

**REQUEST FOR AUTHORIZATION TO IMPLEMENT A
Bachelor of Science
IN Neuroscience
AT UNIVERSITY OF WISCONSIN-Milwaukee
PREPARED BY UW-Milwaukee**

ABSTRACT

The University of Wisconsin (UW)-Milwaukee proposes to establish a Bachelor of Science (B.S.) in Neuroscience. The development of the major responds to tremendous growth in neuroscience in recent decades and corresponding increase in undergraduate demand for a coherent neuroscience major that integrates the interdisciplinary courses needed for appropriate training. The major will provide a cohesive program that not only includes core course competencies, but also allows sufficient flexibility in varied elective courses to permit specialization in subdisciplines of the field (e.g., cognitive, cellular and molecular, computational). Graduates will be better equipped to compete in the job market and graduate school admissions process with a curriculum designed specifically for neuroscience. The degree will consist of 120 credits in general education requirements, major requirements and opportunities for instructor-guided and independent research.

PROGRAM IDENTIFICATION

University Name

University of Wisconsin-Milwaukee

Title of Proposed Academic Degree Program

Bachelor of Science in Neuroscience

Degree Designation(s)

Bachelor of Science

Mode of Delivery

Single institution, predominantly face-to-face delivery with some distance delivery

Department or Functional Equivalent

The proposed major would be administered as an interdisciplinary major by faculty of the Department of Biological Sciences and Department of Psychology.

College, School, or Functional Equivalent

The proposed major would be housed within the College of Letters and Science.

Proposed Date of Implementation

September 2021

Projected Enrollments and Graduates by Year Five

Table 1 represents enrollment and graduation projections for students entering the major over the next five years. The continuing enrollment projections in year one are conservatively derived from a Spring 2020 survey of 195 majors and minors in Biological Sciences and Psychology at UW-Milwaukee. (Minors were included in the survey to capture students bridging the two disciplines.) As noted below, in detail, 67 students seem predisposed to transfer to a new major. 45 students are estimated to move to the new major as continuing students. New student enrollment is estimated based on demand for neuroscience degrees at other institutions and our current profile of students at UW-Milwaukee. New enrollment includes new transfer students as well, in a ratio of 1:1 new freshmen and new transfers, somewhat higher than the typical ratio at UW-Milwaukee, based on the attractiveness of the new major and the low number of UW System neuroscience degrees. Retention rates vary across year in school and new freshmen vs. new transfer students. However, retention averages around 65% for all cohorts over all years in school. Continuing students in each year are computed as total students from the prior year, minus graduations, and reduced to ~65% of that total. Graduation rates are likewise complicated by the same factors. Few continuing students late in their careers will move to a new major, thus the expected graduations by year two are small (i.e., graduations are counted as **before** the year noted in accordance with Institutional Research reporting conventions). Estimated graduations grow slowly since transfer students are likely to be early in their careers but reach a rate of 20% before year 5, and 31% before year 6, on par with Institutional Research’s rates for the overall UW-Milwaukee undergraduate population at the same point in progression to degree.

Table 1: Five-Year Academic Degree Program Enrollment Projections

Students/Year	Year 1	Year 2	Year 3	Year 4	Year 5
New Students	45	50	54	60	66
Continuing	45	55	72	87	89
Total Enrollment	90	105	126	146	155
Graduating	0	4	12	20	34

Tuition Structure

For students enrolled in the B.S. in Neuroscience, standard tuition and fee rates will apply. For the current academic year, residential tuition and segregated fees total \$4,627.06 per semester for a full-time student enrolled in 12-18 credits per semester or \$337.13 per credit. Of this amount, \$4,045.56 is attributable to tuition and \$581.50 is attributable to segregated fees. Nonresident tuition and segregated fees total \$10,559.50 per semester for a full-time student enrolled in 12-15per semester or \$831.50 per credit. Of this amount, \$9,978.00 is attributable to tuition and \$581.50 to segregated fees.

