HIGHER LEARNING COMMISSION

FORM

New Programs

Substantive Change Application

Institution: Kent State University City, State: Kent, Ohio

Name of person completing this application: Therese E. Tillett

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Date Submitted:

The questions are designed to elicit brief, succinct, detailed information, rather than a narrative or references to extensive supporting documents. Do not attach other documents unless they are specifically requested in the questions and are germane to the request. The total submission should be no more than 10–12 pages on a single classification of change. (The page limit excludes attachments. However, the overall length, including attachments, should not exceed 200 pages.)

If the person completing this application is not the CEO, CAO or the ALO of the institution, it is understood that the person completing and submitting this application has consulted with and informed those individuals.

Please note: HLC plans to update the change forms annually, on or about September 1 of each year. However, if a change application form was accessed more than 90 days prior to filing, it is recommended that the institution visit http://www.hlcommission.org/change to ensure that there have been no changes to the application form in the intervening time.

Submit the completed application as a single PDF file on the following webpage: http://www.hlcommission.org/document_upload/.

Part 1: General Questions

1. **Requested Change(s).** Concisely describe the change for which the institution is seeking approval.

   Kent State University proposes establishing a Neuroscience major within the Bachelor of Science degree. The program will be administered jointly by the Department of Biological Sciences and Department of Psychological Sciences in the College of Arts and Science. The program will be offered at the university's Kent Campus.

2. **Is this application being submitted in conjunction with another application?**

☐ Yes ☒ No

3. **Classification of Change Request.**
Note: not every institutional change requires prior review and approval. Review the "Overview of HLC Policies and Procedures for Institutional Changes Requiring HLC Notification or Approval" to make certain that current HLC policy requires the institution to seek approval.

New academic program(s):

☐ Certificate ☒ Bachelor's ☐ Diploma ☐ Master's/specialist

☐ Associate's ☐ Doctorate ☐ *Check if program is at a new degree level*

An institution submitting more than one change request should complete multiple applications, one for each type of change. The types of change requests include:

- Change in mission
- Change in student body
- Competency-based education (credit-based; direct assessment; hybrid) programs
- Consortial arrangement
- Contractual arrangement
- Substantially changing the clock or credit hours required for a program
- Change in academic calendar (e.g., quarters to semester) or change in credit allocation
- Teach-out plan if closing location provides total degree programs
- Distance or correspondence education
- New programs
- Certificate programs
- Branch campuses and additional locations

4. **Special conditions.** Indicate whether any of the conditions identified below fit the institution (Yes or No). If Yes, explain the situation in the space provided.

a) Is the institution, in its relations with other regional, specialized, or national accrediting agencies, currently under or recommended for a negative status or action (e.g., withdrawal, probation, sanction, warning, show-cause)?

No.

b) Is the institution now undergoing or facing substantial monitoring, special review, or financial restrictions from the U.S. Department of Education or other federal or state government agencies?

No.

c) Has the institution's senior leadership or board membership experienced substantial resignations or removals in the past year?

No.

d) Is the institution experiencing financial difficulty through such conditions as a currently declared state of exigency, a deficit of 10% or more, a default or failure to make payroll during the past year, or consecutive deficits in the two most recent years?

No.

e) Is the institution experiencing other pressures that might affect its ability to carry out the proposal (e.g., a collective bargaining dispute or a significant lawsuit)?

No.

5. **Approvals.** Mark whether each type of approval is required prior to implementing the proposed change. If "Yes," attach documentation of the approval to the request. If "No," attach evidence that approval is not needed.

Internal (faculty, board) approvals	☒ Yes	☐ No	
System approvals	☐ Yes	☐ No	☒ Not Applicable
State approval	☒ Yes	☐ No	
Foreign country(ies) approvals	☐ Yes	☐ No	☒ Not Applicable
For Distance or Correspondence Education only: Process in place to ascertain and secure state approval(s) as required	☐ Yes	☐ No	

6. **Specialized Accreditation.** Complete this section only if specialized accreditation is required for licensure or practice in program(s) covered by this change application.

☐ The institution has already obtained the appropriate specialized accreditation. Attach a copy of the letter from the agency granting accreditation.

☐ The institution has begun the process of seeking or plans to seek specialized accreditation. Specify the name of the agency and the timeline for completing the process in the space below. (If approval is a multi-stage process, the institution should contact the HLC staff liaison to discuss the timeline before submitting this change application form.)

☐ The institution does not plan to seek specialized accreditation. Provide a rationale for not seeking this accreditation in the space below.

7. **Changes Requiring Visits.** This section is not for HLC-mandated visits such as additional location confirmation visits or campus evaluation visits.

Note: Complete this section only if the institution is already aware that the proposed change will need to be reviewed through a visit. The institution may submit Part 1 of the change request application to begin the process of scheduling a Change Visit or adding the proposed change to an already scheduled visit. The full application must be submitted at a later date. (If the institution is unsure whether a visit is required, leave this section blank and submit the full change application. HLC will advise the institution based on the information provided.)

a) Select the type of visit the institution is requesting:

☐ Request to schedule a Change Visit. Change visits typically are scheduled approximately four months from the date an institution submits its change request. The full change application and other required materials will be due to HLC and the peer review team eight weeks before the visit date. See http://www.hlcommission.org/change-visit for more information.

☐ Request to add a proposed change to an already scheduled visit. **Note:** Such requests must be submitted at least six months before the visit date. The institution's full change application should be submitted along with other materials required for the visit.

Specify type of visit and date scheduled:

b) Provide URLs to the institution's Faculty/Staff Handbook and Catalog below. If the URLs are not available, please provide PDF versions of these documents when submitting other required materials prior to the visit.

