health, and environmental settings.

HISTORY OF THE BIOPSYCHOLOGY SUBPROGRAM

The City University of New York (CUNY) was created by State law in April 1961. By October of that year, the basis for doctoral-level programs had been established. By the fall of 1962, Ph.D. programs in psychology, economics, chemistry, and English were under way with the participation of Hunter, Brooklyn, City, and Queens Colleges and The Graduate School and University Center. Programs in biology, engineering, history, mathematics, and physics soon followed. As the millennium approaches, CUNY offers doctoral work in some 31 disciplines.

As specialization and interdisciplinary relations expanded within psychology, lengthy meetings with faculty and administration spun off nine subprograms. ***In 1968, Biopsychology emerged as the area of doctoral studies to be based at Hunter College***. Arrangements were made to transfer relevant faculty from other campuses to Hunter. New budgets for equipment and supplies and new lines to recruit additional faculty, for graduate student support, and for technical services were negotiated with then Hunter President Robert Cross. Common interests among some Biopsychology faculty, some faculty in the ***biological sciences program at City College***, and the ***Department of Animal Behavior at the American Museum of Natural History*** resulted in a plan for an interdisciplinary cooperative doctoral subprogram in ***Animal Behavior-Biopsychology*** submitted to CUNY's Chancellor in April 1969. New laboratories for this program were dedicated at Hunter in March 1971 and at the Museum in December 1971. A training grant in the evolution and development of behavior took effect in 1972 and provided important support for the subprogram (including fieldwork) over the course of several renewals.

Over the ensuing years various factors affected the strength and direction of the Biopsychology subprogram. Perturbations in New York City and State politics and budgeting practices had both negative and positive consequences on CUNY budgets.

Pressure from organizations opposed in one or another way to research using animals resulted in legislation calling for extensive new standards for animal laboratory

care. The tide of accomplishments in ***molecular biology***, ***neuroscience***, and ***cognitive science*** reshaped the psychology curriculum and the patterns of research support. The Department of Animal Behavior at the American Museum of Natural History was phased out, and the interdisciplinary thrust of the training grant became comparative

behavioral neuroscience. At the same time, new laboratories were constructed at Hunter for those faculty based at the Museum, and the Biopsychology faculty grew and developed additional interdisciplinary activities, among them ***psycholinguistics, cognitive processes, human psychophysiology, and primatology***.

From these beginnings the program continued to evolve and add to its areas of research expanding its title to, Biopsychology and Behavioral Neuroscience and today includes faculty doing research in the following areas:

Addiction	Neurodegeneration
Animal Behavior	Neuroendocrinology
Alcohol Dependence	Neuroethology of Sensory Function
Autism	Neurotransmitter Regulation
Clinical & Developmental Neuropsychology	Opioid Tolerance & Withdrawal
Cognitive Neuroscience	Pain Perception
Developmental Neuropsychology	Sensory Information Processing
Emotional Regulation	Sex Differences in Brain Functioning
Language Acquisition	Systems Neuroscience
Learning & Memory Formation	Visual Psychophysiology

Past Subprogram Heads: Robert L. **Thompson** (1968-1980), Sheila **Chase** (1980-1983), Sheila **Chase**, James **Gordon**, Howard **Topoff** (1983-1984: the “troika” year), Peter **Moller** (1984-1986), James **Gordon** (acting, 1986-1987), R. L. **Thompson** (1987-1990), H. Phillip **Zeigler** (acting, 1991-93; 2001-2002), Virginia **Valian** (acting, 1993-1994), Peter **Moller** (1994-2005), Vanya **Quinones-Jenab** (2005-2008) Michael **Lewis** (2008-2011), Mark **Hauber (**2011-Present)

BIOPSYCHOLOGY AND BEHAVIORAL NEUROSCIENCE DOCTORAL FACULTY

Our faculty consists of a dynamic group of researchers, scientists, and mentors. For the most updated list, please refer to: http://www.hunter.cuny.edu/biopsych/faculty

ADMINISTRATION – HUNTER COLLEGE

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Phone: 772-5759

ADVISING AND COURSE REGISTRATION

All incoming new students will choose or be assigned an ***adviser*** who will provide or arrange for initial office/laboratory space. The initial choice or assignment will be subject to approval by the Executive Committee after admission of the student to the program.

Adviser and student should meet prior to registration to discuss and establish curriculum goals and course selections.

The adviser and student jointly recommend the course load for the current semester to the program head. The program head will discuss any possible revisions in course recommendations with the adviser and student and will then sign off on the final course schedule.

The adviser will remain responsible for the student as long as she/he remains in the laboratory. The student may arrange for a different adviser, at any time, and must notify the Assistant Program Officer about the requested change.

CURRICULUM (CORE COURSES AND ELECTIVES)

Students in the Biopsychology and Behavioral Neuroscience Ph.D. Subprogram progress through a sequence of courses, research, and examination requirements. Students will be designated as being Level I, Level II, or Level III, depending upon the number of course credits and program requirements completed. There are ***two kinds of required courses***: The CUNY Ph.D. Program in Psychology specifies a ***two-semester sequence in quantitative methods*** (satisfied by 70500, 70600, or equivalents; see below), and a 3 credit course in ***Legal and Ethical Issues in Psychology***. The minimum acceptable grade for quantitative methods is B-. The ***second set of required courses*** is specific to the ***Biopsychology and Behavioral Neuroscience subprogram*** as outlined below.

