I write to ask the CEP to consider a change in the major requirements of the Neuroscience Program. The program currently uses a “bin” system for the distribution of courses that are required for the major. One of the bins, Systems Neuroscience, in which only a single 3-credit hour course is required has proved problematic because of the limited number of courses that are available that fit into the bin. We currently have four courses listed: PSY/NSC 272, PSY/NSC 274, PSY 216, and PSY 236. Each, at best, is only offered once per year. This academic year two of the courses (PSY/NSC 272, PSY 216) were not offered due to faculty leaves. In the coming Academic Year PSY 216 will not be offered. The Committee has concluded that the limit on course offerings has limited the utility and viability of the Systems bin. The problem is somewhat exacerbated by the fact that the two courses that have been consistently offered (PSY 236 and PSY/NSC 274) are heavily populated by graduate students in Neuroscience and are taught at a level that is particularly challenging and many students are reluctant to take these courses as juniors.

The solution that the Neuroscience Program Steering Committee would like the CEP to consider is to combine the Systems Neuroscience bin with the closely related Integrative/Cognitive Neuroscience bin. The effect would be simply to transfer the courses and the three credit hours required from the Systems bin to a new Systems, Integrative, and Cognitive Neuroscience bin. Educationally, we don’t feel this move will have a significant impact on the program. Students will still be required to be exposed to Neuroscience at the two major levels of biological organization (cellular and molecular level vs. systems and cognitive), but will have more flexibility in scheduling the courses. I have attached a “Course Checklist” that offers an accessible summary of the program’s current Major Requirements to aid the committee in the evaluation of this request.

Please let me know if you need additional information or if this proposal needs to be placed in a different format, and thank for you attention to this matter.
Course Checklist for Neuroscience Majors

Basic Math & Science Courses (Required)
- _____BSCI 110a,b & 111a,b        Intro. Biol. Sciences [8]
- _____CHEM 218a,b & 219a,b or 220a,b & 219a,b        Organic Chemistry [8]
- _____MATH 150a,b or 155a,b        Calculus [6]
- _____PHYS 116a,b & 118a,b or 117a,b & 119a,b or 121a,b        General Physics [8]

Introduction to Neuroscience (Required)
- _____PSY/NSC 201        Neuroscience [3]

Cellular and Molecular Neuroscience (6 Credit Hours Required)
- _____BSCI 252        Cellular Neurobiology [3]
- _____BSCI 256        Molecular Neurobiology [3]
- _____PSY/NSC 235        Biological Basis of Mental Disorders [3]
- _____NSC 260        Psychopharmacology [3]
- _____PSY/NSC 269        Developmental Neuroscience [3]

Systems Neuroscience (3 Credit Hours Required)
- _____PSY/NSC 272        Structure and Function of the Cerebral Cortex [3]
- _____PSY/NSC 274        Neuroanatomy [3]
- _____PSY 216        Movement [3]
- _____PSY 236        The Visual System [3]

Integrative/Cognitive Neuroscience (3 Credit Hours Required)
- _____BSCI 254        Neurobiology of Behavior [3]
- _____NSC 255        Integrative Neuroscience [3]
- _____PSY 214        Perception [3]
- _____PSY 232        Mind and Brain [3]
- _____PSY 238        Social Cognition and Neuroscience [3]
- _____PSY 277        Brain Damage and Cognition [3]

Neuroscience Laboratory Courses (4 Credit Hours Required)
- _____BSCI 253        Laboratory in Neurobiology [1]
- _____NSC 292        Undergraduate Research [2] (May be taken up to 6 h)
- _____PSY 234        Laboratory in Behavioral Neuroscience [4]

Elective Neuroscience Courses (6 Credit Hours Not Counted Above)
A maximum of 2 h of NSC 292 can be counted toward the 6 h of required elective courses
- _____BSCI 252        Cellular Neurobiology [3]
- _____BSCI 253        Laboratory in Neurobiology
- _____BSCI 254        Neurobiology of Behavior [3]
- _____BSCI 256        Molecular Neurobiology [3]
- _____NSC 235        Biological Basis of Mental Disorders [3]
- _____NSC 255        Integrative Neuroscience [3]
- _____NSC 260        Psychopharmacology [3]
- _____NSC 269        Developmental Neuroscience [3]
- _____NSC 272        Structure and Function of the Cerebral Cortex [3]
Elective Neuroscience Courses  (con’t)

- NSC 274     Neuroanatomy [3]
- NSC 290  Introduction to Research
- NSC 291  Independent Reading [1]
- NSC 292  Undergraduate Research [2]
- PSY 214  Perception [3]
- PSY 216  Movement [3]
- PSY 232  Mind and Brain [3]
- PSY 234  Laboratory in Behavioral Neuroscience [4]
- PSY 236  The Visual System [3]
- PSY 238  Social Cognition and Neuroscience [3]
- PSY 277  Brain Damage and Cognition [3]

Related Course Electives  (6 Credit Hours Required)