Faculty/Staff Handbook URL: Catalog URL:

Part 2: Topic-Specific Questions

An institution should submit a separate application for each requested program (unless the programs represent closely related disciplines). If more than one program is being requested in this application, please be sure to sufficiently address each program when answering the following questions, particularly in Sections A, D, E and F. Each proposed new program should be identified by using the *Classification of Instructional Programs* terminology (CIP codes). CIP codes are established by the U.S. Department of Education's National Center for Education Statistics as a taxonomic scheme that supports the accurate tracking and reporting of fields of study and program completions activity. More information is available at http://nces.ed.gov/ipeds/cipcode/.

Attach the "Substantive Change Application, Part 1: General Questions" as page one of your application. That completed form and your answers to the questions below will constitute your request for approval of a substantive change. This form will be the basis for review of this application.

Section A. Characteristics of the Change Requested

1. Identify the basic characteristics of the proposed educational program as indicated below:

a) The full name of the proposed program, the specific degree (if applicable) or the instructional level (if not a degree program), and the six-digit CIP code XX.XXXX of the program (CIP codes, program name, and additional description [optional])

The proposed program is a Neuroscience major within the Bachelor of Science degree.
The assigned CIP code will be the following:

26.1501 Neuroscience. A program that focuses on the interdisciplinary scientific study of the molecular, structural, physiologic, cognitive, and behavioral aspects of the brain and nervous system. Includes instruction in molecular and cellular neuroscience, brain science, anatomy and physiology of the central nervous system, molecular and biochemical bases of information processing, behavioral neuroscience, biology of neuropsychiatric disorders, and applications to the clinical sciences and biomedical engineering.

b) Total credit hours (indicate whether semester or quarter) for completion of the program

The Neuroscience major is 120 semester credit hours, comprising 69 credit hours of major requirements and 51 credit hours of general education requirements and general electives.

c) Normal or typical length of time for students to complete the program

Full-time new students will be able to complete the program in four years (eight semesters).

d) Proposed initial date for implementation of the program

The proposed start date for the program is fall 2019.

e) Primary target audience for the program (e.g., full-time, part-time, traditional college age, working adults, transfer students, military personnel, or particular ethnic group)

Targeted audiences for the major are full-time, new students and currently-enrolled students who discover an interest in the program while studying at Kent State.

f) Projected life of the program (single cohort or ongoing)

The program will have ongoing admission.

g) Whether the program will be part of contractual or consortial arrangement

Not applicable.

2. Identify if the institution is requesting new stipulations for the proposed program and provide a rationale for this request.

Not applicable.

3. If the institution is planning any involvement by external organizations (other than accredited higher education institutions) in key operations as identified below, provide the information requested below and complete the Contractual Screening Form for each planned involvement. (Note that such involvement by a parent company or by one of its subsidiaries external to the institution in any of these operations should be reported.) If the screening form indicates contractual approval is required, complete the full contractual application and submit it in conjunction with the program application. If the screening form indicates no further action is required, attach the confirmation email from HLC.

Type of Involvement	Name(s) of External Organization(s)	Percent of Involvement
A. Recruitment and admission of students	Not applicable	
B. Course placement and advising of students	Not applicable	
C. Design and oversight of curriculum	Not applicable	
D. Direct instruction and oversight	Not applicable	
E. Other support for delivery of instruction	Not applicable	

Section B. Institution's History With Programs

4. Does the institution currently offer a program at the same instructional level and with the same 4-digit CIP code (XX.XX) as the proposed program? If so, identify the program currently offered and whether it is a degree program. Will the proposed program replace the program currently offered?

   Kent State currently does not offer a program at the bachelor's degree level with the same four-digit CIP series (26.15 Neuroscience).

5. Does the institution currently offer two or more programs at the same instructional level with the same 2-digit CIP code (XX.) as the proposed program? If so, identify the two such programs with the highest numbers of graduates during the past year, along with their numbers of graduates.

   Kent State currently offers six bachelor's degree majors with the same two-digit CIP series (26 Biological and Biomedical Sciences).

   The two programs with the highest number of graduates for the fiscal years 2016-2017 (comprising summer 2016, fall 2016 and spring 2017) are the following:

   - Biology (BA and BS degrees): 144 graduates (CIP 26.0101 Biology/Biological Sciences)
   - Zoology (BS degree): 49 graduates (CIP 26.0701 Zoology/Animal Biology)

Section C. Institutional Planning for Program Change

6. What impact might the proposed program have on challenges identified as part of or subsequent to the last HLC review and how has the institution addressed the challenges?

   There were no identified challenges. Kent State University has adequate faculty and other resources for existing programs and the proposed program.

7. Briefly describe the planning process for determining the need for this new program, including the role of faculty in the planning and approval process.

   This program was conceived of and planned by faculty from the beginning. Strong evidence of an interest in a Neuroscience major included the high enrollment (2,347 students) in the Biology and Psychology undergraduate majors in fall 2017[1], and growing enrollments in neuroscience-related courses. As a comparison, the Ohio State University began offering a Neuroscience major in 2013, and had 161 graduates in fiscal year 2017.[2]

   A joint committee of faculty from the departments of Biological Sciences and Psychological Sciences was convened and developed a curriculum that leveraged existing resources in both departments, thus minimizing the need for new coursework and additional resources. Members of this committee surveyed current students and found that there would be significant interest in a Neuroscience major if one was available.

[1] Student Enrollment, 15th Day Census. Kent State Office of Institutional Research.
[2] Ohio Department of Higher Education. Higher Education Information (HEI) System.

8. What are the physical facilities and equipment needed to support the program? Indicate the impact that the proposed change will have on the physical resources and laboratories that currently accommodate existing programs and services, or identify new laboratory and preceptor needs.

The program can be initiated entirely with existing facilities. One new laboratory course will share space with another, existing, laboratory.

9. What is the evidence that a market for the new program(s) exists? How has estimated program demand been factored into realistic enrollment projections? How has this evidence been used in planning and budgeting processes to develop a quality program that can be sustained?