Individual curriculum planning will depend upon the student's previous preparation, and some remedial courses may be necessary during the first year. The majority of courses are designed to ensure competence in the three disciplinary axes of the program (required courses): ***Animal Behavior*** *(2 semesters)*, ***Neuroscience*** (2 semesters), and **Basic** ***Psychological Processes (involving Development, Cognition, Learning, Sensation and Perception)*** *(2 semesters).* For this reason, all students will take a one-year course sequence in each of these areas during the first three semesters. Other courses include **Statistics** (2 semesters), ***Computer Programming,*** and ***Instrumentation***. Students will also take advanced courses in their area of specialization (***electives***). Students are expected to begin laboratory work when they enter the program (see: internships, below). The total number of required credits is 60.

The Statistics requirement can be fulfilled in several ways:

Psychology 70500 - Statistical Methods I 3 cr.
Psychology 70600 - Statistical Methods II 3 cr. **or**
Biology 78001- Mathematical Biology Lecture 3 cr.
Biology 78002- Mathematical Biology Lab 2 cr. plus one additional credit **or**
Psychology 78000 -Quantitative Methods 3 cr. plus one of the above 3-cr. courses

(Note: any selection other than 705/706 **must be approved** by the Biopsychology and Behavioral Neuroscience Executive Committee.)

CORE COURSES

Course title: **Animal Behavior I**

Course number: PSYC U71600 (cross-listed with BIOL 72400); 3 credits.

Description: Historical perspectives on schools of animal behavior; behavior development; proximate causation of behavior (motivation, neuroethology, and biorhythms); animal orientation, communication; cognitive ethology and culture.

Course title: **Animal Behavior II**

Course number: PSYC 71800 (cross-listed BIOL 72401); 3 credits.

Description: Three areas are covered in this course. The first major topic is behavioral genetics, in which we consider the importance of single-gene effects, polygenic behavioral traits, and the utility of the concept of heritability. This is followed by behavioral evolution, which covers the methods of elucidating the phylogeny of behavior, when fossil evidence is not available. Rounding out the course is a module on behavioral ecology, which focuses on mating systems, territorial behavior, feeding strategies, antipredatory behavior, and sociobiology.

Course title: **Advanced Neuroscience I & II**

Course number: PSYC 7100 (cross-listed with BIOL 72300); 3 credits.

Course number: PSYC 71100 (cross-listed with BIOL U72301); 3 credits.

Description: The course is designed to provide entering students with a common body of knowledge about contemporary neuroscience, as well as exposure to some recent research reports. The first semester (7100) focuses on information processing and transmission at the molecular and cellular level, including membranes and receptors, ion channels, generation and conduction of the nerve impulse, and electric and chemical mechanisms of neurotransmission and neuromuscular junctions and central synapses. The second semester (71100) adopts a systems approach to information processing and transmission, focusing on sensory (visual, somatosensory systems),

motor (somatomotor, oculomotor systems), and neuroendocrine (hormonal) systems. Additional topics include brain development and psychopharmacology.

Course title: **Basic Psychological Processes I & II**

Course number: PSYCH 75103 Basic Psychological Processes I; 3 credits

Course number PSYCH 75104 Basic Psychological Processes II; 3 credits

Description: These courses will cover basic psychological processes and serve as an introduction to the topics of sensation and perception, learning, memory, language, development and comparative cognition. These courses will provide the necessary background in psychology for students whose primary interests are in neuroscience and animal behavior. There are no prerequisites. These courses will be team taught by members of the Biopsychology and Behavioral Neuroscience subprogram.

Course title: **Ethical and Legal Issues for Psychologists**

Course number: PSYC 771; 3 credits.

Description: This course covers issues such as philosophy and ethics, voluntary informed consent, deception, debriefing, and privacy. It will detail the mechanics of IRBs and IACUCs; issues such as animal welfare, use of animals, and human subjects in scientific research will be discussed on the basis of selected examples. Special sections will deal with ethical issues in psychotherapy and counseling, testing, teaching, and publishing.

ELECTIVE COURSES

Course title: **Cognitive Psychology**

Course number: PSYC 73800; 3 credits.

Description: This course provides an information-processing view of attention, perception, memory and language. Theoretical work in psychology, computer science, and linguistics provides the basis for analyzing a wide variety of experimental studies.

Course title: **Developmental Psychology**

Course number: PSYC 72000; 3 credits.

Description: Sensory, perceptual, cognitive, social, and motivational development will be considered. Various theoretical approaches to each of these areas will be examined, as will the methodologies pertaining to these various topics.

Course title: **Language and Thought**

Course number: PSYC 75200, 3 credits.

Description: This course explores the relationships between language and the other cognitive processes by examining theoretical and experimental work on language comprehension, production, and acquisition. Topics include syntax, semantics, and speech perception.

Course title: **Sensory Psychology**

Course number: PSYC 73600; 3 credits.

Description: Detailed consideration of sensory processes and their mediating neural mechanisms. Substantive topics reviewed are: (1) fundamental absolute and differential threshold data in the auditory, visual, and other modalities; (2) psychophysical "laws", methodological problems of sensory psychology reviewed include the criterion-level (response criterion) problem and the criterion-content (stimulus attributes) problem.