DESCRIPTION OF PROPOSED MAJOR

Overview of the Major

Neuroscience is an interdisciplinary field, drawing from multiple parent disciplines including psychology, biology, chemistry, and physics. As such, the proposed B.S. in

Neuroscience is designed to be interdisciplinary in nature, with most required and elective credits coming from the two primary departments involved in neuroscience at UW-Milwaukee, Biological Sciences and Psychology. Eight required courses constitute 24-25 credits (depending on the statistics course taken) and elective courses constitute at least 11 credits. Included in the required and elective coursework are abundant opportunities for hands-on experiential learning in instructor-led laboratories or independent research.

Student Learning Outcomes and Program Objectives

Program objectives: The B.S. in Neuroscience will provide students with an integrated curriculum in neuroscience and closely related disciplines that confers understanding of nervous system function from the cellular and molecular level to the systems and behavioral level. By integrating within a single major the courses from multiple scientific disciplines that inform the study of the brain, the B.S. will: 1) provide a more comprehensive and cohesive educational experience in neuroscience than the current status quo, and 2) better prepare students to be competitive for admission to graduate programs in neuroscience.

Student learning outcomes: Core required courses were designed to educate students about: 1) how cells in the nervous system work on a cellular and molecular level 2) how networks of cells relay and process information to generate thoughts and actions 3) how data should be collected and analyzed to appropriately test hypotheses and ensure sufficient scientific rigor and reproducibility. A wide range of elective courses is included to allow students to specialize in subfields of neuroscience (e.g., cellular and molecular, cognitive/systems, computational). Finally, required courses are included in chemistry and physics to provide an essential foundation for a functional understanding of cells of the nervous system.

Curriculum and Requirements for the Major

The general education requirements of UW-Milwaukee and the College of Letters and Science Bachelor of Science are: Oral and Written Communication Part A (grade C or better in English 102 or equivalent) and Part B (course designated as OWC-B), and Quantitative Literacy Part A (grade C or better in one of Math 102, 103, 105, 108, 111, 116, or equivalent course) and Part B (course designated as QL-B). In addition to the quantitative literacy requirement, students must complete a calculus course. The breadth requirements of UW-Milwaukee are: 3 credits of Arts, 12 of Humanities, 12 of Natural Sciences (including one lab or field experience), and 12 of Social Sciences. The UW-Milwaukee foreign language requirement is completed through two years of a single foreign language in high-school, or two semesters of a single foreign language in college. The UW-Milwaukee cultural diversity requirement is completed by taking one course from the Arts, Humanities, or Social Sciences that is designated as satisfying UW-Milwaukee's cultural diversity requirement. Some general education requirements are satisfied by the required preparatory courses and major requirements.

Table 2: Bachelor of Science in Neuroscience Program Curriculum

General Education not covered by coursework listed below (approx. 54 credits):

Preparatory courses (24 credits):

Chem 102 General Chemistry	5 credits
Chem 104 General Chemistry and Qualitative Analysis	5 credits