- BME 251  Systems Physiology [3]
- BME 252  Systems Physiology [3]
- BME 251  Introduction to Cell Biology [3]
- BSCI 202  Laboratory in Cell Biology [3]
- BSCI 210  Principles of Genetics [3]
- BSCI 211  Genetics Laboratory [1]
- BSCI 220  Biochemistry I [3]
- BSCI 230  Biological Clocks [3]
- BSCI 240  Developmental Biology [3]
- BSCI 258  Vertebrate Physiology [4]
- BSCI 265  Biochemistry II [3]
- BSCI 270  Statistical Methods in Biology [3]
- CHEM 210  Analytical Chemistry I [4]
- CHEM 224  Bioorganic Chemistry [3]
- CHEM 226  Medicinal Chemistry [3]
- CHEM 230  Physical Chemistry I [3]
- CSCI 101  Introduction to Programming and Problem Solving [3]
- MATH 175  Accelerated Calculus [3]
- MATH 198  Elementary Differential Equations [3]
- PHIL 244  Philosophy and the Natural Sciences [3]
- PHIL 256  Philosophy of Mind [3]
- PHYS 229a  Electricity, Magnetism, and Electrodynamics [3]
- PHYS 229b  Electricity, Magnetism, and Electrodynamics [3]
- PSY 209  Quantitative Methods [3]
- PSY 211  Personality {3}
- PSY 215  Abnormal Psychology [3]
- PSY 225  Cognitive Psychology [3]
- PSY 246  Schizophrenia [3]
- PSY 247  Depression [3]
- PSY 252  Human Sexuality [3]
- PSY 258  Animal Behavior and Evolutionary Psychology [3]
Neuroscience

The study of the nervous system is an interdisciplinary enterprise that draws upon a variety of scientific disciplines ranging from molecular biology and biophysics to computational science and engineering to the study of behavior and cognition. To meet the challenge of providing training for entry into this exciting and growing field, Vanderbilt offers an interdisciplinary program of concentration in neuroscience that utilizes expertise from several departments within the university. The program consists of three components. The first provides for a broad foundation in the basic sciences and mathematics. Second, the program provides for exposure to each of the general areas of neuroscience including courses in cellular/molecular, systems, and integrative/cognitive neuroscience. This course work is supplemented with exposure to the laboratory techniques utilized in neuroscience research. Finally, the program allows students to pursue more work in the specific sub-disciplines of neuroscience and in areas of inquiry related to neuroscience through elective courses. Students are especially encouraged to participate in research in the laboratories of neuroscience faculty under the auspices of the undergraduate research course, Neuroscience 292. More extensive research experience is available through the Honors Program in Neuroscience.

The program is directed by Professor of Biological Sciences Terry L. Page. For additional information, see [http://sitemason.vanderbilt.edu/neuroscience](http://sitemason.vanderbilt.edu/neuroscience).

Program of Concentration

Students majoring in neuroscience are required to complete a core of introductory courses in mathematics, chemistry, physics, and biology that provide the broad scientific background necessary to the study of neuroscience. The neuroscience major consists of 39 hours of course work that includes 8 hours of organic chemistry and 31 hours of neuroscience and related courses distributed among specific disciplines associated with the study of neuroscience. The areas and associated course options are listed below. Excluding research credit (292 or 296), the neuroscience and related courses must be drawn from at least two departments. Students seeking a second major within the College of Arts and Science may count a maximum of 6 hours of 200-level course work to meet the requirements of both majors.

Required Math and Science Courses:

- Biological Sciences 110a–110b, 111a–111b; Chemistry 219a–219b and either Chemistry 220a–220b or Chemistry 218a–218b; Mathematics 150a–150b or 155a–155b, Physics 116a–116b and 118a–118b or 121a–121b.
Neuroscience and Related Courses:

*Introduction to Neuroscience* (required)
Neuroscience 201.

*Cellular and Molecular Neuroscience* (6 hours required)
Biological Sciences 252, 256; Neuroscience 235, 260, 269.

*Systems, Integrative, and Cognitive Neuroscience* (6 hours required)
Biological Sciences 254; Neuroscience 255, 272, 274; Psychology 214, 216, 232, 236, 238, 277.

*Neuroscience Laboratory* (4 hours required)
Biological Sciences 253; Neuroscience 292, 296; Psychology 234.

*Neuroscience Electives* (6 hours required)
Two additional courses from the Neuroscience courses listed above.
One semester each of Neuroscience 292 and 290 or 291 or 3 credit hours of Neuroscience 296 may be used to count for one elective course.

*Related Course Electives* (6 hours required)
Biological Sciences 201, 202, 210, 211, 220, 230, 240, 258, 265, 270; Biomedical Engineering 251, 252; Chemistry 210, 224, 226, 230; Computer Science 101; Mathematics 175, 198; Physics 229a, 229b; Philosophy 244, 256; Psychology 209, 211, 215, 225, 246, 247, 252, 258

*Honors Program*
Superior students with a strong interest in research are encouraged to consider the Honors Program in Neuroscience. Normally a student will apply to enter the Honors Program in the fall semester of the junior year and assemble an Honors Committee that will consist of the research mentor and at least two other appropriate members of the faculty. The student should begin within the program the following semester. Entrance into and satisfactory completion of the honors program requires that students maintain an overall grade point average of 3.0 and a grade point average of 3.25 in courses counting toward the neuroscience major. Honors candidates must meet all the normal requirements for the neuroscience major, but students are expected to complete at least 8 hours of research course work (Neuroscience 292 or 296). Three of these research hours may count toward neuroscience elective course work. The candidate must present an honors thesis during the final semester in residence and satisfactorily pass an oral examination by the student’s Honors Committee. Students interested in becoming honors candidates should consult with the director of honors and independent study. For more information on the Honors Program, please see [http://sitemason.vanderbilt.edu/neuroscience/honorsprogram](http://sitemason.vanderbilt.edu/neuroscience/honorsprogram).

*Minor in Neuroscience*
This program provides a foundation of knowledge in neuroscience that is appropriate for students majoring in a related discipline or who have a general interest in the nervous system. The minor program consists of 15 hours of course work distributed as follows:
Neuroscience 201.
Biological Sciences 252 or 256.
At least 9 additional hours (3 courses) chosen from the courses listed as “Neuroscience Courses” in the Program of Concentration in Neuroscience, except that research courses (Neuroscience 292 and 296) do not count toward the minor.
As prerequisites, students are also required to complete two semesters of chemistry with a laboratory and Biological Sciences 110a,b and 111a,b.