Course title: **Instrumentation**

Course number: PSYC 70400G; 3 credits.

Course description: Laboratory/lecture course dealing with instruments typically encountered in research laboratories. The course emphasizes a hands-on approach to the general principles behind most common instruments. There are five identical workbenches, each accommodating two students. Course covers: basic tools and materials; introduction to electronics and design of simple circuits; testing circuits with multi-meters and oscilloscopes; construction of devices using digital and analog integrated circuits; using photometers and sound-pressure meters to specify stimuli; introduction to interfacing a computer to control external devices and to acquire electronic information from them

.

Course title: **Special Topics in Biopsychology (Instrumentation)**: **Microcomputers in Psychological Research (lecture) and, as a co-requisite, Microcomputers in Psychological Research (lab)**

Course number: PSYC 80100 (70400 for MA students); 3 credits.

Course description: This course teaches the student to program psychological experiments on a microcomputer. General topics include syntax and semantics of Visual Basic, fundamentals of data structures and algorithms, and the Windows environment. The topics related directly to research in psychology include generating stimulus materials, synchronizing visual displays, controlling external devices, recording and timing responses, storing data, and analyzing results. Grades will be based on weekly programming assignments, a midterm exam, a final exam, and a term project.

Course title: **Animal Learning and Comparative Cognition (**Fall 2000)

Course number: PSYCH 73400; 3 credits

Course description: The course provides students with a broad knowledge of non-human and human cognition and learning. By taking a comparative approach, we can understand how organisms adapt to environmental demands, how biological constraints and experience interact to determine what is learned, and how to reframe classical questions in learning and development. Topics include learning, conditioning, evolution, generalization, attention, memory, decision processes, counting, communication, and

social learning.

Course title: **Seminar in Psychopharmacology**

Course number: Psych. 823; 3 credits

Course description: This course provides an in-depth review of current research on neuropharmacology, neurochemistry and behavior. The course will examine the major drug categories, addiction and dependence, and pharmacotherapy. The importance of neurotransmitters, neuromodulators, neuroendocrine and other neurochemical systems will be the focus of the discussion. These topics will be discussed assuming a background in physiological psychology, learning, and basic chemistry.

LAB INTERNSHIPS, SEMINARS, COLLOQUIA, FIELD COURSE

Course title: **Lab Internship (Laboratory Rotation)**

Course number: PSY 70300; 3 credits. Instructor: assignment rotates

Description: The aim of this requirement is to familiarize students with work in the program's disciplinary areas and to acquaint them with the research interests of the Biopsychology faculty. The student will gain experience in research design, conducting research, and writing research papers. The internship requires the student to spend between 12-15 hours per week in the laboratory on an empirical research project, read key papers related to the work performed in the laboratory, and meet with the faculty member on a regular basis to discuss those papers and progress on the project. Only two of the three required total rotations may be taken in laboratories working in the same cognate area. Participation in the program's field course (with instructor's approval) may be taken in lieu of one internship.

(1) Requirements: At the beginning of the semester (but not later than by the end of the third week), the supervising faculty member and the student will agree upon and submit to the program head and the 70300 administrator a signed document describing the work that the student will perform in the laboratory and the nature of the paper the student will turn in at the end of the semester. If the work is to be considered as part of the requirements toward an M.A. en-route degree, the student should so inform the

advisor. The faculty in charge of the project may impose additional requirements. If there is a conflict between the 70300-research component and the student's other workload, students signed up for the fall semester are advised to conduct their actual research in January, and students signed up for the spring semester, during the summer.

(2) Deadlines: If the work has not been completed by the end of the semester, the student may request a grade of incomplete and together with the supervising faculty member set a date for its completion. The completion date must be no later than the **end of the following semester** (i.e., for fall registrants, 5/31 & for spring registrants, 12/31. If the paper is not completed by these respective deadlines, the administrator will change the INC to a grade of INP (permanent INC) in which case past work will be considered void and the student must sign up for a new internship (in a different laboratory) the following semester.

3) **Evaluation** (letter grades: A, B, or C) of each internship project will be based on a research paper prepared in a mutually agreed format (e.g., APA, AIBS, etc.). A regular internship report will be graded by the supervising faculty and submitted to the current 70300 administrator together with a copy of the report. **Only when the Biopsychology and Behavioral Neuroscience office has received a copy of the graded report will a grade be officially entered/or changed**.

The student and his/her Advisor need to decide at the beginning of the lat rotation if the research to be done will lead to a paper to meet the requirements for **M.A. en-route.** If so, once the paper is completed and approved by the Advisor, it needs to go to the Biopsychology and Behavioral Neuroscience Program Office to be approved by the Program Head and the Hunter College Psychology Department MA director, for the **MA en-route** to be awarded by Hunter College or one of the other senior CUNY colleges**.**

Course title: **Colloquium in Biopsychology and Behavioral Neuroscience**

Course number: PSYC 78400; 1 credit. Instructor: assignment rotates

Course description: To acquaint students with current research in Biopsychology and related areas, two colloquia are held each year. The ***Fall Colloquium*** is organized by faculty and/or doctoral students and includes presentations on a variety of topics by program students, faculty, and outside speakers. The Colloquium provides a forum for presentation of internship results and dissertation proposals. The ***Spring Colloquium*** is held in association with an advanced seminar on some special topic of interest. It usually involves a series of symposia in which distinguished visiting scientists discuss their work in relation to current issues in the field. ***Because colloquia are an important part of the graduate training experience, registration and attendance are required of all students.*** A listing of past spring series topics is appended (see appendix 5).