Chem 343 Organic Chemistry	3 credits
Chem 345 Organic Chemistry	3 credits
Physics 120 General Physics I	4 credits
Physics 122 General Physics II	4 credits
or Physics 209 Physics I (Calculus Treatment)	4 credits
and Physics 210 Physics II (Calculus Treatment)	4 credits
Required courses (23-24 credits):	
Bio Sci 150 Foundations of Biological Sciences I	4 credits
Bio Sci 150 Foundations of Biological Sciences II	4 credits
Bio Sci 315 Cell Biology	3 credits
Bio Sci 455 Cellular, Molecular and Developmental Neurobiology	3 credits
MthStat 215 Elementary Statistical Analysis	3 credits
or Bio Sci 465 Biostatistics	3 credits
or Psych 210 Psychological Statistics	4 credits
Psych 101 introduction to Psychology	3 credits
Psych 254 Physiological Psychology	3 credits
Required research experience (complete one of the following courses)	
Bio Sci 672 Undergraduate Seminar in Cell and Molecular Biology	1 credit
Bio Sci 697 Independent Study in Cell and Molecular Biology	1-3 credits
Bio Sci 699 Independent Study	1-3 credits
Psych 654 Advanced Physiological Psychology	4 credits
Psych 656 Psychophysiology	4 credits
Elective courses (11 credits):	
Bio Sci 203 Anatomy & Physiology II	3 credits
Bio Sci 290 Independent Study and Research	1-3 credits
Bio Sci 316 Laboratory in Genetics & Cell Biology	2 credits
Bio Sci 325 Genetics	4 credits
Bio Sci 356 Developmental Biology	3 credits
Bio Sci 370 Mammalian Physiology	3 credits
Bio Sci 372 Animal Physiology & Neurobiology Laboratory	1 credit
Bio Sci 469 Genomic Data Analysis	3 credits
Bio Sci 490 Molecular Genetics	3 credits
Bio Sci 539 Laboratory Techniques in Molecular Biology Bio	4 credits
Sci 542 Biological Electron Microscopy	3 credits
Bio Sci 543 Scanning Electron Microscopy Laboratory Bio	2 credits
Sci 544 Transmission Electron Microscopy Laboratory Bio	3 credits
Sci 564 Endocrinology	3 credits
Bio Sci 565 Gene Regulation in Stem Cells and Regeneration	3 credits
Bio Sci 566 Cell Biology of Human Disease	3 credits

Bio Sci 572 Functional Genomics	3 credits
Bio Sci 597 RNA Structure, Function, and Metabolism	3 credits
Bio Sci 672 Undergraduate Seminar in Cell and Molecular Biology	1 credit
Bio Sci 697 Independent Study in Cell and Molecular Biology	1-3 credits
BMS 610 Pharmacology	3 credits
Chem 501 Biochemistry	3 credits
Psych 214 Introduction to Conditioning and Learning	3 credits
Psych 290 Undergraduate Research: Lower Division	1-3 credits
Psych 325 Research Methods in Psychology	4 credits
Psych 433 Neuropsychology	3 credits
Psych 454 Psychopharmacology & Addiction	3 credits
Psych 503 Perception	3 credits
Psych 510 Advanced Psychological Statistics	3 credits
Psych 514 Conditioning and Learning	4 credits
Psych 551 Learning and Motivation Theories	3 credits
Psych 610 Experimental Design	3 credits
Psych 611 Current topics (with a topic related to neuroscience)	3 credits
Psych 623 Perceptual Processes	4 credits
Psych 627 Cognitive Neuroscience	3 credits
Psych 645 Hormones and Behavior	3 credits
Psych 654 Advanced Physiological Psychology (if not taken above)	4 credits
Psych 656 Psychophysiology (if not taken above)	4 credits
Psych 657 Neurobiology of Learning and Memory	3 credits
Psych 682 The Aging Brain	3 credits
Psych 690 Undergraduate Research: Upper Division	1-3 credits

Elective credits in or outside of the major to reach 120 total credits

Total Credits 120 credits

Assessment of Outcomes and Objectives

Assessment of at least one of the learning outcomes listed above will be conducted each year in an appropriate course through a major assignment. Assessment results will determine which changes are made so the major meets and exceeds UW-Milwaukee standards. The program will review its success in meeting the needs and expectations of students through anonymous exit surveys. The program will also regularly assess its integration of diversity across the program and throughout cohorts of students. Enrollment statistics, student grades, student/graduate evaluations, Advisory Committee critique, and surveys of graduate success in future academic positions or employment will provide data to guide such adjustments. Courses,

research opportunities, and seminars as well as recruitment and advising techniques will be adjusted to further the success of the major and its students.