Program developers assessed the potential demand for an undergraduate neuroscience major through several mechanisms. First, published research has documented that there has been substantial growth in undergraduate neuroscience programs in recent years.[3] In 2016, there were 157 colleges and universities in the United States that offered undergraduate neuroscience programs, and this number does not include the number of institutions that have other programs, such as biology or psychology, in which neuroscience is offered as a concentration.[3] Where neuroscience is offered as a degree program, it is often the most popular or one of the most popular offerings in the life sciences.[4]

Kent State faculty surveyed students in introductory neuroscience and biopsychology classes and found that a significant number of existing students would have majored in neuroscience had such a major been available. Biology faculty has also reported that visiting high school seniors often ask about such a major, and some students have already indicated that they chose Kent State as a college because of its strength in the area of neuroscience. No public university in any of the Ohio counties that Kent State serves offer an undergraduate neuroscience degree.[5] Therefore, Kent State will be able to attract interested students to program from the region.

The discipline of neuroscience represents a distinctive research strength across Kent State's Biological Sciences and Psychological Sciences departments. Faculty have particular expertise in the areas of behavioral neuroscience, neuroendocrinology and neurodegeneration (see Appendix A). The field of neuroscience itself is growing: approximately 35,000 attend the annual meeting of the Society for Neuroscience, including strong attendance by undergraduate students presenting research and seeking research/career opportunities in the field.

The creation of this program is a no-lose proposition for the university with regard to enrollment. In the worst-case scenario, the creation of this degree program does not alter overall campus enrollment and only draws in existing students from other majors. In that case, the university will have better provided students with the education that they are looking forward in a modern field of science. The upside is that students will choose to attend Kent State specifically because of the existence of this program. The plan for this program does not require new enrollment to sustain its existence; if it does result in increased enrollment, then the revenue from that increase can be used to further improve and enhance the program.

[3] Ramos R.L., Fokas G.J., Bhambri A., Smith P.T., Hallas B.H., Brumberg J.C. (2011) Undergraduate neuroscience education in the U.S.: an analysis using data from the National Center for Education Statistics. J Undergrad Neuroscience Ed 9:A66-A70.
[4] Ramos R.L., Esposito A.W., O'Malley S.O., Smith P.T., and Grisham W. (2016) Undergraduate Neuroscience Education in the U.S.: Quantitative Comparisons of Programs and Graduates in the Broader Context of Undergraduate Life Sciences Education. Journal of Undergraduate Neuroscience Education 15:A1-A4.
[5] Five Ohio public universities offer an undergraduate neuroscience major, none of which are located in Northeast region: Ohio University, Ohio State University, Wright State University, University of Cincinnati and Bowling Green State University.

10. If the program request is approved, what future growth do you anticipate (e.g., in the next six months, three years) and how do you plan to manage this growth?

    It is anticipated that enrollment will grow over the first four years of the program to reach 200 students by year five. While this may seem ambitious for a new major, study in this area has already proved viable. The Biological Sciences and Psychological Sciences departments are home to nearly 40 percent of the undergraduate students in Kent State's College of Arts and Sciences. In fall 2017, 2,990 students, total, were declared in a bachelor's degree program in the two departments.[6] These departments have also been targeted for growth in research effort through the university's new Brain Health Research Institute, which dovetails with this proposed major. The Brain Health Research Institute will provide additional hands-on research opportunities for students in the Neuroscience major. Should substantial new enrollments appear, the college will commit additional resources for teaching and advising.

11. How does this program fit into the current and expected financial picture of the institution? In particular, will the program be financially self-sufficient within three years? If not, when do you expect the program to be financially self-sufficient and how do you expect the program to operate until then?

    Kent State University operates under a Responsibility Center Management (RCM) financial model, where business-type strategies are used to manage and evaluate new and existing programs. Under this model, costs and revenues are taken into consideration when making decisions about the viability of programs. The proposed Neuroscience major will be no exception, and will undergo the same scrutiny as other.

    As this program will be administered with existing faculty and courses, the expectation is the program will be financially self-sufficient from the onset. Due to the lack of an existing neuroscience undergraduate programs at the public institutions in the region, Kent State will have the market for new enrollment, providing additional resources that can be reinvested in personnel and facilities to serve the program.

12. What controls are in place to ensure that the information presented to all constituencies in advertising, brochures, and other communications will be accurate?

    The Office of the Provost ensures that only faculty- and university-approved program information is included in the University Catalog, degree audit, Explore Programs and Degrees website and student information system (for program admission and graduation). In addition, Kent State's Division of University Communications and Marketing coordinates branding and consistency of all of the university's promotional materials, including the Kent State University website.

[6] Student Enrollment, 15th Day Census. Kent State Office of Institutional Research.

Section D. Curriculum and Instructional Design

13. Please list all the courses that comprise the program and identify if the program will include any new courses. Include course descriptions and number of credit hours for each.

EXISTING COURSES

BSCI 10120 Biological Foundations 4 Credit Hours
This introductory course examines the organization of life from subcellular biochemistry and molecular biology, to genetics, bioenergetics and system homeostasis. Three hours of lecture and three hours of lab weekly. Students must earn a final grade of at least C- in order to meet prerequisites for selected upper-division BSCI courses.

BSCI 30140 Cell Biology 4 Credit Hours
Investigation of the cell as the fundamental unit of life with an emphasis on the relationship between cellular structure and function. Three-hour lecture and three-hour lab weekly.

BSCI 30156 Elements of Genetics 3 Credit Hours
Principles of organic mechanisms for expression and transmission of traits as studied in molecules, cells, organisms and populations.

BSCI 40147 Developmental Neurobiology 3 Credit Hours
(Slashed with BSCI 50147 and BSCI 70147) Covers fundamental principles in developmental neurobiology, including molecular and cellular processes involved in the formation of the vertebrate central nervous system.