Course title: **Seminar in Biopsychology and Behavioral Neuroscience**

Course number: PSYC 80100; 3 credits. Instructor: assignment rotates

Course description: The content of the seminar (Spring semester) is linked to the topic of the colloquium series. When taught during the fall semester, Biopsychology faculty teach a specialty course in their area of expertise. Advanced graduate students register for this seminar.

Course title: **Seminar on the Teaching of Psychology**

Course number: Psych. 79900; 3 credits.

Course description: Practical and conceptual issues related to reaching by doctoral students in Psychology. Because of its centrality for the curriculum, we will focus on the one-semester Introductory course, which may be the student's first independent teaching experience. The goals of the course are to development a course which reflects both the instructor's interest and the current state of the discipline. While the focus of the course will be on syllabus development and lecture organization, there will be continuing discussion of practical problems (grading, attendance, student-instructor interactions, discipline). The course will involve both peer-critiques of student lectures and presentations by invited "master teachers" who will introduce key concepts and

teaching tools for specific subject areas. Open to students from all doctoral programs.

Course title: **Field Studies in Animal Behavior**

Course number: PSYC 71610; 3 credits.

Description: Students are given the opportunity to participate in a field course during their stay in the program. The course is normally held during the summer months (for 2-3 weeks)..This course provides students with experience in studying the behavior of animal species or marine mammals in their natural environment.

INDEPENDENT AND DOCTORAL DISSERTATION RESEARCH

Students who have completed the Lab Internship requirement will select a dissertation sponsor by the start of the fourth semester and register under **Current Research in Biopsychology** (PSYCH 719) with the sponsor (or a designated faculty member). In the absence of a sponsor, the student may select another laboratory in their disciplinary area. **It is expected that students will have selected a sponsor no later than by the start of their third year.** Students who have completed the first and second examination requirements (see below) will register for **Dissertation Supervision** (PSYCH 900)

Representative Time Table for First Two Years

First Year

Fall

Psych. 703 (lab rotation) 3 crs.
Psych. 710 (Neuroscience I) 3 crs.
Psych. 75103 (Basic Psychological Processes I 3 crs.
Psych. 784 (Colloquium in Biopsychology 1 cr.

Spring

Psych. 703 (lab rotation) 3 crs.
Psych. 711 (Neuroscience II) 3 crs.
Psych. 718 (Animal Behavior II) 3 crs.
Psych. 784 (Colloquium in Biopsychology) 1 cr.
Psych. 801 (Seminar in Biopsychology and Behavioral Neuroscience 3 crs.

Second Year

Fall

Psych. 703 (lab rotation) 3 crs.
Psych. 716 (Animal Behavior I) 3 crs.
Psych 75104 Basic Psychological Processes II) 3 crs.
Psych. 705 (Statistical Methods I) 3 crs.
Psych. 784 (Colloquium in Biopsychology) 1 cr.

Spring

Psych. 799 (Sem. and Pract. in Teaching Psychology) 3 crs.
Psych. 706 (Statistical Methods II) 3 crs.
Psych. 719 (Current Research in Biopsychology) 3 crs.
Psych. 784 (Colloquium in Biopsychology) 1 cr.
Psych. 801 (Seminar in Biopsychology and Behavioral Neuroscience 3 crs.

Psych. 771- (Ethical and Legal Issues for Psychologists) 3 crs. This is a required course and should be taken as soon as the student can to complete the core requirements

EXAMINATION STRUCTURE AND PROGRESS

Teaching of Psychology (Psych 799 and the Subject GRE Requirement: The decision was made that from the Fall 2011 semester forward that the passing of the Subject GRE would be removed as a subprogram requirement. It is replaced by the new requirement that students take the Psych. 799 course Teaching of Psychology which is offered each Spring. This course available to all students in the program will prepare a student to teach Introduction to Psychology and to be able to teach a course in their own research area as they advance towards their degree.

Students admitted prior to Fall 2011 can still satisfy Subject GRE requirement with a score of "600", take an in-house alternative GRE test (to be administered by Dr Mark Hauber, the program head), or take Psych 799 during or after Spring 2012.

First (Comprehensive) Examination*.* This is a written examination, based on the course content of the program's three core sequences: ***Animal Behavior (evolution and development), Neuroscience, and Basic Psychological Processes,*** *including those methodologies deemed appropriate for each section*. The First Examination must be taken between the 3rd and 4th semesters. The First Examination is held each January and is coordinated by one of the faculty members of the Curriculum and Examination Committee. The faculty member in charge arranges a meeting of the students taking the First Exam to discuss the exam and set the days and dates on which the exam will be administered.

The exam has three parts; three hours are allotted for answering the questions on each

part. It is scheduled on three consecutive days, which can include a Thursday, Friday, and Monday schedule. The answers can be handwritten or done on a computer. Two faculty members grade each answer; if there is a discrepancy between two faculty members on grading the answer, a third faculty member will be asked to read and grade the answer. When both grades for each question are in, the overall grades are be computed. The passing grade for each part is B-. When all the grades are received, the Biopsychology Executive Committee reviews the grades, and the students are notified of the results.