Diversity

The interdisciplinary nature of the major will expose students to scientific thought from numerous fields, and they will be encouraged to think broadly about how scientists in each field can bring their expertise to bear on scientific questions. Many of the most seminal scientific breakthroughs are the result of interdisciplinary collaborations, so students will be exposed to team science in nearly every course. Students will learn that neuroscience is a constantly evolving field that benefits from a variety of diverse perspectives from different scientific disciplines. Further, in their classroom and one-on-one research experiences, students will work closely with faculty, graduate students, and postdocs from different countries and backgrounds, and these interactions will provide students with the opportunity to widen both their scientific and personal perspectives. Psychology and Biological Sciences already includes undergraduates in research through their extensive participation in UWM's Support for Undergraduate Research Fellows program.

Neuroscience program faculty will welcome and encourage student applicants from diverse backgrounds, especially those who historically have been under-represented. To recruit new incoming students, we will reach out to TRIO and Precollege programs like Upward Bound Math & Science, Future Success Program, and Knowledge is Power. For students already on campus, we will recruit through the UW-Milwaukee Office of Undergraduate Research, Black Student Cultural Center, Inclusive Excellence Center, LGBTQ+ Resource Center, Military and Veteran's Resource Center, Native American/Electa Quinney Institute, Roberto Hernández Center, Ronald E. McNair program, WiscAMP, and Women's Resource Center. We will also seek assistance from these programs in developing methods for student success, retention, and degree completion. As faculty positions become available in the departments that contribute to the major, we will encourage consideration of candidates from diverse backgrounds.

Collaborative Nature of the Major

This major will be conducted entirely within UW-Milwaukee, so no collaborative partnerships or consortial arrangements are planned. However, it is important to note that neuroscience is an inherently collaborative discipline, and multiple collaborations across departments and schools at UWM currently exist. For example, neuroscience faculty within Psychology and Biological Sciences already maintain fruitful collaborations with campus colleagues in Chemistry, Physics, and the schools of Engineering, Public Health, Health Sciences, and Freshwater Sciences, which provide our students with multidisciplinary training and perspectives. We imagine that these collaborations will be further enriched by the formalization of the B.S. in Neuroscience through pedagogical and research interactions with the students.

Projected Time to Degree

Full-time students will be able to complete the B.S. in Neuroscience in approximately eight semesters with a course load of 15 credits per semester in the major plus other university required credits. Part-time students will vary in their completion times but should complete within nine to twelve semesters.

Major Review

The Academic Program and Curriculum Committee at UW-Milwaukee conducts a review of new programs after 5 years and then a ten-year review of programs according to a regular schedule. Additionally, the Director of the Major and Advisory Committee will conduct regular reviews of the mission and learning outcomes to assess the success of the major in meeting those outcomes (see Assessment of Outcomes and Objectives above).

Accreditation

The Bachelor of Science in Neuroscience has no specialized accreditation. It will be reviewed in conjunction with the Higher Learning Commission's accreditation of UW-Milwaukee.

JUSTIFICATION

Rationale and Relation to Mission

UW-Milwaukee already supports a rich Neuroscience community, with faculty and students conducting neuroscience research in psychology, biology, chemistry, physics, engineering, health sciences, and public health. The [Neuroscience at UWM](#) program has existed for at least two decades and is comprised of core and affiliated faculty from numerous departments and colleges. These faculty have already shown a commitment to the discipline through their attendance at weekly seminars by distinguished outside speakers and semiannual graduate/undergraduate research symposia.

UW-Milwaukee's states that UW-Milwaukee "...will be a top-tier research university that is the best place to learn and work for students, faculty and staff, and that is a leading driver for sustainable prosperity.". The proposed B.S. in Neuroscience supports the mission of UW-Milwaukee by **filing a gaping need in UWM's undergraduate science offerings**, thereby better aligning our curriculum to those of other top-tier research universities. In addition, the B.S. in Neuroscience will contribute directly to the mission of the UW System by **disseminating knowledge and stimulating discovery in neuroscience** and related disciplines through instruction and empirical research at the undergraduate level. We seek to educate and train future generations of neuroscientists who can improve the human condition with new discoveries that could prevent or treat neurodevelopmental defects and disorders, psychiatric disorders, and neurodevelopmental disease. There are no majors in neuroscience at any UW System campus in southern or eastern Wisconsin, thereby providing an opportunity for students in these areas of the state to obtain an integrated neuroscience education close to home.

