



Program of Study Request

Form Id: 15713

Form Status: Process

Please take action on the form.

This service has been developed initially to support the conversion of the university's course inventory from a quarters to a semesters curriculum. **Getting started ...**

Type of Request:

New
 Modify
 Deactivate
 Terminate
 Quarter to Semester

For *Deactivate*, the program must be terminated no later than the conclusion of 7 years from the deactivation and all students must complete degree requirements by this date. The Registrar's Office will notify the department when all students have completed degree requirements of the deactivated program.

Client Info

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Department: NeuroSci Cell Bio Physiology-SOM

Location: White Hall 105J, 3640 Colonel Glenn Hwy.

Program of Study

NEU - Neuroscience - BS

Effective Term: Fall 2017
Level: Undergraduate

College of Science & Math

Degree: Bachelor of Science
Major: Neuroscience *New
Minor:
Program: Neuroscience - BS *New
Concentration:

Add'l Info:

Approvals				
Activity	Role	Client	Status	Time
Primary Route				
Dept_Review	Dept of Neuroscience	Kimberly S. Hagler	Review	09/19/2016 16:02:22
CCC_Eval	UG Chair of College of Science & Math	Richard Mercer	Approve	11/03/2016 12:03:08
Dean_Review	Dean of College of Science & Math	Mark D. Mamrack	Review	11/07/2016 12:02:54
UCAP_Eval	UCAP Chair	Karen Meyer	Approve	11/30/2016

19:33:26

Office Route

Registrar_Proc Registrar Office

Pending

Notes

Attach

Audit

Share with a colleague (Simple Webmail Client)

3640 Colonel Glenn Highway - Dayton, Ohio - 45435

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Academic Program of Study

College:	Science and Mathematics
Department:	Neuroscience, Cell Biology, and Physiology
Degree (A.A. B.S., B.F.A., etc.) & Title:	Bachelor of Science: Neuroscience
Concentration, Track, Option, Specialization:	
Minor Program Title:	
Certificate Program Title:	

Note, please highlight additions & modifications. Please strikethrough deletions.

Current Program	Hours	Revised Program	Hours
I. Wright State Core		I. Wright State Core Element 1: Communication Element 2: Mathematics MTH 2240 or MTH 2300 required Element 3: Global Traditions Element 4: Arts and Humanities Element 5: Social Sciences PSY 1010/1010L required Element 6: Nature Sciences SM 1010 and BIO 1120/1120L required Additional Core Courses CHM 1210/1210L, CHM 1220/1220L required	44 6 4 6 3 7 8 10
II.		II. Neuroscience Core Requirements Second Year Introduction to Neuroscience (PSY 3910 and PSY 3920) or (ANT 3100/3100L and ANT 3120/3120L) Neuroscience Core Courses NEU 1000, NEU 2000, NEU 3100, NEU 3200 Laboratory Research Experience NEU 3400 or PSY 3930 or (BIO 3050/3050L) Senior Capstone (NEU 4990 and NEU 4020) or (NEU 4030 and NEU 4040)	22 6 10 4 2
III.		III. Neuroscience Electives and Requirements Select 16 credits from 3000 and 4000 level courses with a prefix of ANT, BIO, NCP, NEU, P&N, or PSY.	16
IV.		IV. Related Course Requirements BIO 1150/1150L (PHY 1110/1110L and PHY 1120/1120L) or (PHY 2400/2400L and PHY 2410/2410L) CHM 2110/2110L and CHM 2120/2120L BMB 4210 and BMB 4230 STT 2640	34 4 10 10 6 4
V.		V. General Electives	4
Total:		Total:	120

Notes: Please provide additional information for program accuracy.

List of Neuroscience Elective Courses

ANT 3100 Human Structure & Function I	4
ANT 3100L Human Structure & Function I Lab	0
ANT 3120 Human Structure & Function II	4
ANT 3120L Human Structure & Function II Lab	0
BIO 3050 Animal Physiology	5
BIO 3050L Animal Physiology Lab	0
BIO 4020 Current Lit Neuromuscular Physiol	3
BIO 4420 Advanced Molecular Biology	3
BIO 4460 Advanced Cell Biology	3
NCP 3330 Neuroscience Today	3
NEU 3300 Special Neuroscience Topics	1-4
NEU 3400 Adv. Neuro. Lab Tech: Microscopy	4
NEU 4990 Independent Research in Neuroscience	1-3
PSY 3000 Psychology Core Special Topics	1-3
PSY 3210 Cognition & Learning	3
PSY 3710 Perception	3
PSY 3820 Introduction to Cognitive Neurosci	3
PSY 3910 Behavioral Neuroscience I	3
PSY 3920 Behavioral Neuroscience II	3
PSY 3930 Behavioral Neuroscience Methods	4
PSY 4910 Psychobiology of Stress	3
PSY 4920 Clinical Neuroscience	3
PSY 4930 Behavioral Neuroscience Education	3
PSY 4940 Animal Behavior	3
PSY 4950 Sexuality & Endocrinology	3
PSY 4960 Fetal Behavior	3
P&N 4420 Introduction to Neurophysiology	3

Proposed Major in Neuroscience

- I. **Title of Program:** Bachelor of Science in Neuroscience
Department: Neuroscience, Cell Biology and Physiology
College: College of Science and Mathematics

II. **Objectives:**

The objectives of the Neuroscience program center around programmatic learning goals and core skills that not only provide an in-depth neuroscience education but aid students in developing skills necessary for future careers. These include:

Undergraduate Neuroscience Program Learning Goals

Organization of the Nervous System – There is an expansive, yet repetitive, organization to the nervous system, which originates at a molecular, subcellular, level maintaining the functional role of neurons. Neurons at a cellular level are excitable cells with dynamic membrane properties capable of responding to various signals they receive. Neurons can then integrate, modulate and convey that information to other neurons. Those neurons, in a series or group, will process all of that information over a given period of time, and result in a behavioral response, if needed or desired.