A student who fails the First Examination may retake failed sections without appeal no later than April 30 of that year. After a second failure the student may appeal to the Biopsychology Executive Committee to grant admission to a second retake. If the appeal is granted, the examination must be taken no later than June 30 of that year. The If this appeal is denied or the student fails the second retake, he/she will be dropped from the program, effective September 1 of the year the examination was taken. Any appeal must be directed to the Executive Officer in Psychology at The Graduate Center. (See the *Student Handbook* for appeals procedures.)

NOTE 1: Completing 45 credits and passing the First Examination meet the requirements for advancement from Level I to Level II (see TUITION SCHEDULES).

NOTE 2: At Level II, the student is eligible to obtain the degree of *'MA en-route*'. The Biopsychology and Behavioral Neuroscience rules stipulate that the student submit a *substantial research paper* to the Program Office approved by the

Adviser, and for review and approval by the Program Head and the MA director of the Hunter College Psychology Department. Such a paper might originate from the student's work during his/her internship (rotation) or an independent study project during the doctoral work. Published peer-reviewed first authored papers by the students are strong examples to satisfy such a research paper requirement.

Topic Proposal. This is a brief statement (about one page: appendix 1) of the proposed dissertation topic, to be approved by the dissertation adviser and committee, and submitted to the subprogram head who will forward it to the Executive Officer in Psychology. *It is expected that the topic proposal will be submitted sometime during the student's third year.* The dissertation committee consists of five members, ***three of whom must be full-time CUNY faculty***: chair (usually the student's adviser) and two faculty members, as well as two outside readers. (Note: An ***'outside reader' may or may not be CUNY faculty.***) It is recommended, but not required, that the outside readers be involved with the student's dissertation as early as possible (e.g., preparation of the topic proposal). The ***adviser needs*** to secure CVs of prospective non-CUNY faculty so they can be approved by the Program Executive Committee.

Dissertation Proposal. To prepare for the *Second Examination,* the student will prepare a dissertation proposal. This is a detailed statement of the topic, methods, and goals of the dissertation, prepared in consultation with the student's mentor and committee members. The dissertation proposal includes pilot data, demonstrates that the proposed work will yield valid and new information, and states that it can be conducted within a set time frame.

Second (Doctoral) Examination. This examination consists of two parts:

(1) The first part consists of a ***substantive oral examination*** (about 1 hour) by the Dissertation Advisory Committee, covering in some depth ***material directly related to or cognate with the area of study associated with the dissertation topic***. Prior to

the examination, the dissertation advisory committee in consultation with the student will jointly determine a range of areas in which the student will be examined.

(2) The second part consists of the ***defense of the student's dissertation proposal***. Passage of this part constitutes approval of the dissertation proposal. The examination focuses on clarification of the concepts, methodology, and scope of the proposed dissertation.

The proposal defense takes place at a meeting of the student with his/her committee (consisting of at least three members, but preferably the entire advisory committee of five). Upon request by the student's adviser to the Biopsychology and Behavioral Neuroscience Executive Committee, the dissertation committee can be enlarged. The student's adviser will summarize the results of this examination in a memorandum to the Biopsychology and Behavioral Neuroscience Executive Committee. Both parts of the examination can be administered on the same day. The subprogram head shall be informed about the time and venue of the examination.

Should the committee deem the performance on the first part as failure, the student cannot be admitted to take the second part. He/she must retake the first part at a time to be determined by the student's adviser. It is expected that the Second Examination will be completed and the student advanced to candidacy between the third and fourth year.

NOTE 1: Completing 60 credits and passing the Second Examination meet the requirements for advancement from Level II to Level III (see: TUITION SCHEDULES).

NOTE 2: By advancing to Level III (candidacy) the student is automatically eligible to be awarded the degree of 'M. Phil.' (see Assistant Program Officer for details).
NOTE 3: Having passed the Second Doctoral Examination, the student now registers for PSYC 90000 (doctoral dissertation research) with his/her mentor (or a designated faculty member).

Doctoral Dissertation Defense* (Third Examination).** Following completion of the dissertation and all other CUNY-mandated requirements, the student defends the dissertation. The final step in the achievement of the doctoral degree involves an ***oral examination and defense of the conclusions reported in the dissertation. It consists of a ***public presentation*** of the student's research findings, followed by a defense of the thesis before the members of the complete dissertation advisory committee.

There are specific guidelines to set up a dissertation defense. The student who is ready to set a definite defense date would proceed as follows:

1. The adviser sends a letter to the Executive Officer indicating that the student is ready to defend and notes the intended date, time, and location of the defense.
2. The adviser should confirm the members of the dissertation advisory committee and include a résumé for the faculty members outside of CUNY (unless the faculty member already has one on file with the Executive Office).

The student must provide a copy of the completed dissertation to each committee member for review along with the "Dissertation Approval Form". When a committee member has completed and signed the form, a copy should be kept by the Mentor and the original goes to the Subprogram office. A copy is made for the student's file and the original goes to the Executive Office. The Executive Office must receive at least four approvals before ***official approval*** for the defense will be given. The Provost's Office will then notify the members of the committee that the defense is set.