The UW-Milwaukee Select Mission Statement includes the following academic goals that this major will address: "(a) To develop and maintain high quality undergraduate, graduate and continuing education programs appropriate to a major urban doctoral university...(b) To engage in a sustained research effort which will enhance and fulfill the University's role as a doctoral institution of academic and professional excellence...(d) To attract highly qualified students who demonstrate the potential for intellectual development, innovation, and leadership for their communities...(e) To further academic and professional opportunities at all levels for women, minority, part-time, and financially or educationally disadvantaged students...(f) To establish and maintain productive relationships with appropriate public and private organizations at the local,

regional, state, national, and international levels...(g) To encourage others from institutions in the University of Wisconsin System and from other educational institutions and agencies to seek benefit from the University's research and educational resources such as libraries, special collections, archives, museums, research facilities, and academic programs..."

The proposed B.S. in Neuroscience will address these goals in the following ways:

1. Provide a cohesive, comprehensive, and contemporary Neuroscience education for undergraduate students, and position them for success in graduate study or other employment to advance in their current and/or future careers
2. Engage students in empirical laboratory research to educate them in the scientific method, provide valuable hands-on experience, and allow them to contribute to new scientific discoveries.
3. Attract new high-achieving undergraduate students to UWM who currently enroll elsewhere due to our lack of a B.S. in Neuroscience.
4. Make it easier for women, minority, part-time, and financially or educationally disadvantaged students to obtain an undergraduate education in Neuroscience, and provide opportunities for these students to conduct independent laboratory research, which would help diversify the scientific pipeline and lead to future diversification of the academy and other private and public employers.
5. Foster existing instructional and research collaborations with colleagues and programs at local institutions including the Medical College of Wisconsin, Marquette University, and Concordia University Wisconsin.
6. Student participation in local/regional scientific conferences, such as the UW System Undergraduate Research Symposium and Milwaukee Neuroscience Day, will expose others to the depth of research and educational abilities available at UW-Milwaukee.

University Program Array

Currently, undergraduates with an interest in neuroscience double majored in Psychology and Biological Sciences, majored in one department and minored in the other, or majored in one and conducted research in the other. However, these approaches are problematic because they do not provide a cohesive neuroscience education from cells through behavior, and often require students more than 4 years to complete. *An integrated B.S. in Neuroscience would directly address both of these problems.*

Core and elective courses would come from offerings in the UW-Milwaukee College of Letters and Science. Additional electives could come from the School of Engineering, School of Health Sciences, and School of Public Health.

Other Programs in the University of Wisconsin System

A search of the "Major Mania" system for "Neuroscience" revealed just three neuroscience majors in the UW System, at UW-Madison, UW-Eau Claire, and UW-River Falls. Of these campuses, none are in eastern Wisconsin. *The proposed Neuroscience major would provide a unique opportunity for students in the Milwaukee, Northern Illinois, and Green Bay regions to obtain a B.S. in Neuroscience.* Moreover, only one UW campus currently offering the Neuroscience major is a research university (UW-Madison), and thus, two of the three UW programs (UW-Eau Claire and UW-River Falls) cannot provide the research opportunities

afforded to students at UW-Milwaukee and UW-Madison. Thus, *the proposed Neuroscience major at UW-Milwaukee would not produce unnecessary program duplication, as Neuroscience is an underrepresented major in the UW-System.*

