

UNIVERSITY FACULTY SENATE FORMS

Academic Program Approval

This form is a routing document for the approval of new and revised academic programs. Proposing department should complete this form. For more information, call the Faculty Senate Office at 831-2921.

Submitted by: Carlisle Skeen (Director, Undergraduate Neuroscience Program)
Phone: 381-8060
Department: Psychology
Email address: skeen@udel.edu
Date: November 6, 2010

Action: Add a MS Degree in Neuroscience option to our extant Ph.D. Degree Program

Effective term: 2011 Fall Semester
(use format 04F, 05W)

Current degree: Ph.D. Degree in Psychology
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed change (addendum) leads to the degree of: Master of Science in Neuroscience
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed name: Master of Science in Neuroscience
Proposed new name for revised or new major / minor / concentration / academic unit (if applicable)

Revising or Deleting:

Undergraduate major / Concentration: Not applicable
(Example: Applied Music – Instrumental degree BMAS)

Undergraduate minor: Not applicable
(Example: African Studies, Business Administration, English, Leadership, etc.)

Graduate Program Policy statement change: See Appendix B
(**Must attach** your Graduate Program Policy Statement)

Graduate Program of Study: Master of Science in Neuroscience
(Example: Animal Science: MS Animal Science: PHD Economics: MA Economics: PHD)

Graduate minor / concentration: Not applicable

Note: all graduate studies proposals must include an electronic copy of the Graduate Program Policy Document, highlighting the changes made to the original policy document.

See Appendix B

List new courses required for the new or revised curriculum. How do they support the overall program objectives of the major/minor/concentrations)?

(Be aware that approval of the curriculum is dependent upon these courses successfully passing through the Course Challenge list. If there are no new courses enter "None")

None: However, three extant courses in our department that now have PSYC designations must also be given NSCI designations; Namely, NSCI 866, 868, 869.

Explain, when appropriate, how this new/revised curriculum supports the 10 goals of undergraduate education: <http://www.ugs.udel.edu/gened/>

Not applicable: This is a graduate degree program proposal.

Identify other units affected by the proposed changes:

(Attach permission from the affected units. If no other unit is affected, enter "None")

None: This is an intra-unit program proposal.

Describe the rationale for the proposed program change(s):

(Explain your reasons for creating, revising, or deleting the curriculum or program.)

Rationale: We are proposing to revise our Ph.D. program in the Department of Psychology to afford our own graduate students the option to enhance their credentials by earning a *Masters of Science Degree in Neuroscience* along the way, as they progress toward the completion of their doctoral degree in Psychology, or as a "terminal" degree for those who may choose to foreshorten their doctoral studies.

Program Requirements:

(Show the new or revised curriculum as it should appear in the Course Catalog. If this is a revision, be sure to indicate the changes being made to the current curriculum and **include a side-by-side comparison** of the credit distribution before and after the proposed change.)

Requirements: The requirements for the proposed *Masters of Science Degree in Neuroscience* flow directly out of the first two-years of work required of all students admitted to the Ph.D. program for Behavioral Neuroscience in the Department of Psychology at the University of Delaware (http://www.psych.udel.edu/graduate/detail/synopsis_of_the_program/). All doctoral students in good standing in the Department of Psychology are eligible to obtain a *Masters of Science Degree in Neuroscience* after the defense of their Second-Year Project, conditional also upon completion of: **a)** 15 credits of graduate course work in the neurosciences, and **b)** 15 credits of graduate research in the neurosciences, including submission and oral defense of their *Master's Thesis* research (as detailed in *Appendix A*).

ROUTING AND AUTHORIZATION:

(Please do not remove supporting documentation.)

Department Chairperson Paul C. Quinn Date 11/8/10
Dean of College _____ Date _____
Chairperson, College Curriculum Committee _____ Date _____
Chairperson, Senate Com. on UG or GR Studies _____ Date _____
Chairperson, Senate Coordinating Com. _____ Date _____
Secretary, Faculty Senate _____ Date _____
Date of Senate Resolution _____ Date to be Effective _____
Registrar _____ Program Code _____ Date _____
Vice Provost for Academic Affairs & International Programs _____ Date _____
Provost _____ Date _____

Board of Trustee Notification _____

Date _____

Appendix A

Requirements

Master of Science Degree in Neuroscience

(Total Graduate Credits to Graduate: 30)

The *Masters of Science Degree in Neuroscience* is offered as an elective *option* only to matriculated graduate students in good standing in the Department of Psychology. To receive this degree, students must: **a)** complete 15 credit hours of graduate coursework in the neurosciences as given in section “A”, below, and **b)** complete 15 credit hours of graduate research in the neurosciences as given in section “B”, below.