Note: Detailed instructions on preparation of the dissertation, are available from the Biopsychology and Behavioral Neuroscience Program office. The student should make an appointment with the Dissertation Librarian, Ms. Judith Waldman, in the Mina Rees Library at the Graduate Center well in advance of the dissertation deposition date.

FINANCIAL SUPPORT

All graduate students in Biopsychology and Behavioral Neuroscience are supported. Funds come from ***assistantships*** provided by Hunter College/Department of Psychology and The Graduate Center for assisting in or teaching some of the undergraduate courses in the Department of Psychology at Hunter College. These assistantships represent an important opportunity for *training as a college teacher*. For this reason, ***at least one year of teaching is required of all doctoral students.*** The Biopsychology and Behavioral Neuroscience doctoral program's aim is to support its students for up to five years.

(1) Three types of assistantship are available. The salary schedules which are listed below are as of Fall 2009 according to the contract. These salaries change periodically.

Type A* involves assisting in or lecturing in two sections/courses **($20,801)**

Type B* involves assisting in or lecturing in a single section/course **($10,841)**

Type C involves teaching two sections/courses **($15,822)**

Students appointed for a second year as a Graduate Assistant A, B, or C receive an increase in annual salary in January of the second year of continuous employment.

In accepting an assistantship, a graduate student is acknowledging a ***responsibility to the department*** to see that those courses are taught according to ***professional standards***. For assistants in laboratory or lecture courses, this implies ***attendance at course sections*** as indicated by the instructor, promptness and accuracy in the grading of written work, and thorough preparation of laboratory materials for student use. For lecturers, this implies ***careful preparation of course materials***, including provision of a syllabus and assignment of appropriate written work (examinations and quizzes) throughout the course. Assignment of assistantships is normally made to ensure increasing degrees of teaching competence as a student passes through the program.

(2) ***CUNY Science fellowships*** **($ 24,000** per year with no teaching required in the first year*). Following the second year, the Biopsychology subprogram will provide Grad. Fellow A support and an in-state tuition waiver.*

(3) ***Program Awards*** (R.L. Thompson Award for Excellence in Research, and the Peter Moller Award to assist with Dissertation research.

((4) ***CUNY competitive doctoral student fellowships*** (see Assistant Program Office)

(5) Adjunct teaching lines (lines made available through the Department of Psychology to the Biopsychology subprogram)

(6) ***Travel funds*** are available through The Graduate Center's Provost's Office. Modest amounts are set aside to support student travel to scientific meetings. The Subprogram also has a limited amount of funds for student travel to professional conferences.

.**(7)** Hunter College has several programs that provide in-depth research experience to minority graduate students (***MBRS, MIDARP*** and ***RCMI Programs***). With these programs support is provided for students studying in various areas of research in Biopsychology and Behavioral Neuroscience.

ANNUAL STUDENT EVALUATIONS AND CRITERIA FOR SUPPORT

Each spring semester (usually early April), students are asked to complete the Student Evaluation Profile (see appendix 2) so an evaluation can be made of their progress by the Biopsychology faculty. The evaluation will be used to determine the teaching assistantship and/or teaching assignments and level of support for the following academic year. Decisions about support are made by the Executive Committee. The committee members review the students' records, query relevant faculty, and make recommendations, which the faculty as a whole discuss at their annual ***student evaluation meeting***. ***Final decisions about support rest with the Executive Committee.***

The faculty's main goal is to foster the development of the students' competence, independence, and creativity in research. We correspondingly see that development as the students' main goal. Our decisions about support are intended to help students spend maximum time possible on their coursework and research. While we see teaching as an important skill for students to develop, we view research as the students' primary job. Students' performance in the laboratory (internships, independent study, doctoral dissertation work), including the papers written at the end of an internship, and other evidence of research activity (papers/posters presented at conferences, publications, and grants applied for and received) are heavily weighted.

We aim to provide a support package that may include teaching assistantships, research assistantships, fellowships obtained by students, university fellowships, tuition waivers, and money recovered from the overhead of faculty grants (Tithe funds). .

Requirements are imposed by the Graduate Center for advancement from Level I to Level II, or from Level II to Level III (see **TUITION SCHEDULES**).

Representative Criteria for Continued Financial Support based on Satisfactory Progress in the Program (subject to change):

By the end of Academic Year 1

(1) ≥ 3.0 GPA

(2) No grades of INC other than one in PSY 703

(3) Satisfactory teaching/assisting reports (including student evaluations)

By the end of Academic Year 2

(1) ≥ 3.0 GPA average (CUNY requirement)

(2) No more than 2 grades of INC (CUNY requirement)

(3) First Examination passed (following the third semester)

(4) Topic proposal form approved (by the end of the fourth semester)

(5) Topic clearance/IACUC/IRB forms approved.

(6) Student colloquium presentation (fall semester)

(7) Satisfactory teaching/assisting reports (including student evaluations)

By the end of Academic Year 3

(1) Collected sufficient pilot data

(2) Fellowship and/or research grant proposal drafted and submitted to granting agency

(3) Satisfactory teaching reports (including student evaluations)

(4) Dissertation proposal draft submitted to committee members

(5) Advancement to Level II (45 credits required)

(6) Second examination scheduled and taken.