Need as Suggested by Current Student Demand

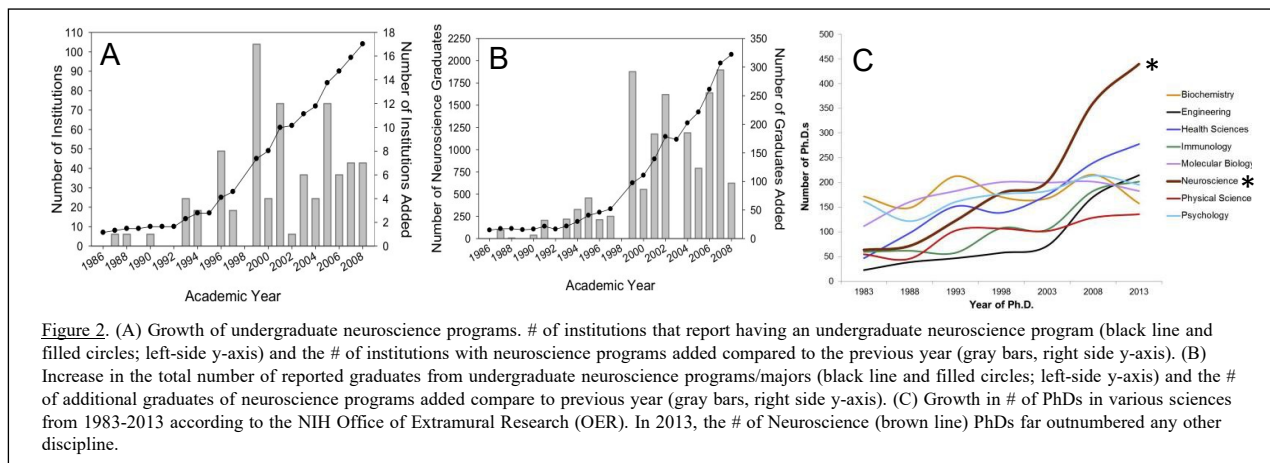
Student interest in neuroscience at UW-Milwaukee is evidenced by consistently strong enrollments in neuroscience courses offered in Psychology and Biological Sciences and by high student demand for research experiences in neuroscience faculty labs. Students with strong interest in neuroscience are likely to be double psychology/biology majors or to major in one discipline and minor in the other. In Spring 2020, there were 8 double majors, 6 Biological Sciences majors/Psychology minors, and 1 Psychology major/Biological Sciences minor. Several of these students are also minoring in Chemistry and Biochemistry. Given the overlap between these majors and the proposed Neuroscience B.S. curriculum, we expect many of these students to be possible neuroscience majors. Growth in this major is expected to increase steeply. As an example, Michigan State's Neuroscience major grew steadily from 241 students in 2013 to 871 in 2018 (Society for Neuroscience webinar, 5/30/18, <https://neuroline.sfn.org/training/undergraduate-neuroscience-pedagogy-perspectives-from-different-institutions>).

To quantify student interest, the departments of Psychology and Biological Sciences asked majors and minors to complete a short Qualtrics survey in April and May of 2020. A total of 195 students completed the survey, of which 132 (67.69%) were Psychology majors, 36 (18.46%) were Biological Sciences majors, and 27 (13.85%) were Other. As seen in Fig. 1, interest in the major was very strong. **In response to the question, "How interested are you in a possible B.S. degree in Neuroscience?", 63% (129 out of 195) of respondents were "Definitely" or "Very" interested in the major. When asked how likely they would have been to enroll in a Neuroscience major if it was available when they enrolled at UWM, 57% (111 out of 195) said they "Definitely" or "Very likely" would have.** One graduating Psychology major said: "This morning I received an email containing a survey that asked for my feedback on a potential neuroscience major, which I did submit. I am very excited to hear about this! I wish this could have been offered sooner.". Collectively, this survey of current students indicates substantial interest in, and enthusiasm for, a B.S. in Neuroscience.

Need as Suggested by Market Demand

Neuroscience majors have exploded in popularity in the past two decades and have become a standard offering at private and public institutions across the country (Ramos et al., 2011, 2016; Rothen et al., 2019; Pinard-Welyczko et al., 2017). The number of institutions offering undergraduate Neuroscience programs and numbers of graduates from these programs skyrocketed from the late 1980's through the late 2000's, with numbers tripling from 1996-2006 (Fig. 1A,B; Ramos et al., 2011). **The number of undergraduate neuroscience programs at colleges and universities increased from 111 in 2008-2009** (Ramos et al., 2011) to **157 in 2013-2014** (Ramos et al., 2016) to **221 in 2017-2018** (Rothen et al., 2019). Interest in Neuroscience is further reflected in the **rapid growth in numbers of Neuroscience PhDs, which greatly outpaces that of other life and natural sciences** (Fig. 1C; Akil et al., 2016). The burgeoning interest in neuroscience on the undergraduate and graduate levels is fueled by the