BSCI 40152 Molecular Mechanisms of Disease: Neurological Disorders 3 Credit Hours
(Slashed with BSCI 50152 and BSCI 70152) Major concepts and theoretical principles underlying neurological disorders.

BSCI 40157 Neurobiology of Drug Addiction 3 Credit Hours
(Slashed with BSCI 50157 and BSCI 70157) Introduction to neural structures, circuitry, and chemistry underlying drug addiction, main categories of drugs of abuse, and how brain cells and circuits are modified in response to addictive drugs.

BSCI 40158 Molecular Biology 3 Credit Hours
Molecular genetics, DNA and RNA structure, chromosomes, DNA replication, recombination, genetic transcription and translation, gene expression, current concepts and technologies.

BSCI 40159 Molecular Biology Laboratory 3 Credit Hours
Experience in research methods for studying cellular and molecular processes in plant and animal systems.

BSCI 40431 Neuroendocrinology 2 Credit Hours
Integrative processes of how the central nervous system (primarily the hypothalamus) regulates autonomic, reproductive and metabolic activities, and how peripheral endocrine signals regulate brain activity.

BSCI 40432 Endocrinology 3 Credit Hours
(Cross-listed with BSCI 50432 and BSCI 70432) Principles of endocrine regulation of physiological and metabolic processes. Morphological and functional interrelationships between systems. Lecture three hours.

BSCI 40450 Biological Clocks 2 Credit Hours
(Cross-listed with BSCI 50450 and BSCI 70450) Topics covered include the characteristics of biological clocks, their ecology, molecular biology, and neurobiology, the function and organization of sleep, and the medical implications of biological rhythmicity.

BSCI 40460 Advanced Human Physiology 3 Credit Hours
(Slashed with BSCI 50460 and BSCI 70460) Major concepts and theoretical principles of human physiology, including nervous, endocrine, cardiovascular, respiratory, renal, gastriointestinal, and reproductive systems.

BSCI 40462 Advanced Human Physiology: Readings and Case Studies 1 Credit Hour
(Slashed with BSCI 50462 and BSCI 70462) Designed to complement the lecture course in Advanced Human Physiology. Students will read primary literature in physiology and work independently and in groups to apply their knowledge to solving case studies.

BSCI 40515 Animal Behavior 3 Credit Hours
Explores the evolution of various animal behaviors, the functions they might serve, and the interplay among the social, ecological and physiological mechanisms that regulate their occurrence.

BSCI 40519 Hormones and Behavior 3 Credit Hours
(Slashed with BSCI 50519 and BSCI 70519) Current concepts of hormone and behavior interactions across species.

BSCI 40600 Writing In the Biological Sciences 1 Credit Hour
Writing-intensive course taken with a 3- or 4-credit-hour upper-division biology course.

CHEM 10060 General Chemistry I 4 Credit Hours
Chemistry for science majors, emphasizing stoichiometry, introduction to chemical reactions, thermochemistry, atomic structure, periodicity, molecular structure and chemical bonding. Students who register for this course must successfully complete the department-approved placement assessment prior to the start of the term. Students who do not complete the placement assessment and associated modules will be deregistered. Students will be informed of the requirement by the Department of Chemistry and Biochemistry.

CHEM 10061 General Chemistry II 4 Credit Hours
Continuation of CHEM 10060, emphasizing intermolecular forces, properties of mixtures, main group chemistry, kinetics, equilibrium, acid-base chemistry, thermodynamics and electrochemistry.

CHEM 10062 General Chemistry I Laboratory 1 Credit Hour
Laboratory covering pertinent aspects of CHEM 10060. Three hours weekly.

CHEM 10063 General Chemistry II Laboratory 1 Credit Hour
Laboratory covering pertinent aspects of CHEM 10061, including qualitative analysis.

MATH 11010 Algebra for Calculus 3 Credit Hours
(Equivalent to MATH 10774 and MATH 10775) Study of elementary functions and graphs, including polynomial, exponential and logarithmic functions, complex numbers; conic sections; arithmetic and geometric sequences.

PSYC 11762 General Psychology 3 Credit Hours
Introduction to the scientific approach to understanding human behavior and mental processes such as emotions, perceptions and cognitions. Topics may include personality, social and environmental factors, biological aspects of behavior and the experience of emotion and psychological disorders.

PSYC 21621 Quantitative Methods in Psychology I 3 Credit Hours
Application of quantitative, statistical methods in psychological research. Descriptive and inferential methods (includes ANOVA, t-test and correlation).

PSYC 31574 Research Methods in Psychology 3 Credit Hours
The rationale, logic and procedures of scientific research in psychology with an emphasis on measurement, causal inference and research design.

PSYC 31634 Animal Cognition 3 Credit Hours
Focuses on the nature of cognition and intelligence in nonhuman animals. Topics include animal studies of perception and attention, associative learning, memory, spatial cognition, concept formation, reasoning and language in nonhuman animals.

PSYC 40111 Abnormal Psychology 3 Credit Hours
Survey of the definitions as well as the biological, psychological and sociocultural causes of various psychological disorders. Illustrations of these disorders with cases. Overview of treatment approaches to these disorders may be included.

PSYC 40383 Introduction to Clinical Psychology 3 Credit Hours
Application of psychological principles and techniques to the problems of the individual. This course is designed to introduce the field of clinical psychology, including models of understanding abnormal behavior, treatment of individuals and ethics and professional issues.

PSYC 40446 Cognitive Neuroscience 3 Credit Hours
Covers the cognitive and neural processes that underlie vision, attention, spatial processing, memory, language, social processes, executive functioning, and action. Introduces basic brain structure and the behavioral and functional imaging techniques used to study the brain bases of cognition. Data from patients with neurological disorders such as Alzheimer's, aphasia, amnesia and others are also be examined.