By the end of Academic Year 4

(1) Second Examination passed; advancement to Level III (candidacy)

(2) Presentation of a one-hour colloquium on dissertation work

(3) Satisfactory teaching reports (including student evaluations)

By the end of Academic Year 5

(1) Satisfactory progress report submitted by student's adviser

(2) Presentation of dissertation work at scientific conference; manuscript(s) submitted

(4) Dissertation work completed, analyzed, and written up

(5) Dissertation defense scheduled and successfully defended

HOUSING FACILITIES

One source of housing information would be to check on line on the Graduate Center Website. There are Graduate Center apartments for which students can apply.

TUITION SCHEDULES (per semester) as of Spring 2010

	In-state	***Out-of-State***
Level I	*$3,290*	*$645 per cr.*
Level II	*$2,060*	*$4,580*
Level III	*$815*	***$1,635***

Students move to Level III only when they are eligible for Advancement to Candidacy. This means the completion of the following: 60 credits (including core courses), an approved Topic Proposal, and passing the Second Doctoral Exam, which includes the submission of the approved Dissertation Proposal.

BIOPSYCHOLOGY and Behavioral Neuroscience
SUBPROGRAM SELF-GOVERNANCE

The Biopsychology and Behavioral Neuroscience Doctoral Subprogram is governed by the governance and regulations set forth by the City University of New York, The Graduate Center, the Ph.D. Program in Psychology, and its own bylaws. For CUNY-wide information, consult the Graduate Center *Student Handbook*.

The Biopsychology and Behavioral Neuroscience Subprogram is governed by the **Subprogram Head,**

the Executive Committee (consisting of the subprogram head, three elected fulltime Biopsychology and Behavioral Neuroscience faculty members, and two elected fulltime Biopsychology and Behavioral Neuroscience students),

and three standing committees:

Admissions and Awards Committee,

Curriculum and Examination Committee, and the

Committee on Faculty Membership.

Each of the standing committees consists of three elected fulltime Biopsychology faculty members and two elected fulltime Biopsychology and Behavioral Neuroscience student members. The subprogram head serves ex-officio on all committees. The subprogram head and one elected fulltime Biopsychology and Behavioral Neuroscience student represent the Biopsychology and Behavioral Neuroscience subprogram at the Psychology Council.

OTHER GRADUATE SCHOOL PROGRAMS
(INTER-UNIVERSITY DOCTORAL CONSORTIUM)

The ***Graduate School and University Center*** is a member of the Inter-University Doctoral Consortium, which provides for cross-registration among member institutions. Matriculated GSUC doctoral students may cross-register for doctoral study in the graduate schools of arts and sciences at the following institutions: ***Columbia University*** (excluding ***Teachers College***), ***Fordham University***, the ***New School for Social Research***, and ***New York University***. The general terms for participating in the inter-university cross-registration project are:

1. A student must be matriculated in a doctoral (no master's) program at one of the participating institutions, and must have completed at least one full year of graduate study at the home institution.
2. Courses available for cross-registration should not normally be available at the home institution.
3. Participation in cross-registration is subject to approval by the deans of the home and the host institutions.

A registration form (available in the Office of the Registrar or in the Subprogram Office) must be completed with approvals from the student's academic adviser, (Executive Officer), course instructor, dean of the home university, and dean of the host university. Completed forms should be returned to the Registrar.

Students taking courses at another university are subject, in those courses, to the academic regulations of the host university, including the grading system, calendar, and academic honor system. It is the responsibility of the students to familiarize themselves with the pertinent regulations of the host university. CUNY students must also comply with any additional registration instructions received from the host institution.

CUNY students pay tuition to CUNY for any cross-registered courses that they take and must include the course (s) on their registration forms at The Graduate Center.

Hunter College Institutional Animal Care and Use Committee (IACUC)

Work in our program involves the use of live animals, in both teaching and research. Any student who actively participates in teaching (e.g. handling animals in an undergraduate experimental psychology course) or uses animals in his/her own research must be IACUC certified. Hunter College Animal Facility staff regularly conducts ***certification courses***. Students upon joining the Program should immediately sign up for this course (about 3-4hrs). All research involving animals (funded or not) must be approved by the Hunter College IACUC. See **Appendix 3** for IACUC requirements **.**

Appendix 1.

PhD Subprogram in Biopsychology

Student Evaluation Profile 2007/2008

1.Spring 2010 -- Fall 2010 - Spring 2011

Name **Current adviser** Date entered program (sem./yr.)

1. *Lecture courses taken* (course title/instructor/final grade)

Spring 2010

Fall 2010

Spring 2011

2. ***PSY 703 Rotations/internships (list all)***

Topic	SEM/YR	Adviser	Grade

3. ***CUNY-required courses* (circle applicable choice)**

Statistics 705	yes	no	current
Statistics 706	yes	no	current
Ethical issues 771	yes	No	current

4. ***Assignments****

	Course/ Teach	Course/TA
Spring 2010		
Fall 2010		
Spring 2011		

5. ***Examinations***

	Status	Taken	Not taken	Will take (Date)
Subject GREs				
First examination				
2nd exam (dissertation proposal)				

6 . Dissertation research/topic

Advisor/Name
No advisor yet **Possibly working with:**
Topic proposal **Submitted/date** **Not submitted/projected date of submission**

7. 2010-2011 publications, oral and/or poster presentations: published or in press. Do not list articles "in prep" or "in progress".
Please give complete details (i.e. Journal, volume, pp., year; date of convention and exact title)

Author(s)	Year	Title	Journal/Conference	Vol./pp.