A. Required Graduate Coursework in Neuroscience

The *Masters of Science Degree in Neuroscience* requires, at minimum, the following courses in neuroscience (15 credits):

- 1) These three graduate *core* courses in neuroscience (9 credits):**
NSCI626 (3cr) Advanced Neuroanatomy
NSCI627 (3cr) Advanced Neurophysiology
NSCI628 (3cr) Advanced Neuropharmacology
Plus
- 2) At least one of the following *elective* courses in neuroscience (3 credits):**
NSCI629 (3cr) Integrative Neuroscience I
NSCI630 (3cr) Integrative Neuroscience II
NSCI631 (3cr) Current Topics in Neuroscience
NSCI639 (3cr) Developmental Neurobiology
Plus
- 3) At least three semesters of neuroscience colloquia (3 credits):**
NSCI866 (1cr) Neuroscience Brown Bag & Colloquium [x3]

B. Required Graduate Research

In addition to the required graduate course work (above), students seeking the *Masters of Science Degree in Neuroscience* must also complete at least 15 credits of graduate research in the neurosciences as given below.

- 1) Master’s Thesis Proposal (0 credits; as below)**
Plus
 - 2) At least four semesters of neuroscience research (12 credits)**
Plus
 - 3) Master’s Thesis submission & oral defense (3 credits; as below)**
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Special Notes:

- Masters Thesis Proposal (0 credits) At any time during their tenure as a matriculated graduate student in the Department of Psychology, a student may elect to receive a *Masters of Science Degree in Neuroscience* as either a milestone in their progression toward a Ph.D., or as a terminal degree. As a first step, any graduate student in good standing may initiate this *option* by forming a Master's Thesis Committee. The Thesis Committee shall consist of the student's faculty mentor and at least two other member of the faculty, including at least one Behavioral Neuroscience faculty member within the Department of Psychology. Faculty from other departments or colleges within or outside the University may also serve as a research mentor and serve on the student's thesis committee, by mutual agreement of all parties involved and subject to approval by the Director of Graduate Studies in the Department of Psychology. The student must then present a concisely written thesis proposal to their Masters Thesis Committee and defend it orally; Preferably, this will be done soon after the completion of the student's second-year project and after they have completed several of the required graduate courses in neuroscience.
- Neuroscience Graduate Coursework: (12 credits) All graduate students choosing to receive the *Masters of Science Degree in Neuroscience* must complete the coursework as given above in section "A" as a minimum coursework requirement. The student's faculty mentor, in consultation with the student, may recommend that the graduate committee accept an alternative graduate course at the University of Delaware be substituted for the elective course (as given above in A.3.) where it may advantage the student's professional goals.
- Neuroscience Colloquia: (3 credits) Each semester, graduate students in the Neuroscience Program are required to regularly attend the Neuroscience Colloquia (Brown Bag Seminar) that meet each week. These colloquia are an important forum for faculty, graduate students, and invited guests to present and discuss recent research.
- Graduate Research: (12 credits) Students opting to pursue the *Masters of Science Degree in Neuroscience* must complete a research project in an area of neuroscience through a minimum of four semesters of research in their faculty mentor's laboratory.
- Master's Thesis (3 credits) The culmination of a successful Master's Thesis research project is a well written Master's Thesis. Expectations for the Master's Thesis research and written document is established by a student's faculty mentor with oversight by the student's thesis committee and must be approved by the Director of Graduate Studies. The student's Master's Thesis must be orally defended in front of his/her three-person committee by April 15th to be eligible for final revision and submission of the document in time to apply for the May/June graduation.

Appendix B

Graduate Program Policy

Master of Science Degree in Neuroscience

Proposed

I. Introduction

We are proposing to revise our Ph.D. program in the Department of Psychology to afford our own graduate students the *option* to enhance their credentials by earning a *Masters of Science Degree in Neuroscience* along the way, as they progress toward the completion of their doctoral degree in Psychology, or as a “terminal” degree for those who may choose to foreshorten their doctoral studies.

II. Rationale and Demand

Over the years our graduate students have indicated a strong desire to receive a master’s degree along the way to completing their doctoral degree, with an eye to receiving recognition for milestones accomplished and enhancing credentials that may aid their employment. Also, other graduate students in our department have had the need, albeit rarely, to forgo their doctoral studies for various reasons after years of substantial investment. Several of the latter have in the past received a “terminal” masters degree for their efforts. To meet the increasing demand, and to standardize the requirements for awarding a “terminal masters degree”, we are proposing to formally establish a *Masters of Science Degree in Neuroscience*. Establishing this degree for matriculated graduate students in our department would also benefit the University of Delaware’s *Path to Prominence* initiative.