PSYC 41043 Basic Learning Processes 3 Credit Hours
Examination of basic principles of Pavlovian conditioning, instrumental conditioning, animal learning and memory processes, and animal cognition. Emphasis on major empirical phenomena derived from research with animals, with reference to related psychological processes in humans.

PSYC 41980 Research Writing in Psychology 1 Credit Hour
Writing-intensive course taken in conjunction with PSYC 31574.

PSYC 41990 Writing in Psychology 1 Credit Hour
Writing-intensive course taken in conjunction with a 3-credit-hour, upper-division psychology course (except PSYC 31498, PSYC 41498, PSYC 41573, PSYC 41574 or PSYC 41993).

PSYC 43001 Clinical Neuroanatomy 3 Credit Hours
(Slashed with PSYC 53001 and PSYC 73001; Cross-listed with BMS 50701 and BSCI 70701) This course examines the anatomical organization of the human brain, emphasizing functional aspects of various neural systems, neuroimaging, and topics of clinical relevance. A conceptual understanding of central nervous system organization and memorization of specific neural structures and pathways, as well as knowledge of the impact of structure and systems dysfunction is required.

PSYC 43002 Current Techniques in Behavioral Neuroscience 3 Credit Hours
(Slashed with PSYC 53002 and PSYC 73002; Cross-listed with BMS 50702 and BMS 70702) This course details current and advanced techniques used in behavioral neuroscience research. Emphasis is placed on understanding the theory behind each technique, and its use in understanding the neural mechanisms of behavior. Detailed protocols for each technique are also covered.

PSYC 43003 Neural Mechanisms of Learning and Memory 3 Credit Hours
(Slashed with PSYC 53003 and PSYC 73003; cross-listed with BMS 50703 and BMS 70703) This course examines the neural and molecular mechanisms underlying learning and memory formation. Cellular mechanisms of learning, including long-term potentiation and basic electrophysiology in invertebrate and mammalian preps are covered. Transcriptional and post-translational modifications required for learning and memory formation, genomic signaling and protein synthesis. The course covers structural changes of neurons associated with memory formation, and the different behavioral methods for studying memory.

PSYC 47387 Neuropsychopharmacology 3 Credit Hours
(Slashed with PSYC 57387 and PSYC 77387) Neuropsychopharmacology is the study of how drugs and other chemicals affect brain and behavior. This course will introduce students to the behavioral effects of psychoactivetherapeutic drugs and neurotoxic chemicals in relation to their neural and molecular mechanisms of action. The course will cover general principles of neuropsychopharmacology, nervous system structure in relation to behavior and mind, brain and behavioral systems that are impacted by different classes of drugs and toxic chemicals, and methods employed in neuropsychopharmacology research.

NEW COURSES

NEUR 10100 Seminar in Neuroscience 1 Credit Hour
Course provides an overview of the neuroscience field including: areas of neuroscience research, foundational principles in neuroscience, current questions and techniques, career possibilities and examples of research being conducted by neuroscience faculty at Kent State.

NEUR 30100 Neuroscience I 3 Credit Hours
Course covers basic principles in neuroscience from the cellular to systems levels. Students will have a basic understanding of how the nervous system is organized, electrophysiology properties of neurons, sensory systems and motor pathways.

NEUR 30200 Neuroscience II 3 Credit Hours
Course builds off of the principles taught in NEUR 30100 by providing more depth and breadth to the functioning of the nervous system. Students will have a more complete understanding of the neuroanatomy, neurophysiology and neural circuitry involved in sensory processing, motor control and higher order cognitive functioning.

NEUR 30300 Experimental Methods in Neuroscience 1 Credit Hour
Accompanying laboratory course to NEUR 30200. Course provides a greater depth of understanding into and hand-on experience with the principles discussed in the lecture course. Students will be fluent in the major research techniques used in this discipline. The major topics covered include electrophysiology, neuroanatomy, learning and memory, the neuromuscular junction, and sensory perception.

NEUR 40192 Internship in Neuroscience 1 to 4 Credit Hours
Work experience and training in neuroscience under the supervision of appropriate personnel in a government agency, nonprofit organization or business.

NEUR 40195 Special Topics In Neuroscience 1 to 3 Credit Hours
The course topic will need to be neuroscience related with appropriate contact hours for the proposed number of credits. Special topic courses require approval by the director of the neuroscience program.

NEUR 40196 Individual Investigation In Neuroscience 1 to 3 Credit Hours
Research study under the guidance of a neuroscience faculty member.

14. What are the requirements students must fulfill to complete the program successfully (including specific courses, course options and any other requirements)?

Major Requirements		
BSCI 10120	Biological Foundations	4
BSCI 30140	Cell Biology	4
BSCI 30156	Elements of Genetics	3
BSCI 40600	Writing in the Biological Sciences	1
or PSYC 41980	Research Writing in Psychology	
or PSYC 41990	Writing in Psychology	
CHEM 10060	General Chemistry I	4
CHEM 10061	General Chemistry II	4
CHEM 10062	General Chemistry I Laboratory	1
CHEM 10063	General Chemistry II Laboratory	1
MATH 11010	Algebra for Calculus	3
NEUR 10100	Seminar in Neuroscience	1
NEUR 30100	Neuroscience I	3
NEUR 30200	Neuroscience II	3
NEUR 30300	Experimental Methods in Neuroscience	1
PSYC 11762	General Psychology	3
PSYC 21621	Quantitative Methods in Psychology I	3
PSYC 31574	Research Methods in Psychology	3
Neuroscience Electives, choose from the following:		27
BSCI 40147	Developmental Neurobiology	
BSCI 40152	Molecular Mechanisms of Disease: Neurological Disorders	
BSCI 40157	Neurobiology of Drug Addiction	
BSCI 40158	Molecular Biology	
BSCI 40159	Molecular Biology Laboratory	
BSCI 40431	Neuroendocrinology	
BSCI 40432	Endocrinology	