8. Service to Biopsychology and Behavioral Neuroscience Program, Department of Psychology, and/or University (other than teaching assignments). Here you might want to list committee memberships)

9. Other Information you feel the committee should have to make an adequate evaluation of your academic progress in the program
(Here you might list here honors and awards & work in progress)

Appendix #2

HUNTER COLLEGE

INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE

PROTOCOL REVIEW FORM

Regulatory Requirements

A variety of state and federal regulations govern the care and use of animals by the faculty and students of Hunter College. These include:

1. United States Department of Agriculture (USDA) and New York Animal Welfare Regulations.

2. Public Health Service Policy on Humane Care and Use of Laboratory Animals.

3. National Institutes of Health (NIH) Guide for the Care and Use of Laboratory Animals.

4. 1993 American Veterinary Medical Association (AVMA) Panel on Euthanasia.

Federal law requires that the Institutional Animal Care and Use Committee (IACUC) must approve all use of live vertebrates by Hunter staff before it can begin. The IACUC has the responsibility of determining that all animal use by Hunter faculty and students complies with the guidelines listed above. This includes both funded and unfunded research and the use of animals within the classroom for educational purposes. It includes all animal use, even purely observational, and it includes sacrificing animals to obtain tissues. Properly completed protocol forms protect the interests of the research animals, the researchers, and Hunter College. Breaches of protocol (e.g., misinformation, research activity in the absence of or not specifically covered in an approved protocol) may result in a range of disciplinary actions, depending on the seriousness of the breach.

USDA regulations require that the investigator with respect to the degree of discomfort, distress or pain involved classify research procedures. For procedures, which "cause more than momentary pain or distress," a documented search for alternatives must be

carried out, and the need to perform such procedures must be specifically justified. Survival surgery must be carried out under aseptic conditions at a location specifically set aside for that purpose. Methods of euthanasia must conform with the recommendations of the 1993 AVMA panel. Inspectors often raise these and other questions covered by the protocol form during their periodic visits.

INSTRUCTIONS: Please submit one completed, signed protocol application to the Hunter College Office of Research Administration, Room E1427. For your convenience, the form is available as a Word Perfect, a Word or an ASCII file, if you provide a diskette. If possible with your computer system, please format your answers in a different typeface than the questions on the protocol form.

Incomplete or illegible forms cannot be reviewed. All questions must be answered. If a question is not relevant to your research, please fill in not applicable (NA). Protocols must be signed by the appropriate Department head or Dean prior to review. While you should add as many pages as necessary to clearly convey the experimental design and scientific justification of your project, the Committee urges you to write as clearly and concisely as possible. Be sure that you define all abbreviations the first time they are used and write in terms understandable to a layperson, not just an expert in your field. For complex projects, tables summarizing experimental design and the type and number of animals per treatment are often useful in providing the maximum amount of information in the minimum amount of space.

A maximal period of three years of research or teaching may be covered by a protocol. If approved, annual updates will be required on the anniversary of the start date. Short forms are available for these updates. All personnel must attend the animal care and use training course before they will be allowed to work with animals. This course is typically offered at the beginning of each semester and the start of the summer term, so please plan ahead. Additional information about the training course can be obtained from Barbara Wolin, Manager of the Animal Facility (X5228).

In general, the Committee meets once per month. Every effort is made to ensure that completed protocols submitted by the last day of the month are considered at the next

month's meeting. In general, about 50% of proposals are approved as submitted. In the remaining cases, the protocol does not contain sufficient information, and the PI is asked to furnish additional information. This necessarily delays approval. This additional information must be incorporated into the Protocol Review Form; it cannot be provided in memo form. This change has been made to simplify record keeping and to avoid difficulties, which have occurred in the past when a federal or state inspector reviews protocols, and could not follow the maze of memos and protocol amendments.

A request to modify your protocol must be submitted whenever you contemplate substantive changes in an approved protocol. In other words, you must seek approval prior to initiating such changes (e.g., adding new personnel, increasing the number of animals to be used or changing the treatment of living animals). A short memo to the Committee can handle simple requests. More extensive changes or a series of small changes may require submitting a new protocol form so that your protocol does not become a maze of paperwork which is impossible for inspectors to follow.

Committee members are happy to assist you with your submission. If you are unsure about the nature of the information requested on the form, or if you have any questions about research techniques or animal care procedures, the Facility Manager and the consulting veterinarian, welcome the opportunity to assist you. If you wish, committee members can "pre-review" your protocol prior to submission. While the Committee urges you to plan ahead, so that your protocols can be reviewed in the normal fashion, expedited review is available. As always, following the Committee's review of your protocol, you are welcome to meet with the Committee to resolve any questions, which have arisen. However, protocols are approved only after submission of a written revision incorporating any requested changes. PIs who use the same techniques in several different projects may wish to have the techniques approved separately. A short technique form is available for this purpose. Approved techniques can then be referenced by descriptive title and technique approval number on regular protocol applications and do not have to be described.