need for a better understanding of brain function to prevent or treat numerous neurodevelopmental, psychiatric, and neurodegenerative disorders. In recognition of this critical need, the NIH has allocated hundreds of millions of dollars to the BRAIN Initiative, designed to improve tools for neuroscience research, as well as to NIH institutes that fund neuroscience research.



Neuroscience graduates work in a variety of settings, including universities, hospitals/medical centers, private research foundations, government laboratories, regulatory agencies, science writing, K-12 education, and consulting, as well as pharmaceutical, biotech, chemical, and medical technology companies (<https://www.petersons.com/blog/neuroscience-jobs-available-in-a-variety-of-industries/>). The website for the U.S. Bureau of Labor Statistics includes “Neuroscientists” in the category “Medical Scientists” (<https://www.bls.gov/ooh/life-physical-and-social-science/medical-scientists.htm>). For Medical Scientists, 2019 median pay was \$88,790, number of jobs in 2018 was 130,700, and the 2018-2028 job outlook is 8% (Faster than average). **These data indicate that a B.S. in Neuroscience can lead to a high-paying job with a positive job outlook.**

References:

- Akil H et al., (2016). Neuroscience training for the 21st Century, *Neuron*, 90:917-926.
- Pinard-Welyczko KM et al., (2017). Characterizing the Undergraduate Neuroscience Major in the U.S.: An Examination of Course Requirements and Institution-Program Associations, *The Journal of Undergraduate Neuroscience Education*, 16(1):A60-A67.
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COST AND REVENUE PROJECTIONS NARRATIVE UNIVERSITY OF WISCONSIN-MILWAUKEE BACHELOR OF SCIENCE IN NEUROSCIENCE

Introduction

The proposed Bachelor of Science (B.S.) in Neuroscience will formalize already existing coursework in biology and psychology (and other disciplines) into a clearly defined major to improve student learning outcomes, student success in the job market, and student acceptance rates into graduate education in neuroscience programs.

Section I – Enrollment

As noted in the Authorization to Implement document we estimate a good number of existing students will transfer to the new program and that the overall attractiveness of neuroscience degrees nationally will produce a good number of new freshmen and new transfers. The profile of full-time versus part-time students at UW-Milwaukee overall is approximately 2 to 1, full-time versus part-time. Thus, the FTE figures are derived by this formula. For example, in year 1, new student headcount is 45, yielding 30 full-time students and 15 part-time students that are assumed to be half-time, i.e., 7 FTE, when rounded.

Section II – Credit Hours

Given the required preparatory courses for students in the major, as well as the program-specific requirements are distributed across years in school, 15 credits hours are attributed per student FTE per each year, both new and continuing. This estimate seems appropriately conservative as few students will finish with exactly the 59-credit minimum for the program, given variable credit courses and the number of options in elective course which vary in credit levels. Total credit hours grow from an initial estimate of 1114 in year one to 1917 in year 5.

Section III – Faculty and Staff Appointments

Currently, the staffing and course availability are sufficient to accommodate the existing new students. However, by year 3, there will be greater demands on all levels of coursework. While new lecture sections of required lower-division courses such as Bio Sci 150 or Psych Sci 254 will not be required, additional discussion sections and labs may be needed. On the upper level, as student numbers grow, additional sections of upper-division courses may be needed, or the frequency of offerings would need to be increased so as to not produce barriers to time to degree, e.g. a course offered once per year may be offered once per semester. New faculty are not necessarily envisioned as being needed, but faculty teaching in lower division courses might have to be replaced by academic staff in order to free faculty to teach the upper division courses. Additionally, highly qualified academic staff, already teaching in other upper division courses, may be asked to assume additional teaching duties in required and elective courses in the major. In the uncertain

world of higher education at the moment, a likely scenario is hiring qualified academic staff to teach lower division courses and ensure neuroscience faculty are available to mentor students and teach at the upper level. A single FTE is added in year 2, and a second academic staff FTE in year 4.