BSCI 40450	Biological Clocks
BSCI 40460	Advanced Human Physiology
BSCI 40462	Advanced Human Physiology: Readings and Case Studies
BSCI 40515	Animal Behavior
BSCI 40519	Hormones and Behavior
NEUR 40192	Internship in Neuroscience
NEUR 40195	Special Topics in Neuroscience
NEUR 40196	Individual Investigation in Neuroscience
PSYC 31634	Animal Cognition
PSYC 40111	Abnormal Psychology
PSYC 40383	Introduction to Clinical Psychology
PSYC 40446	Cognitive Neuroscience
PSYC 41043	Basic Learning Processes
PSYC 43001	Clinical Neuroanatomy
PSYC 43002	Current Techniques in Behavioral Neuroscience
PSYC 43003	Neural Mechanisms of Learning and Memory
PSYC 47387	Neuropsychopharmacology

Additional Requirements		
UC 10097	Destination Kent State: First Year Experience	1
Foreign Language Requirement		8
Kent Core Composition		6
Kent Core Humanities and Fine Arts (minimum one course from each)		9
Kent Core Social Sciences (must be from two disciplines)		3
General Electives (total credit hours depends on earning 120 credit hours, including 42 upper-division credit hours)		24
	Minimum Total Credit Hours:	**120**

15. For programs using prior learning credit, compressed time frames, online delivery, accelerated formats or other approaches to learning, explain how the institution will ensure that student work and the levels of knowledge and competencies comparable to those required in traditional formats have been achieved.

Not applicable.

Section E. Institutional Staffing, Faculty, and Student Support

16. How many and what types of faculty (full-time or part-time) will be employed in the program? Why is the number and type of faculty sufficient to support the program? How many, if any, new faculty will be hired for the program?

No additional faculty will be employed for the program. Faculty teaching in the program are existing – primarily the departments of Biological Sciences and Psychological Sciences. Approximately 30 faculty will teach the major course requirements, with additional faculty to teach elective courses. Any new faculty hires in the area of neuroscience will be made with thein established departments.

17. What will the impact of the new initiative be on faculty workload?

No overall impact on faculty workload is expected as the majority of the courses are existing. Only seven courses are new for the major (four required, three electives).

18. Provide a brief attachment that inventories each faculty member employed to teach in the program, including names of existing personnel, a description of each faculty member's academic qualifications, their prior instructional responsibility and other experiences relevant to the courses they will teach in the program in question, each faculty member's course load in the new program, and the course work each teaches in other programs currently offered. (Note: Do not attach full CVs for each faculty member; rather, the requested information should be summarized in one paragraph for each faculty member.)

    See Appendix A.

19. For graduate programs, document scholarship and research capability of each faculty member; for doctoral programs, document faculty experience in directing student research.

    Not applicable.

20. What library and information resources—general as well as specific to the program(s)—and staffing and services are in place to support the initiative? If the proposed new program is at the graduate level, document discipline-specific refereed journals and primary source materials.

    No additional resources are required beyond existing resources supporting the departments of Biological Sciences and Psychological Sciences. The Kent State University Libraries provide on-ground and online access to thousands of journals, books and databases to students across all eight campuses, as well as access to OhioLink, which provides students access to library materials and electronic research databases from 120 academic libraries in Ohio. In addition, Kent State also maintains a license with Safari Books, a digital library of more than 30,000 online technical texts.

Section F. Evaluation

21. Describe the process for monitoring, evaluating and improving the overall effectiveness and quality of the program, and articulate program-level learning outcomes and objectives.

    The College of Arts and Sciences monitors a wide range of metrics for all programs on an annual basis. These include enrollment, freshman retention rates, upperclassman persistence rates and four- and six-year graduation rates. Any anomalies are investigated. Grade distributions, student evaluations of instructors and student feedback to advisors are also monitored on a regular basis so problems can be addressed without delay. Program faculty will meet at least annually to review the progress of students in the Neuroscience major and discuss any issues and potential improvements. The program will undergo a full evaluation periodically in accordance with university policies on the review of academic programs.

    The goal of the neuroscience program is to produce graduates who:

    - Understand the nervous system and the mechanisms by which it operates;
    - Have knowledge of the tools utilized in neuroscience research, to be better able to evaluate science findings on their own, and to possess skills utilized in neuroscience research.
    - Can contribute after graduation through employment in scientific or science-related employment or by embarking on graduate-level educational paths.

Graduates of this program will be able to:

- Demonstrate an understanding of fundamental principles of neuroscience.
- Acquire fundamental skills necessary for laboratory investigations into central nervous system function.
- Demonstrate an understanding of proper experimental design, data analysis and communication of research results.
- Demonstrate a greater knowledge and appreciation of the role neuroscience plays in societal issues, such as those related to neurological disorders, mental health, medicine and human and animal behavior.

22. Describe the process for assessing and improving student learning, including student persistence and completion, in the new program.

Kent State University offers many support services to students through a variety of offices, including advising, tutoring, career, counseling, accessibility and technical support. Students are required to meet each semester with professional academic advisors to review progress using the university's degree audit (Graduate Planning System). In addition, students meet with faculty advisors to discuss research and career goals. Faculty issue evaluation grades for first- and second-year courses between weeks four to seven in the semester to provide feedback to students and allow them time to make adjustments in their studies.

ADDENDUM TO HIGHER LEARNING COMMISSION SUBSTANTIVE CHANGE APPLICATION TO ESTABLISH A NEW UNDERGRADUATE DEGREE PROGRAM

Proposed Major: Neuroscience

Proposed Degree: Bachelor of Science

Administrating College: Arts and Sciences

Administrating Department: jointly between Biological Sciences and Psychological Sciences (program and NEUR courses will be coded in Banner as attached to the college as department)

Provide the title of the lead administrator for the proposed program and a brief description of the individual's duties and responsibilities.

