MEMORANDUM

TO: Norma Allewell  
Dean, College of Chemical & Life Sciences

FROM: Elizabeth Beise  
Interim Associate Provost for Academic Planning and Programs

SUBJECT: Proposal to modify the curriculum of the Ph.D. in the Area of Concentration in Physiology (PCC log no. 09009)

On September 18, the Senate Committee on Programs, Curricula and Courses unanimously approved your proposal to modify the curriculum of the Area of Concentration of Physiology in the Ph.D. program in Biological Sciences. A copy of the approved proposal is attached.

The change is effective Spring, 2010. The College should ensure that the program is fully described in the Undergraduate Catalog and in all relevant descriptive materials, and that all advisors are informed.

Enclosure

cc: Alex Chen, Chair, Senate PCC Committee  
Sarah Bauder, Office of Student Financial Aid  
Reka Montfort, University Senate  
Barbara Hope, Data Administration  
Donna Williams, Institutional Research & Planning  
Anne Turkos, Archives  
Linda Yokoi, Office of the Registrar  
James Dietz, Undergraduate Studies  
Art Popper, College of Chemical and Life Sciences  
Barbara Thorne, College of Chemical and Life Sciences
THE UNIVERSITY OF MARYLAND, COLLEGE PARK
PROGRAM/CURRICULUM PROPOSAL

DIRECTIONS:
• Provide one form with original approval signatures in lines 1 - 4 for each proposed action. Keep this form to one page in length.
• Early consultation with the Office of the Associate Provost for Academic Planning & Programs is strongly recommended if there are questions or concerns, particularly with new programs.
• Please submit the signed form to Claudia Rector, Office of the Associate Provost for Academic Planning and Programs, 1119 Main Administration Building, Campus.
• Please email the rest of the proposal as an MSWord attachment to pcc-submissions@umd.edu.

DATE SUBMITTED

COLLEGE/SCHOOL: College of Chemical and Life Sciences (CLFS)
DEPARTMENT/PROGRAM: NA
PROPOSED ACTION (A separate form for each) ADD___ DELETE___ CHANGE___ X___
DESCRIPTION (Provide a succinct account of the proposed action. Details should be provided in an attachment. Provide old and new sample programs for curriculum changes.)
Modify the curriculum of the Area of Concentration in Physiology

JUSTIFICATION/REASONS/RESOURCES (Briefly explain the reason for the proposed action. Identify the source of new resources that may be required. Details should be provided in an attachment.)
See attached.

APPROVAL SIGNATURES - Please print name, sign, and date
1. Department Committee Chair NA
2. Department Chair Barbara Thorne (Director, Biological Sciences Graduate Program) 8/19/09
3. College/School PCC Chair Arthur N. Popper 8/19/09
4. Dean Norma Allewell 8/19/09
5. Dean of the Graduate School (if required) 9/15/09
6. Chair, Senate PCC 9/18/09
7. Chair of Senate
8. Vice President for Academic Affairs & Provost 9/18/09

VPAAP 8-05
The College of Chemical and Life Sciences recently proposed reorganizing and renaming the Ph.D. in Biology as the Ph.D. in Biological Sciences, and this was approved by the Maryland Higher Education Commission on July 29, 2009. As part of that process, we renamed three Areas of Concentration to reflect the topic areas emphasized in the College of Chemical and Life Sciences, and the training and research interests of our faculty. We did not request renaming a fourth area at that time because the structure of that Area of Concentration was still being reformulated. We are now requesting a fourth name change (under separate action) to rename the Area of Concentration in Physiology as the Area of Concentration in Physiological Systems.

This proposal seeks to modify the curriculum of the Area of Concentration in Physiology (to be called Physiological Systems -- PSYS). The goal of this concentration is to train the next generation of research scientists in a physiological and systems perspective towards tackling fundamental problems of biological systems using multidisciplinary approaches and cutting-edge technologies. This entails not only identifying individual molecules, their mechanisms and regulation involved in a biological process, but more importantly their integrated role in a system to generate the biological function of interest. Students recruited into this concentration will gain a strong and diverse intellectual training on subjects spanning biophysical chemistry and intermolecular interactions, cellular and molecular physiology, electrophysiology, advanced functional imaging, as well as computational modeling of physiological systems.

We recognize that there might be questions as to why students would be interested in PSYS as opposed to two other concentration area, Molecular and Cellular Biology (MOCB) or Behavior, Ecology, Evolution, and Systematics (BEES). The answer is that the level of organization of the systems studied in PSYS, and the questions asked by faculty and their students, are very different than either of the two other programs. Moreover, the background needed to be successful in PSYS, as demonstrated by a unique set of courses below, is very different than the other Areas of Concentration.

Each student will be required to take a minimum of 18 credit hours in 600-level or higher chosen from the list below, all of which are unique to this Area of Concentration. Each student will have an advisory committee set up upon arrival, who will assist students in tailoring the curriculum to best fit the her/his individual needs.

BIOL 603: Electrophysiology of the Cell (3 credits)
BIOL 622: Membrane Transport Phenomena (3 credits)
BIOL 651: Physical Chemistry for Biologists (3 credits)
BIOL 708L: Quantitative Analysis of Biological Data (4 credits)
BIOL 708N: Mammalian Physiology (3 credits)
BIOL 708O: Cell Biology from a Biophysical Perspective (3 credits)
BIOL 744: Neurophysiology (3 credits)
BIOL 755: Seminar on Physiological Systems (to be taught – 3 credits) (new course)
BIOL 878: Precandidacy Research in Physiological Systems (1-8 credits) (new course)
NACS 643: Computational Neuroscience (4 credits)
NACS 644: Cellular and Molecular Neuroscience (4 credits)

Other rules and policies for students in PSYS will fall under the umbrella of the Biological Sciences (BISI) program. This includes major exams, Learning Outcome Assessment, etc.

Note that we are not able to provide information on the requirements of the current Physiology Area of Concentration since that was formulated decades ago, and no records are available as to the content of that area.