Moreover, the proposed curricula and degree option (see *Appendix A*) would pose no additional pressures or costs on faculty, departmental or University resources, but would more fully utilize existing resources to the benefit of our students.

III. Enrollment, Admissions and Financial Aid, Etc.

1. Enrollment

The *Masters of Science Degree in Neuroscience* would be available, as an option only, to all matriculated graduate students in the Department of Psychology at the University of Delaware who wish to receive it-- by completing the degree’s additional requirements (*Appendix A*, above) in the normal course of pursuing their doctoral degree.

2. Application Procedure

The first step in applying for the degree, which any matriculated graduate student in good standing in the Department of Psychology could take at any time prior to submitting their doctoral dissertation proposal to their doctoral committee, would be to form a Master’s Thesis Committee, and thereafter follow the protocol for completing the degree (as detailed above in *Appendix A*).

3. Admission

The new degree option is only available to students who have been admitted to the doctoral program of the Department of Psychology, subject to all of the admission policies of the department and university. The *Masters of Science Degree in Neuroscience* is *not* offered to new

graduate applicants as a terminal degree program.

4. Advisement

Primary advising for students enrolled in the *Masters of Science Degree in Neuroscience* will be the responsibility of the student's graduate research mentor.

6. Financial Aid

Not applicable, see items #2 and #3, immediately above. Students pursuing this degree would already be matriculated graduate students in good standing in the Department of Psychology, for whom issues of financial aid will already have been addressed.

IV. Curriculum Specifics & Degree Requirements

Students in the proposed program would satisfy all requirements for the *Masters of Science Degree in Neuroscience*.

V. Resources Available

The University of Delaware has excellent and clearly adequate faculty, laboratory, and administrative resources to support the proposed *Masters of Science Degree in Neuroscience* program. Indeed, they would be the same resources, utilized in the exact same manner, as the resources that serve the same students in our doctoral program. The existing administrative resources of the psychology department would be used to operate the proposed program; namely, with the student's faculty research mentor coordinating degree milestones through the Director of the student's Program Area, the Director of the Graduate Committee to the Chair.

VI. Resources Required

The University of Delaware currently has excellent learning resources (e.g. library holdings, administrative offices, etc) for the proposed *Masters of Science Degree in Neuroscience*. The Psychology Department offers numerous laboratories and faculty members who offer research training in support of this degree option.

VII. Implementation and Evaluation

1. Implementation Plan

The implementation will consist of the design and iterative refinement of the *Masters of Science Degree in Neuroscience* (LCS; herein, 10F), departmental modification, if any, and approval of the proposal (10F), college and university senate committee approvals (10F/11S), Provost, President, and BOT approvals (11S), cross-listing of relevant courses (11S), co-ordination of program offerings with other programs within the Department of Psychology, the sponsoring unit (11S), preparation of materials for use in admissions and publicity (11S), and enrollment of new students into the new program (12F).

2. Assessment Plan

The plan to assess the *Masters of Science Degree in Neuroscience* is given in *Appendix C*. The Office of Educational Assessment will be consulted in the refinement of this assessment plan, incrementally, as we move closer to the fall semester 2012.

Appendix C

Assessment

Masters of Science Degree in Neuroscience

Mission Statement

The mission of the proposed *Masters of Science Degree in Neuroscience* is to provide an outstanding education in the Neurosciences for our graduates-- with a special emphasis on, and generation of evidence for, a high degree of research competence. This mission is to be accomplished through the breadth and depth of first-rate neuroscience instruction in the classroom combined with an immersion into mentored student-faculty research. To that end, we are committed to providing an outstanding education in neuroscience by helping students to acquire and develop:

- 1) A rich fund of knowledge in the sciences related to the nervous system
- 2) An ability to pose and answer research questions concerning the functions of the nervous system
- 3) An ability to effectively communicate that knowledge to others.

Programmatic Learning Goal: Students will demonstrate research competence, including effective written and oral communication skills, in the sciences related to the nervous system.

Measure Performance in 2 Ways:

- 1) **Direct Measure(s) used:** Students will design, conduct, write and orally defend an original research project in the sciences related to the nervous system.
- 2) **Indirect Measure(s) used:** Collection of survey data.

Criteria for Success:

1) **Direct Measure(s):** Students' proficiency will be scored on a rubric for :a) fund of knowledge, b) research design, and c) communication. [Rubric Scale = 1-Unsatisfactory, 2-Satisfactory, 3- Proficient, 4-Excellent]

Observe and Summarize Results: Results obtained from the above performance measures will be examined and deliberated annually by the Psychology Faculty to provide an evidence-based rationale for recommending or necessitating program adjustments.

Use of Results for Improvement: As stated immediately above.

Resources Needed: To be determined.