The program director will be a faculty member assigned by the college dean after consultation with the program faculty and the department chairs of Biological Sciences and Psychological Sciences.

Indicate whether any institutions of higher education offer the proposed program within a 30-mile radius of the campus(es) at which the proposed program will be offered. If so, list the institutions that offer the proposed program and provide a rationale for offering an additional program at this campus.

Bachelor's degree programs in neuroscience in Northeast Ohio are offered at Hiram College (20 miles from Kent Campus) and University of Mount Union (25 miles from Kent Campus) These are private institutions that serve a very small number of students. Neuroscience degrees are in high demand at large state institutions, and can reasonably offered at all major institutions in a matter similar to other common majors such as biology and psychology.

That said, neuroscience undergraduate degrees are not offered by Cleveland State University, University of Akron, or Youngstown State University, the other four-year state universities in northeast Ohio, nor is such a degree offered at Case Western Reserve University.

CATALOG COPY

DESCRIPTION OF PROGRAM:

The Bachelor of Science degree in Neuroscience offers a broad-based study of the mechanisms of brain function from the cell and molecular level through cognition and behavior. This major is appropriate for students interested in medicine, other health professions, research and graduate studies in biology, neuroscience and psychology. Students will also be prepared for careers in industries, including biotechnology, pharmaceuticals, research administration and policy, science communication, teaching and other science-related businesses.

Fully Offered At:

- Kent Campus

ACCREDITATION:

Not Applicable

ADMISSION REQUIREMENTS:

Standard admission criteria for the degree.

PROGRAM LEARNING OUTCOMES:

Graduates of this program will be able to:

- Demonstrate an understanding of fundamental principles of neuroscience.
- Acquire fundamental skills necessary for laboratory investigations into central nervous system function.
- Demonstrate an understanding of proper experimental design, data analysis and communication of research results.
- Demonstrate a greater knowledge and appreciation of the role neuroscience plays in societal issues, such as those related to neurological disorders, mental health, medicine and human and animal behavior.

PROGRAM REQUIREMENTS:

MAJOR REQUIREMENTS

Major Requirements (courses count in major GPA)		
BSCI 10120	Biological Foundations (KBS) (KLAB)	4
BSCI 30140	Cell Biology	4
BSCI 30156	Elements of Genetics	3
BSCI 40600	Writing in the Biological Sciences (WIC) [1]	1
or PSYC 41980	Research Writing in Psychology (WIC) [1]	
or PSYC 41990	Writing in Psychology (WIC) [1]	
CHEM 10060	General Chemistry I (KBS)	4
CHEM 10061	General Chemistry II (KBS)	4
CHEM 10062	General Chemistry I Laboratory (KBS) (KLAB)	1
CHEM 10063	General Chemistry II Laboratory (KBS) (KLAB)	1
MATH 11010	Algebra for Calculus (KMCR)	3
NEUR 10100	Seminar in Neuroscience	1
NEUR 30100	Neuroscience I	3
NEUR 30200	Neuroscience II	3
NEUR 30300	Experimental Methods in Neuroscience	1
PSYC 11762	General Psychology (DIVD) (KSS)	3
PSYC 21621	Quantitative Methods in Psychology I	3
PSYC 31574	Research Methods in Psychology (ELR)	3
Neuroscience Electives, choose from the following:		27
BSCI 40147	Developmental Neurobiology	
BSCI 40152	Molecular Mechanisms of Disease: Neurological Disorders	
BSCI 40157	Neurobiology of Drug Addiction	
BSCI 40158	Molecular Biology	
BSCI 40159	Molecular Biology Laboratory (ELR) (WIC) [1]	
BSCI 40431	Neuroendocrinology	
BSCI 40432	Endocrinology	
BSCI 40450	Biological Clocks	
BSCI 40460	Advanced Human Physiology	
BSCI 40462	Advanced Human Physiology: Readings and Case Studies	
BSCI 40515	Animal Behavior	
BSCI 40519	Hormones and Behavior	
NEUR 40192	Internship in Neuroscience (ELR) [2]	
NEUR 40195	Special Topics in Neuroscience	
NEUR 40196	Individual Investigation in Neuroscience	
PSYC 31634	Animal Cognition	
PSYC 40111	Abnormal Psychology	
PSYC 40383	Introduction to Clinical Psychology	
PSYC 40446	Cognitive Neuroscience	
PSYC 41043	Basic Learning Processes	
PSYC 43001	Clinical Neuroanatomy	
PSYC 43002	Current Techniques in Behavioral Neuroscience	
PSYC 43003	Neural Mechanisms of Learning and Memory	
PSYC 47387	Neuropsychopharmacology	
Additional Requirements (courses do not count in major GPA)		
UC 10097	Destination Kent State: First Year Experience	1
Foreign Language Requirement		8
Kent Core Composition		6
Kent Core Humanities and Fine Arts (minimum one course from each)		9
Kent Core Social Sciences (must be from two disciplines)		3
General Electives (total credit hours depends on earning 120 credit hours, including 42 upper-division credit hours)		24
	Minimum Total Credit Hours:	**120**

1. A minimum C grade must be earned to fulfill the writing-intensive requirement.
2. A maximum 6 credit hours of NEUR 40192 may count toward the major.

