

Proposal Date: September 4, 2014

**Ogden College of Science and Engineering  
Department of Psychological Sciences  
Proposal to Create a New Minor Program  
(Action Item)**

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**1. Identification of program:**

1.1 Program title: Neuroscience

1.2 Required hours in minor program: 21

1.3 Special information:

This interdisciplinary minor draws on courses offered by the Department of Psychological Sciences, the Department of Biology, the Department of Chemistry, and the Department of Philosophy. The minor will be administered in the Department of Psychological Sciences.

1.4 Catalog description:

The minor in Neuroscience offers students the opportunity to study the intersection of brain and behavior in a manner that incorporates tools and perspectives from the psychological and biological sciences, and related disciplines. This minor will be an attractive option for students who are (1) planning to pursue advanced study in any of several fields related to neuroscience, including psychology, biology, medicine, counseling, or social work or (2) seeking relevant training for jobs related to the assessment, rehabilitation, and treatment of brain damage, brain diseases, and addiction.

The minor in Neuroscience requires a minimum of 21 credit hours of coursework. This includes 6 hours of required courses and an additional 15 credit hours in electives. Students must take PSYS 100 and BIOL 120/121 prior to beginning their coursework in the minor (some courses available for the minor may have additional prerequisites). Students who are majoring or minoring in Psychological Science or Biology may apply no more than six hours of major or minor course work in these areas to the minor in Neuroscience.

1.5 Classification of Instructional Program Code (CIP): 30.1001

**2. Rationale:**

2.1 Reason for developing the proposed minor program:

Some of the most important recent scientific discoveries have come from the study of neuroscience, a multidisciplinary field at the intersection of brain and behavior that incorporates tools and perspectives from molecular and cellular biology, genetics, physiology, pharmacology, chemistry and biochemistry, computer modeling, and behavioral and cognitive psychology. Data from the Society for Neuroscience indicate that the number of graduate and undergraduate programs in neuroscience has grown dramatically over the last twenty years. In response to the growing demand for training in this field, the Department of Psychological Sciences proposes to offer WKU students an interdisciplinary minor in neuroscience.

2.2 Projected enrollment in the proposed minor program:

We anticipate that enrollment in the program will initially be around 20 students per year, but will grow to around 50 students as the program matures.

- 2.3 Relationship of the proposed minor program to other programs now offered by the department: Neither the Department of Psychological Sciences nor the Department of Biology offers a major or minor in Neuroscience. However, the Biology department currently offers a minor in Biology and the Psychological Sciences department is proposing a new minor in Psychological Science. The proposed minor in Neuroscience includes courses that are prerequisites for the major and minor in each of these disciplines as well as one required course and three elective courses that could be used to satisfy the remaining requirements for these programs. Students majoring or minoring in Psychological Science or Biology will only be allowed to count six credit hours from their major or minor toward the minor in Neuroscience. This will still offer motivated WKU students the option of completing dual minors in Neuroscience and Psychological Science or Neuroscience and Biology.
- 2.4 Relationship of the proposed minor program to other university programs: Other than the relationship of the proposed minor to programs in Psychological Science and Biology discussed in 2.3 above, there are no programs at WKU that are similar. The proposed minor will therefore complement many programs at WKU, especially those in psychological science, biology, psychology, sociology, and various health-related pre-professional programs.
- 2.5 Similar minor programs offered elsewhere in Kentucky and in other states (including programs at benchmark institutions): Many universities now offer either a major or minor in Neuroscience. An undergraduate major or minor in Neuroscience or a related area is offered at the following KY universities: Morehead (pending approval by SACSCOC), NKU, and UK. Additionally, eight of our benchmark universities offer a major, a minor, or both in Neuroscience or a related field. There is broad overlap in the content the proposed program with the curriculum of these programs.
- 2.6 Relationship of the proposed minor program to the university mission and objectives: The proposed minor program contributes to WKU's mission by offering students an opportunity to complete coursework that focuses on the scientific study of the brain and behavior. The minor will have a significant impact on the intellectual level of undergraduate students by increasing their scientific literacy and helping them gain critical thinking skills. It will also help the university strengthen several key initiatives, such as developing interdisciplinary programs and training a diverse group of future scientists in important STEM disciplines.

### **3. Learning outcomes of the proposed minor:**

Upon completion of the minor in Neuroscience, students will:

- Understand basic concepts in biology and psychology that serve as the foundation of the scientific study of brain, mind, and behavior
- Understand the organization of the nervous system and its relation to mind and behavior
- Appreciate the interdisciplinary nature of the field of neuroscience
- Use critical thinking skills to judge the scientific merit of original neuroscience research and its representation in the media
- Communicate effectively about neuroscience in written and oral form

### **4. Curriculum:**

The minor in Neuroscience requires a minimum of 21 credit hours of coursework. This includes 6 hours of required courses and an additional 15 credit hours in electives. Students must earn a grade of C or better in all courses applied toward the minor. Students must take PSYS 100 and BIOL 120/121 prior to beginning their coursework in the minor. Students who are majoring in Biology or Psychological Science may apply no more than six hours of their major course work to the minor.

The following courses are required (6 hours):

PSYS 360 Behavioral Neuroscience (3 hours)

BIOL 335 Neurobiology (3 hours)

At least 15 credit hours may be selected from the following courses. Students must choose at least 1 course each from Biology and Psychological Sciences. Note that some of these courses have prerequisites beyond those required by the minor.

PSYS 331 Psychology of Learning (3 hours)

PSYS 333 Cognitive Psychology (3 hours)

PSYS 363 Sensory and Perceptual Systems (3 hours)

PSYS 462 Neuroscience of Learning and Memory (3 hours)

PSYS 465 Psychopharmacology (3 hours)

BIOL 319 Introduction to Molecular and Cell Biology

BIOL 327 Genetics (3 hours)

BIOL 334 Animal Behavior (3 hours)

BIOL/CHEM 446 Biochemistry (3 hours)

PHIL 332 Philosophy of Mind: Minds and Machines (3)

Though not required for the minor, students are strongly encouraged to obtain research experience in topics related to neuroscience. There are several laboratories in the Psychological Science, Biology, and Chemistry departments that offer research opportunities to undergraduate students. For more information on research laboratories and opportunities, students should review the websites of faculty in these departments.

**5. Budget implications:** The minor will be offered using courses that are currently taught by faculty in Ogden College of Science and Engineering and Potter College of Arts and Letters.

**6. Proposed term for implementation:** Fall 2015

**7. Dates of prior committee approvals:**

Department of Psychological Sciences	<b>9/5/2014</b>
Ogden College Curriculum Committee	<b>11/6/2014</b>
Undergraduate Curriculum Committee	
University Senate	
Board of Regents	