Cellular Neurophysiology – Neurons are cells that express dynamic and excitable membranes. It is the specialized receptors and channels of these excitable membranes that allow neurons to integrate various signals, and generate information, in the form of an electrical response, that can be conducted within neurons.

Information Processing – Information is transferred between neurons and target organs by way of chemical signals, termed neurotransmitters that cause changes in the excitability of neuronal membranes. This chemical information is transformed into an electrical signal, which is impacted by the spatial and temporal origination of the chemical signal. Furthermore, the effectiveness of the chemical signal is plastic and is critical for regulating the flow of information within neural networks.

Neural Networks and Behavior – Neurons do not reside in isolation. The average adult brain contains approximately 100 billion neurons with 100 trillion connections. Interestingly, these anatomically and functionally diverse neurons make a multitude of connections with each other in a relatively organized fashion. It is this connectivity of vast numbers of neural elements that serve as the link between structure and function, dictating our behavioral responses to various innocuous and traumatic stimuli.

Undergraduate Neuroscience Program Core Skills

- 1) Independent learning

- 2) Ability to critically evaluate evidence (how to read critically, write scientifically, and how to conduct scholarly searches)
- 3) Proficiency in a variety of laboratory research techniques (ex. Microscopy)
- 4) Ability to work collaboratively with colleagues/peers
- 5) Communicate effectively (oral & written)
- 6) Quantitative literacy
- 7) Ability to implement the scientific process
- 8) Ability to problem solve
- 9) Research design competency (ability to apply logic and statistics)

III. Descriptions (catalog):

The Department of Neuroscience, Cell Biology, and Physiology will offer a program leading to a Bachelor of Science (BS) degree in neuroscience. The curriculum offers students an in-depth foundation in neuroscience developed from the ground up by an interdisciplinary team of Wright State University faculty. This program uniquely emphasizes how prerequisite coursework from multiple fields of science relates to and can be applied to neuroscience, and is achieved via pedagogical best practices focused on engaging students in their learning, such that they are actively involved in understanding neuroscience concepts and ideas, and fostering scientific creativity and critical thinking.

The program's coursework focuses on foundational neuroscience topics related to cellular neuroscience, physiological neuroscience, and behavioral neuroscience. It is supplemented with training in fundamental neuroscience research techniques, as well as opportunities to work with neuroscience faculty members on cutting-edge research.

This program will aid in students being competitively prepared for careers in a variety of fields, including, but not limited to: scientific research, medicine, education, biotechnology, public policy, scientific writing, and law.

IV. Admission Requirements:

Requirements for direct admission into the Neuroscience Bachelor of Science degree program are in alignment with the Wright State University College of Science and Mathematics criteria, including: a high school GPA of 3.0 or higher, an ACT Math score minimum of 22 or 520 on the SAT, and an ACT English score minimum of 23 or 530 on the SAT.

Students who intend to enter into the Neuroscience Bachelor of Science degree program but do not meet the criteria to be directly admitted will begin in University College. Once the student has satisfied the following criteria, they can be admitted into the Neuroscience Bachelor of Science degree program: completed at least 15 semester hours with a minimum cumulative GPA of 2.8, and earned a grade of "C" or higher in all of the following courses: SM 1010, NEU 1000, BIO 1120, BIO 1120L, CHM 1210, and CHM 1210L.

V. Program Requirements:

The program requirements can be found in the attached program of study.

VI. Program Quality:

Several tools will be utilized to maintain and improve the quality of the Neuroscience program, faculty efficacy, and course alignment with learning objectives and competencies. Examples include:

- Modified segments of the Student Assessment of Learning Gains (SALG) will be used to monitor students' sense of their own learning in each course.
- Rubrics based on the PULSE rubrics for Vision and Change, but applied to the core concepts and key practices of the neuroscience program, will be used to assess that program goals are being met. Exam questions and assignments within each course will be designated for program assessment and maintained across years and faculty.
- Alumni will be tracked to follow graduate successes and failures.
- Data from these measures will be presented to an interdisciplinary advisory board, which will make recommendations for continuous improvement.

VII. Student Performance:

Students must complete all CoSM courses, including courses required for the program with a grade of "C" or better. Students must also maintain a minimum 2.5 GPA in their CoSM courses in order to remain in the program. Should a student's GPA fall below 2.5 they will be given a one-semester probation to raise their GPA above the 2.5 minimum.

VIII. Curriculum Coordination:

As this is a new program in the Department of Neuroscience, Cell Biology and Physiology with courses designed specifically to fulfill program requirements, there are no coordination issues at this time.

IX. Resource Coordination:

The only course that necessitates any additional resources is the Advanced Neuroscience Lab Techniques: Microscopy course (NEU 3400). This will require use of some of the equipment in the Microscopy Core Facility (MCF). As such, the course will be overseen by the Director of the Microscopy Core Facility, Dr. David Ladle, Associate Professor in the Department of Neuroscience, Cell Biology, and Physiology. A nominal laboratory fee will be used to offset the cost of various consumables.

X. Program Staffing:

The proposed Neuroscience program will be taught by existing faculty within the Department of Neuroscience, Cell Biology and Physiology.