ROADMAP:

Semester One		
BSCI 10120	Biological Foundations (KBS) (KLAB)	4
CHEM 10060	General Chemistry I (KBS)	4
CHEM 10062	General Chemistry Laboratory I (KBS) (KLAB)	1
MATH 11010	Algebra for Calculus (KMCR)	3
NEUR 10100	Seminar in Neuroscience	1
UC 10097	Destination Kent State: First Year Experience	1
	Credit Hours	**14**
Semester Two		
BSCI 30140	Cell Biology	4
CHEM 10061	General Chemistry II (KBS)	4
CHEM 10062	General Chemistry Laboratory II (KBS) (KLAB)	1
PSYC 11762	General Psychology (DIVD) (KSS)	3
Kent Core Requirement		3
	Credit Hours	**15**
Semester Three		
BSCI 30156	Elements of Genetics	3
NEUR 30100	Neuroscience I	3
PSYC 21621	Quantitative Methods in Psychology I	3
Foreign Language Requirement		4
Kent Core Requirement		3
	Credit Hours	**16**
Semester Four		
NEUR 30120	Neuroscience II	3
NEUR 30300	Experimental Methods in Neuroscience	1
PSYC 31574	Research Methods in Psychology (ELR)	3
Foreign Language Requirement		4
Kent Core Requirement		3
	Credit Hours	**14**
Semester Five		
Neuroscience Electives		9
Kent Core Requirement		3
Kent Core Requirement		3
	Credit Hours	**15**
Semester Six		
BSCI 40600 Writing in the Biological Sciences (WIC) or PSYC 41980 Research Writing in Psychology (WIC) or PSYC 41990 Writing in Psychology (WIC)		1
Neuroscience Electives		9
Kent Core Requirement		3
General Elective		3
	Credit Hours	**15**
Semester Seven		
Neuroscience Electives		6
General Electives		9
	Credit Hours	**15**
Semester Eight		
Neuroscience Elective		3
General Elective		12
	Credit Hours	**15**
	Minimum Total Credit Hours:	**120**

GRADUATION REQUIREMENTS

- Minimum Major GPA: 2.000
- Minimum Overall GPA: 2.000

Kent State University

Fiscal Impact Statement

Neuroscience Major within the Bachelor of Science degree (Kent campus)

	Year 1	Year 2	Year 3	Year 4
I. Projected Enrollment				
Headcount full-time	30	60	90	120
Headcount part-time				
Full-time equivalent (FTE) enrollment	29	59	88	117
II. Projected Program Income				
Tuition	$ 66,077	$ 241,711	$ 307,788	$ 373,864
Expected state subsidy	$ 3,060	$ 101,760	$ 108,810	$ 115,860
Externally funded stipends, as applicable	$ -	$ -	$ -	$ -
Other Income	$ -	$ 1,500	$ 1,500	$ 1,500
Total Projected Program Income	**$ 69,137**	**$ 344,971**	**$ 418,098**	**$ 491,224**
III. Program Expenses				
New personnel:				
- Instruction				
Full-time: 0	$ -	$ -	$ -	$ -
Part-time: 0	$ -	$ -	$ -	$ -
-Non-instruction				
Full-time: 0	$ -	$ -		
Part-time: 0	$ -	$ -	$ -	$ -
Current personnel:				
- Instruction				
Full-time: Faculty time BSCI/PSYS	$ 3,542	$ 49,583	$ 49,583	$ 49,583
Part-time: GAs for Labs	$ -	$ 23,000	$ 23,000	$ 23,000
-Non-instruction				
Full-time: 1 Faculty Program Coord.	$ 21,250	$ 42,500	$ 42,500	$ 42,500
Part-time:	$ -	$ -	$ -	$ -
Benefits for all personnel	$ 9,322	$ 38,073	$ 38,073	$ 38,073
New facilities/building/space renovation (describe in narra	$ 100,000	$ -	$ -	$ -
Scholarship/stipend support	$ -	$ -	$ -	$ -
Additional library resources	$ -	$ -	$ -	$ -
Additonal technology or equipment needs	$ 50,000	$ -	$ -	$ -
Other expenses (see below)	$ -	$ 3,000	$ 3,000	$ 3,000
Total Projected Program Expenses	**$ 184,114**	**$ 156,156**	**$ 156,156**	**$ 156,156**
Projected Program Net	**$ (114,977)**	**$ 188,815**	**$ 261,942**	**$ 335,068**

Other Expenses				
Allocation of expenses covered by general fee	$ -	$ -	$ -	$ -
RCM overhead - estimated at 50%	$ 34,569	$ 171,736	$ 208,299	$ 244,862
RCM tuition allocation to other colleges	$ -	$ -	$ -	$ -
Professional development	$ -	$ -	$ -	$ -
Supplies (office, computer software, duplication, printing)	$ -	$ -	$ -	$ -
Telephone, network, and lines	$ -	$ -	$ -	$ -
Other info and communication pool	$ -	$ -	$ -	$ -
Total Other Expenses	**$ 34,569**	**$ 171,736**	**$ 208,299**	**$ 244,862**

BUDGET NARRATIVE:

This estimate is based solely on income that would accrue to the Neuroscience program itself. It does not include additional revenue that would be earned by other academic units that offer coursework taken by Neuroscience majors.

Estimated Enrollment: We consider our estimate of 30 new students to be conservative, based on the growth of the neuroscience major at the Ohio State University after its establishment in 2013. FTE is based on average credit hours per enrolled student in the Biology major.

Tuition revenue was based on an estimate of the revenue that would accrue to the program through the offering of courses under the NEUR course prefix, plus the revenue that would be attributed to Neuroscience majors via the 80/20 split.

SSI is based solely on estimated course completions for NEUR coursework, as the number of degree completions is expected to be small until after the completion of the 4th year of the program's existence.

Other Income includes a $50 course fee for the Experimental Methods in Neuroscience laboratory course.

Personnel costs for the program include workload for faculty from BSCI or PSYS to teach NEUR-labeled courses, GA support for laboratory course instruction, and workload release for a faculty program coordinator to manage the program and assist in advising students in the major.

Additional expenses in year 1 for renovations and equipment are to modify an older classroom laboratory room in Cunningham Hall to house the required Neuroscience laboratory course.