Quantifying the effort of multiple faculty members teaching courses that serve multiple programs in relation to a single degree program is difficult. A single faculty FTE is included here, with the following assumptions – the single FTE represents the overall effort of the neuroscience faculty on campus directed specifically to teaching students in the program and mentoring them. That single FTE is devoted in its entirety to those tasks.

Section IV – Program Revenues

The Bachelor of Science in Neuroscience will count as revenue only tuition generated by the program requirements (both preparatory and program-required courses). Tuition revenue is calculated at \$337 per credit for the sum of new and existing credit hours each year.

Section V – Program Expenses

As noted above, a single faculty FTE is attributed as an expense across all five years. The assumed salary for that faculty member is \$90,000, an approximate average of the neuroscience faculty on campus. Fringe is calculated at the extramural rate of 35%. Total cost equals \$121,500. New instructional academic staff is added in year 2 and year 4. Salary at the “lecturer” title is \$34,961, with a fringe rate of 35%, for a total cost of \$47,197 for each FTE.

Equipment expenses are lab supplies needed to accommodate new students in a difficult budget situation. Ten dollars per student per year is noted as additional expense on top of existing supply and expense budgets. Advertising in the form of brochures is added to the expenses. Brochures are the only allocable advertising expense, as all other outreach is held in common at the school/college level.

Section VI – Net Revenue

From these projections we see a fair amount of net revenue. Reinvestment in a growing program such as the Bachelor of Science in Neuroscience will mostly only serve to increase student numbers in the program. In addition, in a declining enrollment environment, increased enrollment via interest in vital program will offset potential enrollment declines in other areas.

University of Wisconsin - Milwaukee
Cost and Revenue Projections For Bachelor of Science in Neuroscience

Items		Projections				
		2021	2022	2023	2024	2025
		Year 1	Year 2	Year 3	Year 4	Year 5
I	Enrollment (New Student) Headcount	45	50	54	60	66
	Enrollment (Continuing Student) Headcount	45	55	72	87	89
	Enrollment (New Student) FTE	37	41	45	49	54
	Enrollment (Continuing Student) FTE	37	45	59	72	73
II	Total New Credit Hours	557	613	674	741	815
	Existing Credit Hours	557	681	891	1077	1101
III	FTE of New Faculty/Instructional Staff	0	1	0	1	0
	FTE of Current Fac/IAS	1	1	2	2	3
	FTE of New Admin Staff	0	0	0	0	0
	FTE Current Admin Staff					
IV	Revenues					
	<i>From Tuition</i>	\$375,334	\$435,804	\$527,344	\$612,607	\$645,926
	<i>From Fees</i>					
	<i>Program Revenue (Grants)</i>					
	<i>Program Revenue - Other</i>					
	<i>GPR (re)allocation</i>					
	Total New Revenue	\$375,334	\$435,804	\$527,344	\$612,607	\$645,926
V	Expenses					
	Salaries plus Fringes					
	<i>Faculty/Instructional Staff</i>	\$121,500	\$168,697	\$168,697	\$215,894	\$215,894
	<i>Other Staff</i>					
	Other Expenses					
	<i>Facilities</i>					
	<i>Equipment</i>	\$743	\$862	\$1,043	\$1,212	\$1,278
	<i>Advertising</i>	\$350	\$350	\$350	\$350	\$350
	<i>Other (please list)</i>					
	Total Expenses	\$122,593	\$169,909	\$170,090	\$217,456	\$217,522
VI	Net Revenue	\$252,741	\$265,895	\$357,254	\$395,151	\$428,405

Submit budget narrative in MS Word Format

Provost's Signature:

Date:

Chief Business Officer's Signature:

Date: