BOARD OF REGENTS OF THE UNIVERSITY OF WISCONSIN SYSTEM

I.1. Education Committee Agenda

Thursday, February 8, 2018 9:00-10:30 a.m. Union South, Varsity Hall II 1308 W. Dayton Street Madison, Wisconsin

- a. Approval of the Minutes of the December 7, 2017 Meeting of the Education Committee
- b. Report of the Vice President for Academic and Student Affairs
 - UW System Math Initiative
 - Next Steps: Teacher Preparation
- c. UW-Eau Claire: Approval of the Bachelor of Science and Bachelor of Arts in Neuroscience [Resolution I.1.c.]
- d. UW-Green Bay:
 - Approval of the Bachelor of Science in Mechanical Engineering [Resolution I.1.d.1.]
 - Approval of the Establishment of a School of Engineering, and Renaming of the College of Science and Technology [Resolution I.1.d.2.]
- e. UW-Parkside: Approval of the Master of Arts in Applied Professional Studies [Resolution I.1.e.]
- f. UW-River Falls: Approval of the Master of Science in Education in Montessori Education [Resolution I.1.f.]
- g. UW-Milwaukee: Renewal of the Charter School Contract with Woodlands School, Inc. [Resolution I.1.g.]
- h. UW-Milwaukee: Approval of the Charter School Contract with Rocketship Education Wisconsin, Inc. [Resolution I.1.h.]
- i. UW-Madison Host Campus Presentation: UW-Madison Educational Updates
- j. State of Wisconsin, Department of Public Instruction Presentation: The Process for Approving Educator Preparation Programs Leading to Licensure

Program Authorization (Implementation) Bachelor of Science/Bachelor of Arts in Neuroscience UW-Eau Claire

EDUCATION COMMITTEE

Resolution I.1.c.:

That, upon the recommendation of the Chancellor of UW-Eau Claire and the President of the University of Wisconsin System, the Chancellor is authorized to implement the Bachelor of Science and the Bachelor of Arts in Neuroscience.

NEW PROGRAM AUTHORIZATION BACHELOR OF SCIENCE AND BACHELOR OF ARTS IN NEUROSCIENCE UNIVERSITY OF WISCONSIN-EAU CLAIRE

EXECUTIVE SUMMARY

BACKGROUND

The University of Wisconsin-Eau Claire submits this request to establish a Bachelor of Science and Bachelor of Arts in Neuroscience. This proposal is presented in accord with the procedures outlined in Academic Planning and Program Review (SYS 102, revised July 2016, available at https://www.wisconsin.edu/program-planning/).

REQUESTED ACTION

Adoption of Resolution I.1.c., approving the implementation of the Bachelor of Science and Bachelor of Arts degree in Neuroscience proposed by the University of Wisconsin-Eau Claire.

DISCUSSION

Mission. The proposed Bachelor of Science and Bachelor of Arts degree in Neuroscience aligns with UW-Eau Claire's Mission and Strategic Plan, including the Strategic Plan's commitment that all students will have opportunities to live what they study through experiential learning opportunities. In addition, the degree program's emphasis on experiential learning and undergraduate research is a natural extension of UW-Eau Claire's 30-year commitment to providing students with high-impact learning experiences. A key element of the Blugold Commitment is for all UW-Eau Claire students to participate in at least one of three high-impact practices, including an internship, intercultural immersion experience, and/or undergraduate research, during their UW-Eau Claire career. The proposed degree also aligns with UW-Eau Claire's designation as the Center of Excellence for Faculty and Undergraduate Student Research Collaboration within the UW System.

Program Description. The University of Wisconsin-Eau Claire proposes a new Bachelor of Science (B.S.) and Bachelor of Arts (B.A.) degree in Neuroscience within the Department of Psychology. The proposed major will ground students in current neuroscience traditions, while enhancing existing neuroscience research and pedagogical methods in a multidisciplinary learning approach. The proposed programs also emphasize a broad-based, multidisciplinary approach to understanding the brain, which is represented in its core curriculum and electives that draw from psychology, biology, mathematics, chemistry, philosophy, music, and communication sciences and disorders.

This multidisciplinary major is intentionally integrative in design and encourages transformative learning via an engaging, multidisciplinary curriculum and embedded high-impact practices, such as undergraduate research opportunities and enhancing critical thinking both inside and outside the classroom. Given that neuroscience is a research and scholarshipbased discipline, the proposed program will also provide neuroscience-related research opportunities for undergraduates. These research experiences will draw upon UW-Eau Claire's Blugold Commitment Program (see http://www.uwec.edu/BC/), which helps fund research-related expenses as well as the costs associated with student presentations at national research conventions. Students in the proposed degree will also have access to the UW-Eau Claire William J. and Marian A. Klish Health Careers Center, which will provide students with relevant graduate/professional school advising as well as information and advising on career opportunities in a variety of health science fields including neuroscience.

Market and Student Demand. The development of neuroscience-related employment opportunities and technologies necessitate degree programs focused specifically on training undergraduate students in the field of neuroscience. Career fields include pharmaceutical sales, laboratory research, including drug design and development, scientific writing, clinical research, and medical equipment sales. In addition, the Wisconsin Job Center lists 152 open jobs under a global search using "neuroscience," while the U.S. Department of Labor Bureau of Labor Statistics predicts an 8% job growth from 2012-2022 for medical/neuroscience researchers (U.S. Bureau of Labor Statistics, 2016). More detailed research, conducted by the Education Advisory Board (EAB), reveals that in the Midwest, neuroscience-related job postings have increased 152% over the last four years, while nation-wide such job postings have increased 108%. These figures suggest a robust job market that is stronger in the Midwest (EAB, 2016).

In addition to the career fields already mentioned, UW-Eau Claire neuroscience graduates would be well positioned for admission to medical, dental, pharmacy or veterinarian school as well as graduate training in a variety of neuroscience-related disciplines, including those offered by the four Ph.D.-granting institutions in Wisconsin (UW-Madison, UW-Milwaukee, Marquette University, and the Medical College of Wisconsin). Neuroscience education and research is critical to the development of health care and to the public good. In fact, President Obama highlighted its importance in 2013 by launching the BRAIN Initiative (BRAIN, 2013), an identified global challenge of the new century. The proposed interdisciplinary program in neuroscience is designed to help meet this challenge by preparing undergraduates to contribute to this important field.

The number of students taking neuroscience-related courses, even though no major or neuroscience degree path currently exists at UW–Eau Claire, has increased by over 121% in the last 5 years, with a conservative enrollment of 299 students (UW-Eau Claire course registration data). In addition, the campus has offered neuroscience-related courses over the summer term (i.e., psychopharmacology, cognitive neuroscience or psychology of addictions) in order to help accommodate student demand that is not met during the fall and spring semesters (UW-Eau Claire course registration data). The proposed major will provide relevant degree options for current students, and is projected to result in 120 declared majors by year five of the program's existence. Finally, moving students to neuroscience may help alleviate pressure points in certain highly subscribed biology and psychology majors.

Credit Load and Tuition. This multidisciplinary major comprises 60 credits of the 120credit degree, and students will be able to complete all liberal education and other university graduation requirements as part of the proposed degree within four years. Students will be assessed the standard undergraduate tuition and fees. For the 2017-18 academic year, the residential tuition and segregated fees total \$4,408 per semester for a full-time student enrolled in 12-18 credits per term. Of this amount, \$3,681 is attributable to tuition and \$727 is attributable to segregated fees. Full-time students will be able to complete all degree requirements in eight semesters. The full cost of tuition for students completing the degree in four years will be \$29,450. For students enrolled part-time in the program, the residential cost of tuition and segregated fees is \$367 per credit. In addition to the tuition and segregated fees outlined above, each student will be assessed a \$20 special course fee for Chemistry 115 (Chemical Principles). This fee is identical to that charged to any UW-Eau Claire student enrolled in this course.

Program Funding and Management. The neuroscience program is built upon existing courses that are currently offered to UW-Eau Claire students. The equivalent of 2.75 faculty FTE will be needed to deliver the curriculum to the additional students who are taking these courses as part of the neuroscience program. The instructional resources are currently distributed among the collaborating departments. Based on the projected number of neuroscience students in Year 5, all students in the program can be accommodated within the existing course scheduling, and no new instructional resources will be needed to deliver the program.

RELATED REGENT AND UW SYSTEM POLICIES

Regent Policy 4-12: Academic Program Planning, Review, and Approval in the University of Wisconsin System.

UW System Administrative Policy 102: Policy on University of Wisconsin System Array Management: Program Planning, Delivery, Review, and Reporting.

REQUEST FOR AUTHORIZATION TO IMPLEMENT A BACHELOR OF SCIENCE AND A BACHELOR OF ARTS IN NEUROSCIENCE AT UW-EAU CLAIRE PREPARED BY UW-EAU CLAIRE

ABSTRACT

The University of Wisconsin-Eau Claire proposes a new Bachelor of Science (B.S.) and Bachelor of Arts (B.A.) degree in Neuroscience within the Department of Psychology. The proposed major will ground students in current neuroscience traditions while enhancing existing neuroscience research and pedagogical methods in a multidisciplinary learning approach. It is built upon a core curriculum from biology, chemistry, philosophy, mathematics, and psychology. This multidisciplinary major comprises 60 credits of the 120-credit degree, and students will be able to complete all liberal education and other university graduation requirements as part of the proposed degree within four years. Additionally, the multidisciplinary neuroscience major supports the university's liberal education goals while providing students with cutting-edge skills aligned with their career goals such as those in the health and health sciences fields. This multidisciplinary major is intentionally integrative in design and encourages transformative learning via an engaging, multidisciplinary curriculum and embedded high-impact practices, such as undergraduate research opportunities and enhancing critical thinking both inside and outside the classroom.

PROGRAM IDENTIFICATION

Institution Name University of Wisconsin-Eau Claire

Title of Proposed Program

Neuroscience

Degree/Major Designations

Bachelor of Science or Bachelor of Arts

Mode of Delivery

Single institution, using primarily face-to-face instruction.

Projected Enrollments by Year Five

Table 1 shares the expected enrollment and graduation projections for students entering the program. The enrollment values assume the current university-wide retention rates as well as an anticipated influx of students who transfer to the B.S./B.A. in Neuroscience from other existing disciplines. The total number of students at UW-Eau Claire taking neuroscience-related classes in either psychology or the interdisciplinary neuroscience class has increased steadily from 135 during the 2010-11 academic year to a high of 299 in 2015-16 (an increase of 121%). The university estimates approximately 20% of the students currently enrolled in neuroscience-related classes will enroll in the major during the first two years. UW-Eau Claire also estimates that approximately 10 newly admitted students will enroll in the major in Year 1 and that this

number will grow to 40 newly admitted students per year by Year 5, as explained in the Student Demand section of this document. By the end of the fifth year, UW-Eau Claire expects that approximately 60 students will have graduated with a B.S. or B.A. in Neuroscience.

	1st	2nd	3rd	4th	5th
	Year	Year	Year	Year	Year
New Students Admitted	10	25	35	35	40
Continuing Students	50	50	63	78	80
Total Enrollment	60	75	98	113	120
Graduating Students	0	0	5	20	35

Table 1: Five-Year Projected Student Enrollments for the B.S./B.A. in Neuroscience

Tuition Structure

Students will be assessed the standard undergraduate tuition and fees. For the 2017-18 academic year, the residential tuition and segregated fees total \$4,408 per semester for a full-time student enrolled in 12-18 credits per term. Of this amount, \$3,681 is attributable to tuition and \$727 is attributable to segregated fees. Full-time students will be able to complete all degree requirements in eight semesters. The full cost of tuition for students completing the degree in four years will be \$29,450. For students enrolled part-time in the program, the residential cost of tuition and segregated fees is \$367 per credit. In addition to the tuition and segregated fees outlined above, each student will be assessed a \$20 special course fee for Chemistry 115 (Chemical Principles). This fee is identical to that charged to any UW-Eau Claire student enrolled in this course.

Department or Functional Equivalent

The proposed program will reside in the Department of Psychology.

College, School, or Functional Equivalent

The proposed program will be housed within the College of Arts and Sciences.

Proposed Date of Implementation

Fall 2018

INTRODUCTION

Rationale and Relation to Mission

The proposed B.A. and B.S. degree in Neuroscience aligns with UW-Eau Claire's mission and Strategic Plan (see http://www.uwec.edu/chancellor/stratplan/), including the Strategic Plan's commitment that all students will connect and succeed and have opportunities to live what they study through experiential learning opportunities. The proposed degree also aligns with UW-Eau Claire's designation as the Center of Excellence for Faculty and Undergraduate Student Research Collaboration within the UW System (see http://www.uwec.edu/ORSP/about/excellence.htm). The neuroscience degree's emphasis on experiential learning and undergraduate research is a natural extension of UW-Eau Claire's 30-year commitment to providing students with these high-impact experiences.

The university's commitment to providing a rigorous, intentional, and experiential undergraduate education with a distinct focus on student-faculty collaborative research is a hallmark of a UW-Eau Claire education. The university is proposing to create both a B.A. and a B.S. in neuroscience in order to match each student's specific interests and career goals. The proposal to create both a B.A. and a B.S. in neuroscience is done to utilize the curricular offerings and expertise from several departments and match each student's specific interests and career goals. The proposed programs stress a broad-based, multidisciplinary approach to understanding the brain, which is represented in its core curriculum and electives that draw from psychology, biology, mathematics, chemistry, philosophy, music, and communication sciences and disorders.

Given that neuroscience is a research and scholarship-based discipline, the proposed program will also provide neuroscience-related research opportunities for undergraduates. These research experiences will draw upon UW-Eau Claire's Blugold Commitment program (see http://www.uwec.edu/BC/), which helps fund research-related expenses as well as the costs associated with student presentations at national research conventions. A key element of the Blugold Commitment is for all UW-Eau Claire students to participate in at least one of three high-impact practices (internship, intercultural immersion experience, undergraduate research) during their UW-Eau Claire career. The proposed major is perfectly aligned with this broader institutional commitment. For example, the proposed multidisciplinary major will leverage both the UW-Eau Claire's Institute for Health Sciences (IHS, 2017) and the groundbreaking research partnership between UW-Eau Claire and the Mayo Clinic Health System for faculty and students signed in 2017. Students in the proposed degree will also have access to the UW-Eau Claire William J. and Marian A. Klish Health Careers Center, which will provide students with relevant graduate/professional school advising as well as information and advising on career opportunities in a variety of health science fields including neuroscience.

Need as Suggested by Current Student Demand

The number of students taking neuroscience-related courses, even though no major or neuroscience degree path currently exists at UW–Eau Claire, has increased by over 121% in the last 5 years with a conservative enrollment of 299 students (UW-Eau Claire course registration data). In addition, the university has offered neuroscience-related courses over the summer term (i.e., psychopharmacology, cognitive neuroscience or psychology of addictions) in order to help accommodate student demand that is not met during the fall and spring semesters (UW-Eau Claire course registration data). Furthermore, when an informal email survey was sent to approximately 1,200 current psychology and biology majors asking about interest in a potential neuroscience major, 74 students responded and indicated that they would indeed switch their major to neuroscience, with many stating they were strongly interested in such a program (internal UWEC survey, 2016).

The proposed programs would fill a void in undergraduate major offerings within the UW System and be an attractive major for UW-Eau Claire students. To that point, a core course in the proposed curriculum, IDIS 125 Brain: Introduction to Neuroscience, typically fills to capacity (120 students enrolled in 2014-15), even though it is not required by any current degree program. Furthermore, psychology (560 students) and biology (700 students) are two of the most popular programs at UW-Eau Claire (see previous discussion of internal UWEC survey).

The proposed major will provide relevant degree options for current students, and is projected to result in 120 declared majors by year five of the program's existence. The university believes the demand is sustainable and will not have a significant negative impact on related majors in biology and psychology. In fact, moving students to neuroscience may help alleviate pressure points in certain highly subscribed biology and psychology majors.

Need as Suggested by Market Demand

The development of neuroscience-related jobs and technology necessitates the need for programs focused specifically on undergraduate training of neuroscience students. Career fields include pharmaceutical sales, laboratory research (including drug design and development), scientific writing, clinical research, and medical equipment sales. In addition, the Wisconsin Job Center lists 152 open jobs under a global search using "neuroscience", while the U.S. Department of Labor Bureau of Labor Statistics predicts an 8% job growth from 2012-2022 for medical/neuroscience researchers (U.S. Bureau of Labor Statistics, 2016). More detailed research, conducted by the Education Advisory Board (EAB), reveals that in the Midwest, neuroscience-related job postings have increased 152% over the last four years, while nation-wide such job postings have increased 108%. These figures suggest a robust job market that is stronger in the Midwest (EAB, 2016).

In addition to the career fields mentioned earlier, UW-Eau Claire neuroscience graduates would be well positioned for admission to medical, dental, pharmacy or veterinarian school as well as graduate training in a variety of neuroscience-related disciplines, including those offered by the four Ph.D.-granting institutions in Wisconsin (UW-Madison, UW-Milwaukee, Marquette University, and the Medical College of Wisconsin). Neuroscience education and research is critical to the development of health care and to the public good. In fact, President Obama highlighted its importance in 2013 by launching the BRAIN Initiative (BRAIN, 2013), an identified global challenge of the new century. The proposed interdisciplinary program in neuroscience is designed to help meet this challenge by preparing undergraduates to contribute to this important field.

Emerging Knowledge and Advancing New Directions

The multidisciplinary major in neuroscience is designed to contribute directly to facilitating emerging knowledge and new directions in the field of neuroscience. Specifically, students will not only complete a cutting-edge multidisciplinary major but also will be actively engaged in advancing research in neuroscience laboratories located in the collaborating departments across the campus. For example, in these sites, students will have opportunities to work with rodent (mouse and rat) models studying sleep-wake cycles, drug self-administration, learning and memory, brain protein levels, and neural electrophysiology while also having opportunities to investigate mate preference and electroencephalography (EEG) recordings in humans. Current and previous students are active contributors to all aspects of research in these areas. They are authors on peer-reviewed publications and help disseminate research findings by delivering oral and poster presentations at national and regional scientific conferences, such as those offered by the Society for Neuroscience, the Cognitive Neuroscience Society, and the Research Society on Alcoholism.

DESCRIPTION OF PROGRAM

Institutional Program Array

The proposed interdisciplinary program in neuroscience is ideally suited for the College of Arts and Sciences at UW-Eau Claire due to the strong, existing foundation of neuroscience instruction, research, and long history of collaborative projects with departments across the university (e.g., math, philosophy, music, commination sciences and disorders). Importantly, all resources (coursework and laboratories) are currently in place, which will allow students in the program to begin their major with a firm grounding in the robust liberal education framework offered at UW-Eau Claire.

Other Programs in the University of Wisconsin System

Within the University of Wisconsin System, only UW-River Falls offers an undergraduate major in neuroscience, while both UW-Eau Claire and UW-Oshkosh offer a neuroscience minor. Furthermore, only Lawrence University and Carthage College offer the neuroscience major locally. UW-Madison does not have an undergraduate program in neuroscience, but does have a neurobiology emphasis within the biology major.

In July 2015, UW-Eau Claire submitted its Notice of Intent to Plan a B.A. and B.S. in neuroscience shortly after UW-River Falls submitted its own Notice of Intent. UW-Eau Claire's preauthorization to plan a multidisciplinary neuroscience major in September 2015 instructed the university to explore opportunities for collaboration with UW-River Falls or sufficiently differentiate its program from the UW-River Falls major. To that end, the UW-Eau Claire Associate Vice Chancellor for Academic Affairs and the Dean of the College of Arts and Sciences reached out to their UW-River Falls counterparts to explore possible collaborations. However, there was no interest from colleagues at UW-River Falls to pursue any such collaborations. Therefore, in an attempt to clearly distinguish the proposed neuroscience program at UW-Eau Claire from that now offered at UW-River Falls, the curriculum was modified to include a substantial emphasis in statistics, linear regression, and experimental design by incorporating four core courses from the Department of Mathematics. None of these courses are part of the neuroscience major offered by UW-River Falls. Given the growth area of computational neurogenetics and neural bioinformatics, the additional mathematical coursework not only differentiates UW-Eau Claire's program but will also better prepare students for employment in these emerging fields. Moreover, in keeping with UW-Eau Claire's commitment to liberal education, the proposed major makes intentional connections to neurological aspects in other disciplines by including appropriate elective courses in philosophy, chemistry, communication sciences and disorders, and music, in addition to electives from biology and psychology. Finally, UW-Eau Claire's multidisciplinary major requires 9 to 11 fewer credits than that offered at UW-River Falls, which may allow UW-Eau Claire students to complete their degree in a timely manner.

Collaborative Nature of the Program

The proposed multidisciplinary major in neuroscience will be a collaborative, interdepartmental major at UW-Eau Claire. While the major will reside in the Department of Psychology as its administrative home, it will draw heavily from faculty and courses in other disciplines, including core courses from biology, chemistry, mathematics, and philosophy. In addition, elective courses from biology, chemistry, music, psychology, and communication sciences and disorders underscores the collaborative, interdisciplinary nature of the neuroscience major. The emerging research relationship between UW-Eau Claire and the Mayo Clinic Health System will provide additional collaborative opportunities for UW-Eau Claire faculty and students to work directly with professionals in health care fields. Finally, UW-Eau Claire's Institute for Health Sciences provides a natural structure for collaborative curriculum development and research to create innovative learning experiences within the neuroscience discipline.

Diversity

Faculty in the psychology, biology and the other collaborating departments are fully committed to helping students overcome inclusion challenges in science and technology, including persistent low participation by women, people of color, and members of other underrepresented groups. Members of the neuroscience faculty have engaged in outreach programs by traveling to schools and engaging in community outreach presentations to help connect faculty with a wide array of students, especially students of color and first-generation students. For example, the mathematics department sponsors an annual Sonia Kovalevsky Day, which brings middle and high school girls from across the region to UW-Eau Claire. This project aims to expose young women to opportunities available in math and science by creating fun and exciting experiences through hands-on activities, workshops, discussions, and a math competition. The project has been especially successful in reaching out to young women of color.

The collaborating departments also have a long history of supporting undergraduate research and including students from underrepresented groups in their research. In addition to funding from the Office of Research and Sponsored Programs, the departments also provide travel support for students presenting research at conferences. This money is specifically used to reduce costs to students to encourage them to attend conferences without the additional stress of funding. Faculty from the affiliated departments have also provided research experiences to underrepresented students from two-year technical schools and the UW Colleges through a National Science Foundation grant that helps introduce undergraduate research to students from two-year institutions, with the goal of encouraging these students to continue their education and obtain their bachelor's degree.

Further, all faculty in the departments are active in advancing the principles of equity, diversity, and inclusion. In addition to the examples already provided, many students in UW-Eau Claire's Ronald E. McNair scholars program have successfully completed, or are currently involved in, neuroscience-related research with collaborating faculty members. The McNair scholars are part of a federally-funded TRIO program to provide students from historically underrepresented groups with academic and scholarship support to help them achieve their goal of attending graduate school and obtaining an advanced degree.

Student Learning Outcomes

The multidisciplinary major in neuroscience has established the following core learning outcomes:

- 1. Apply neuroscience perspectives to understand brain behavior relationships.
- 2. Demonstrate the skills necessary to perform neuroscience research.
- 3. Demonstrate proficiency in standard neuroscience research procedures.
- 4. Integrate relevant knowledge from a wide variety of fields to better understand brain, mind and behavior interactions.
- 5. Organize, manipulate and analyze neural scientific datasets via computational and statistical methods.

A central tenet of the program is that students learn best when challenged by experiential learning. The neuroscience program is focused on providing high-impact practices centered on laboratory learning events. The proposed program will provide students with the knowledge and skills needed for lifelong learning in fields associated with neuroscience. Furthermore, the neuroscience learning outcomes are directly tied to UW-Eau Claire's four liberal education learning outcomes (Knowledge, Skills, Responsibility, and Integration) as outlined below:

- Knowledge Outcome: build knowledge and awareness of the historical and emerging trends in the field of neuroscience. Develop knowledge of the practical and applied nature of neuroscience.
- Skills Outcome: develop intellectual and practical skills, including, for example: scientific data generation, critical thinking, written and oral communication, quantitative literacy, and direct application of neuroscience knowledge to the world.
- Responsibility Outcome: apply personal and social responsibility for the dissemination of neuroscience knowledge to the general population.
- Integration Outcome: integrate learning across courses and the five academic disciplines that constitute the neuroscience program.

The four liberal educations learning outcomes are infused throughout the neuroscience program. That said, the Knowledge outcome is directly connected to neuroscience program outcomes 1 and 4; the Skills outcome is aligned with program outcomes 2, 3 and 5; the Responsibility outcome is embedded in program outcome 3; and the Integration outcome is the mainstay of program outcome 4.

Assessment of Objectives

The multidisciplinary major in neuroscience will be assessed through traditional academic methods such as coursework and laboratory experiences, as well as other measures of student success such as participation in national conference presentations. Some examples of specific assessment measures include: conducting pre- and post-testing in IDIS 125 (Brain: Introduction to Neuroscience) to assess learning at an early stage in the program, evaluation of poster presentations and conference abstracts for students in Biology 496 (Research) and Psychology 396 (Research) to assess application of neuroscience skills at a later stage in the program, Department of Mathematics assessment of neuroscience student learning in the four-course statistics sequence (see Program Requirements and Curriculum section for specific course numbers). The assessment data will be examined each year to inform any curricular or program modifications.

The collaborating departments have curriculum-wide assessment plans for all coursework and majors in their respective disciplines. Since the neuroscience program will be housed within the Department of Psychology, the department's assessment plan will be expanded to include assessment of the neuroscience major. Currently, a yearly assessment report is provided to the Dean of the College of Arts and Sciences and to the University Assessment Committee. This report will also be shared with each of the collaborating departments. Student outcomes will be further assessed by collecting and reviewing data on job placement/graduate school placement rates of neuroscience graduates. Those efforts will be enhanced by outreaching to neuroscience alumni through existing newsletters, Facebook groups, and a LinkedIn group.

Program Requirements and Curriculum

The proposed B.S. and B.A.in Neuroscience is a 60-credit major offered in the Department of Psychology which resides in the College of Arts and Sciences at UW-Eau Claire, with collaboration with biology, math, philosophy, music and communication science disorders. There will be no separate admission into the program. All students in good academic standing will be eligible to enroll in this major. There are no non-course graduation requirements. The core of the major consists of 47 credits. The program design encourages timely degree completion, while simultaneously providing students with opportunities to participate in high-impact practices such as laboratory research experiences, internships, and travel to national research conferences. Students in psychology and all other disciplines within the College of Arts and Sciences can earn either the Bachelor of Arts or Bachelor of Sciences degree, and this opportunity will exist for students in the neuroscience major. At UW-Eau Claire, the B.A. degree requirement is met by demonstrating language competency equivalent to a second semester (102 level) foreign language course. The B.S. degree requirement is met by demonstrating math competency at the Math 111 (Short Course in Calculus) or higher level.

Curriculum for the Neuroscience Major

University and Liberal Education Requirements Not Met by the Neuroscience Major:

Arts and Humanities	9 Credits
Communication	3 Credits
Cultural Diversity, Equity, and Inclusivity	6 Credits
Integrative Learning	6 Credits
Civic, Social, and Environmental Responsibility	3 Credits
Writing	5 Credits
Other Electives	28 Credits
	60 Credits

Neuroscience Core Courses

Biology 221 (Foundations of Biology I)	4 Credits
Biology 222 (Foundations of Biology II)	3 Credits
Biology 223 (Foundations Biological Inquiry)	2 Credits
Biology 350 (Systems Neuroscience)	4 Credits
Biology 351 (Systems Neuroscience Lab)	2 Credits
Chemistry 115 (Chemical Principles)	6 Credits
IDIS 125 (Brain: Introduction to Neuroscience)	4 Credits
Philosophy 343 (Philosophy of Mind)	3 Credits

Math 246 (Statistics)	4 Credits
Math 441 (Linear Regression Analysis with Time Series)	4 Credits
Math 443 (Experimental Design and Analysis)	3 Credits
Math 447 (Nonparametric Statistics)	2 Credits
Psychology 374 (Cognitive Neuroscience)	3 Credits
Psychology 375 (Physiological Psychology)	<u>3 Credits</u>
	47 Credits

Possible Electives Minimum of 13 Credits Biology 300 (Genetics) 4 Credits Biology 304 (Molecular Biology) 4 Credits Biology 496 (Research) 2 Credits Chemistry 325 (Organic Chemistry I) 4 Credits Chemistry 326 (Organic Chemistry II) 4 Credits Chemistry 352 (Biochemistry) 4 Credits CSD 440 (Neurological Aspects of Communication) 2 Credits Music 491 (Neurology of Music) 3 Credits Psychology 372 (Individual Differences and Beh. Genetics) 3 Credits Psychology 491 (Psychology of Addictions) 3 Credits Psychology 377 (Psychopharmacology) 3 Credits Psychology 379 (Cognitive Psychology) 3 Credits Psychology 396 (Research) 3 Credits TOTAL **120 Credits**

Projected Time to Degree

A well-prepared student, who attends full-time, can complete the neuroscience degree, including all liberal education and other UW-Eau Claire graduation requirements, in eight semesters with an average load of 15 credits per semester and full-time enrollment. Part-time students will require more than eight semesters to complete the program of study. At this time, UW-Eau Claire does not have any specific agreements in place to address students interested in transferring to UW-Eau Claire to pursue this major. However the university will certainly do so if feedback from its Admissions Office indicates that this major is of interest to students at its traditional feeder schools.

Program Review

Academic programs are currently reviewed at UW-Eau Claire every seven years with psychology last being reviewed in 2014-15. The review process includes a three-faculty internal review committee and an external evaluator who also participates in a site visit. The perspectives and recommendations for improvement from these reviewers are forwarded to the Academic Policies Committee and to the Provost for consideration. The proposed neuroscience major would be included in the department's next program review, which is currently scheduled for the 2021-22 academic year.

Accreditation

The proposed degree fits naturally under the approved mission of the UW-Eau Claire and the Department of Psychology and collaborating departments. Therefore, no separate Higher Learning Commission (HLC) approval will be necessary for this new program.

References

- UW-Eau Claire Institute for Health Sciences. http://www.uwec.edu/academics/institute-health-sciences/
- Education Advisory Board. (2015). *Employer Demand for Graduates of Undergraduate Neuroscience Programs*. The Advisory Board Company, Washington D.C.
- U.S. Bureau of Labor Statistics. Neuroscience Occupations. (2016). https://www.bls.gov/ooh/healthcare/home.htm

BRAIN Initiative. (2013). https://obamawhitehouse.archives.gov/node/300741

University of Wisconsin - Eau Claire						
	Cost and Revenue Projections For Newly Pro	oposed Program - BS/BA in Neuroscience				
	Items	Projections				
		2010-19 Voor 1	2019-20 Voor 2	2020-21 Veor 3	2021-22 Vear /	Vear 5
	Envollment (New Student) Headcount		1 cal 2 25	35	35	<u> </u>
I	Enrolment (New Student) Headcount	50	50	63	55 78	80
	Enrollmont (Now Student) FTF	10	25	35	35	40
	Enrollment (Continuing Student) FTE	50	50	63	55 78	80
		50			, •	
II	Total New Credit Hours		0	0	0	0
	Existing Credit Hours	60	60	60	60	60
III	FTE of New Faculty/Instructional Staff	0	0	0	0	0
	FTE of Current Fac/IAS	2.75	2.75	2.75	2.75	2.75
	FTE of New Admin Staff	0	0	0	0	0
tuddianos.	FTE Current Admin Staff	0	0	0	0	0
TX7	Davanuas					
11	* Exem Tuition	\$73.600	\$257.700	\$515 300	\$831 900	\$883 400
	From Faas	\$1 200	\$500	\$700	\$700	\$800 \$800
	Program Revenue (Grants)	\$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0
	Program Revenue - Other	\$0	\$0	\$0	\$0	\$0 \$0
	GPR (re)allocation	\$0	\$0	\$0	\$0	\$0
	Total New Revenue	\$74.800	\$258,200	\$516.000	\$832.600	\$884,200
v	Expenses					
	Salaries plus Fringes					
	Faculty/Instructional Staff	\$139,600	\$174,500	\$228,000	\$262,800	\$279,100
	Other Staff	\$0	\$0	\$0	\$0	\$0
	Other Expenses					
	Facilities	\$72,000	\$0	\$0	\$0	\$0
	Equipment	\$35,000	\$0	\$0	\$0	\$0
	Other (materials and supplies)	\$1,200	\$500	\$700	\$700	\$800
	Other (please list)	\$0	\$0	\$0	\$0	\$0
	Total Expenses	\$247,800	\$175,000	\$228,700	\$263,500	\$279,900
X 7 T	Not Dougnup	¢172.000	¢ 92 200	¢207 200	\$560,100	¢604 200
• •	Net Kevenue	-\$175,000	φ 0 3,200	\$267,300	\$309,100	\$004,300
*A detailed explanation for the tuition revenue calculation can be found in the Cost and Revenue Projection Narrative						
Prov	ost's Signature:		Date:			
($)$ $)$ $)$ $)$ $						
			ı ' <i>l'</i>			

UNIVERSITY OF WISCONSIN-EAU CLAIRE COST AND REVENUE PROJECTIONS NARRATIVE BACHELOR OF SCIENCE / BACHELOR OF ARTS IN NEUROSCIENCE

Introduction

This proposed degree will use primarily face-to-face course delivery. While some required courses may have sections offered on-line, all required courses will also be available in face-to-face or hybrid delivery format. The B.S./B.A. in Neuroscience is built upon courses that are already part of the UW-Eau Claire curriculum and will not require new courses or additional faculty to deliver the program.

Section I – Enrollment

Enrollment figures for new students are based upon anticipated interest by new students who will be drawn to UW-Eau Claire to pursue the program. In Year 1, 10 new students are expected to enroll in the new B.S./B.A. in Neuroscience, along with 50 current UW-Eau Claire students who are expected to change their major to neuroscience. In Year 2, 25 new students are expected to enroll in neuroscience, and the number of new students is projected to increase to 40 per year by Year 5. Enrollment figures for continuing students are estimated using UW-Eau Claire's institutional first-to-second year (83%) and first-to-third year (75%) retention rates, coupled with an anticipated influx of current students (5-10 students per year) who change their course of study to the neuroscience program. Some students who switch to neuroscience in Year 1 (2018-19 academic year) may be able to graduate in the spring semester of Year 3 (2021) by virtue of having completed many of the required courses prior to switching to the new program.

Section II – Credit Hours

The proposed B.S./B.A. in Neuroscience is a comprehensive major requiring 60 unique credits beyond the coursework needed to fulfill UW-Eau Claire's liberal education core and other university graduation requirements. All of the credits required in the new major are from existing UW-Eau Claire courses. Therefore, the program will not require any new course development. All existing courses will be (and are currently) offered at least once each academic year, although UW-Eau Claire anticipates that some lower division (higher enrollment) core courses and electives will be offered each semester.

Section III – Faculty and Staff Appointments

The neuroscience program is built upon existing courses that are currently offered to UW-Eau Claire students. The equivalent of 2.75 faculty FTE will be needed to deliver the curriculum to the additional students who are taking these courses as part of the neuroscience program. The instructional resources are currently distributed among the collaborating departments. Based on the projected number of neuroscience students in Year 5, all students in the program can be accommodated within the existing course scheduling, and no new instructional resources will be needed to deliver the program.

Section IV – Program Revenues

Tuition Revenues

Tuition revenue is based upon continuing and new students who originally enrolled at the university to pursue the neuroscience major and assumes constant tuition of \$7,362 per year for full-time students. Segregated fees are not included in the calculation. In Year 1, UW-Eau Claire anticipates tuition revenue of \$73,600 (10 new student FTE x \$7,362). Based on direction from the UW System Budget Office, this calculation does not include the tuition revenue from the 50 current UW-Eau Claire students who are expected to switch to the new major in Year 1, since this tuition would have likely been generated in the absence of the neuroscience program and is therefore not new revenue for the institution. Likewise, in Year 2, the tuition revenue of \$257,700 (35 total student FTE x \$7,362) is based on the number of students in the program who originally enrolled at the university to pursue the neuroscience major. A similar calculation for Year 3 yields tuition revenue of \$515,300 (70 total student FTE x \$7,362). By Years 4 and 5, UW-Eau Claire assumes that all students in the program originally enrolled at the university to pursue the neuroscience major. By Year 5, the university anticipates tuition revenue of \$883,400 (120 total student FTE x \$7,362).

Program/Course Fees

All neuroscience students will be required to take CHEM 115 (Chemical Principles), which has a \$20 per student special course fee. In Year 1, all new and continuing students are expected to complete this course, resulting in revenue of \$1,200 (60 total student FTE x \$20 per student). In Year 2, this additional revenue drops to \$500 since all continuing students will have already completed the course and only the 25 new students entering in Year 2 will need to complete CHEM 115. The revenue generated from fees increases to \$800 in Year 5, reflective of the 40 new students who will take CHEM 115. No other required course in the program has a special course fee.

Section V – Program Expenses

Expenses - Salary and Fringe

As stated in Section III, the equivalent of 2.75 faculty FTE will be needed to deliver the curriculum to students in the B.S./B.A. in Neuroscience. Salary plus fringe expenses are estimated to be \$101,500 per faculty FTE, and this figure is based on the average salary of a UW-Eau Claire faculty member and the associated fringe benefit rate. Therefore, the total expected salary expense at full implementation in Year 5 is estimated to be \$279,100 (2.75 total faculty FTE x \$101,500). In an attempt to allocate instructional costs to actual delivery of the neuroscience program, the salary/fringe expense (Section V of the Cost and Revenue Projections for New Proposed Program) has been prorated to reflect the progressively larger number of student FTE in the program, with this expense reaching its full value (\$279,100) in Year 5.

Other Expenses

The facilities (\$72,000) and equipment (\$35,000) expenses in Year 1 represent costs incurred to renovate and outfit psychology department laboratories to support high-impact research experiences for students in the proposed major. Other (materials and supplies) expenses

(\$1,200 in Year 1; \$500 in Year 2; etc.) are costs incurred for students enrolled in CHEM 115. These latter expenses match the special course fee for this course.

Section VI – Net Revenue

After covering direct instructional expenses, the positive net revenue will be used to help offset indirect costs of instruction, such as maintaining institutional infrastructure and supporting the offices and programs (e.g., academic advising, academic skills center) that are currently in place to serve student academic needs. Additionally, positive net revenue may be used to hire additional instructional staff if student demand for the program exceeds the projections. UW-Eau Claire anticipates positive net revenue of \$195,100 in Year 1, which rises to \$604,300 in Year 5 as enrollment increases in the program. The lower positive net revenue in Year 1 is due to the smaller number of students in the program in its first year, coupled with the one-time expense (\$107,000) taken to refurbish the psychology department laboratories.

University of Wisconsin-Eau Claire



105 Garfield Avenue • P.O. Box 4004 • Eau Claire, WI 54702-4004

December 11, 2017

Ray Cross, President University of Wisconsin System 1720 Van Hise Hall 1220 Linden Drive Madison, WI 53706-1559

Dear President Cross:

I am submitting this letter and associated materials in support of the University of Wisconsin-Eau Claire's (UW-Eau Claire's) proposed B.S. and B.A. in Neuroscience for review, consideration, and approval by University of Wisconsin System Administration and the University of Wisconsin System Board of Regents.

UW-Eau Claire's Department of Psychology is well positioned to serve as the academic home for this degree. The proposed curriculum represents a collaboration between psychology and several other UW-Eau Claire academic departments, and it draws heavily from traditional STEM disciplines such as biology, mathematics, and chemistry. Equally important, and in keeping with UW-Eau Claire's liberal education mission, the neuroscience curriculum also makes intentional connections to non-STEM areas by incorporating required courses and electives encompassing the neurological aspects of music, philosophy, and communication sciences and disorders.

Each of the collaborating departments is supported by modern facilities and each has a long history of providing high impact undergraduate research experiences to students, including students from underrepresented groups. The proposed major is also closely aligned with the curricular and research goals of our Institute for Health Sciences and the William J. and Marian A. Klish Health Careers Center which were established to advance health care-related educational opportunities for UW-Eau Claire students. Moreover, the proposed major dovetails perfectly with our exciting and developing collaboration with the Mayo Clinic Health System which will provide UW-Eau Claire students is to work on cutting-edge research with health care professionals in this world-renowned organization.

The proposed neuroscience major represents an important new pathway to prepare our students for admission to graduate and professional schools and for employment in high growth areas of health care-related fields. As the proposal notes, the U.S. Department of Labor predicts significant continued employment growth in neuroscience-related employment opportunities, especially in areas such as pharmaceutical and medical equipment sales, laboratory research (including drug

Excellence. Our measure, our motto, our goal.

Ray Cross, President December 11, 2017 Page 2

design and development), scientific writing, and clinical research. Furthermore, our proposed program is distinct from the handful of neuroscience-related programs in the region. In particular, our curricular emphasis on statistics and experimental design will provide UW-Eau Claire students with the knowledge and skills for emerging employment opportunities in computational neurogenetics and neural bioinformatics. We firmly believe the proposed neuroscience curriculum will provide UW-Eau Claire graduates with the knowledge, skills, and hands-on experiences to be competitive in graduate and professional school admissions and for obtaining permanent positions in these growing employment sectors.

After reviewing the proposal, I am confident internal allocation and managed enrollment will align with available resources to support and sustain the program. All instructional resources (faculty along with associated laboratories and equipment) are in place to deliver the curriculum.

The proposed degree has been approved through UW-Eau Claire's shared governance program approval process (September 26, 2017). All programs at the University are subject to an in-depth review every seven years. Student retention, time-to-graduate, graduation rates, and participation in high impact practices, for example, are all monitored yearly through the reporting of strategic accountability measures (SAM) and public accountability measures (PAM). These results are used to determine the distribution of resources to individual departments. The collaborating departments have been successful in garnering these resources in the past, and it is anticipated the neuroscience program will make the departments even more successful.

In closing, I enthusiastically support the neuroscience proposal and look forward to UW System Administration and UW System Board of Regents' granting UW-Eau Claire the authority to offer the program.

Thank you in advance for your consideration.

Sincerely,

Patricia A. Kleine Provost and Vice Chancellor for Academic Affairs

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Program Authorization (Implementation) Bachelor of Science in Mechanical Engineering UW-Green Bay

EDUCATION COMMITTEE

Resolution I.1.d.1.:

Upon the recommendation of the Chancellor of UW-Green Bay and the President of the University of Wisconsin System, the Board authorizes the University of Wisconsin-Green Bay to offer the Bachelor of Science in Mechanical Engineering on the condition that two requirements are fulfilled: The University must have at least \$1.2M in cash donated to support the Mechanical Engineering degree program before enrolling students, and the University must have donation commitments that generate between \$800,000 and \$1,000,000 for each of the succeeding four years.

NEW PROGRAM AUTHORIZATION BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING UNIVERSITY OF WISCONSIN-GREEN BAY

EXECUTIVE SUMMARY

BACKGROUND

The University of Wisconsin-Green Bay submits this request to establish a Bachelor of Science in Mechanical Engineering. This proposal is presented in accord with the procedures outlined in Academic Planning and Program Review (SYS 102, revised July 2016, available at <u>https://www.wisconsin.edu/program-planning/</u>).

REQUESTED ACTION

Adoption of Resolution I.1.d.1., approving the implementation of the Bachelor of Science in Mechanical Engineering proposed by the University of Wisconsin-Green Bay on the condition that two requirements are fulfilled: The University must have at least \$1.2M in cash donated to support the Mechanical Engineering degree program before enrolling students, and the University must have donation commitments that generate between \$800,000 and \$1,000,000 for each of the succeeding four years.

DISCUSSION

Because the proposal from the University of Wisconsin-Green Bay to establish a Bachelor of Science in Mechanical Engineering program is predicated on the existence of private funds to begin the program, the Board of Regents has a compelling interest in ensuring the existence of the needed funds before enrolling students in this program. The five-year pro forma to operate the Bachelor of Science in Mechanical Engineering program at the University of Wisconsin-Green Bay indicates an expectation that the community will provide no less than \$7.6 million in private funds to support this program, and that those funds have already been committed. Furthermore, the Chancellor has committed to using no additional or new GPR funding to support the creation and operation of the program for the first five years. In order to ensure the viability of the program and to give prospective students the confidence that the program will be one of quality and properly organized at the beginning of the program, the Board of Regents has a responsibility to exercise its fiduciary responsibility in conditioning its approval of this program on the existence of sufficient funding to see the program through its initial five-year period. Based on donation pledges and commitments, it is estimated that between \$800,000 and \$1,000,000 annually will be provided from private sources. The Board must be assured that startup funding is also available and that the program can be financially viable for at least five years. To that end, the Board of Regents chooses to make the approval of the Bachelor of Science in Mechanical Engineering conditional, subject to the availability of funds identified by UW-Green Bay as being committed to this project.

Program Description. The proposed Bachelor of Science in Mechanical Engineering program will be a business- and community-based program designed to: meet a critical talent need in northeast Wisconsin, increase the college attainment rate for the region, and contribute to the realignment of regional higher education assets to support economic growth for the region. A recent community-wide economic strategic plan sponsored by the Greater Green Bay Chamber of Commerce strongly argued for the introduction of highly focused engineering programs at UW-Green Bay. The need for an engineering program in northeast Wisconsin also was recognized by the Wisconsin Legislature when it established and authorized the construction of a Brown County science, technology, engineering and mathematics innovation center to be located on the UW-Green Bay campus. The proposed program curricula will be comprised of 126 credits, and will prepare graduates to apply principles of engineering, basic science, and multivariate calculus and differential equations to model, analyze, design and realize physical systems, components and processes. The program will be built on the current UW-Green Bay pre-engineering curricula. As well, the program will draw from the success of current degree offerings in the areas of mechanical, electrical and environmental engineering technology.

The proposed degree program will be housed in the School of Engineering in the College of Science, Engineering and Technology, pending confirmation and approval by the Board of Regents. The Bachelor of Science degree in Mechanical Engineering will be implemented in the fall of 2019, although given the fact that lower-level courses for the program are already available, pending necessary program approvals, new freshmen could be recruited to the program beginning in the fall of 2018.

The Mechanical Engineering program curricula will be designed to meet Accreditation Board for Engineering and Technology, Inc. (ABET) accreditation, as ABET accredits college and university programs in the disciplines of applied science, computing, engineering and engineering technology. Students completing the program would also be eligible to sit for the Principles and Practices of Engineering Examination required to become a Professional Engineer (PE) in the United States. Accreditation by ABET provides confidence to both students and employers that the program meets the quality standards necessary to develop graduates who are prepared to enter the global workforce. ABET requires that at least one class has graduated from the program before accreditation may be pursued. UW-Green Bay anticipates pursuing accreditation two years after the program implementation date.

Based on ABET accreditation requirements, the Mechanical Engineering Program at UW-Green Bay will follow the constructs of most undergraduate mechanical engineering degrees, which include required courses on the principles of motion, energy, force and materials. Elective courses can include subject areas such as biomechanics, energy conversion, thermodynamics, fluid mechanics, heat transfer, combustion and air pollution, shock and vibration analysis, acoustics and noise control, robotics and mechatronics, and heating, ventilation and air conditioning (HVAC). These areas of specialized expertise serve as examples of the skills that faculty and students can apply to a range of businesses in the areas of manufacturing, research and development, and material testing. With the large manufacturing sector in northeastern Wisconsin, students completing the degree in mechanical engineering will likely have many opportunities to participate in high-impact experiences such as internships and capstone projects done collaboratively with business and industry. In an effort to maximize the economic impact of graduates from the program, businesses in the region would be actively engaged to determine the most relevant elective course offerings for the program.

Mission. UW-Green Bay's mission is based on a commitment to provide a problemfocused educational experience that enhances critical thinking skills to address complex issues. The proposed Bachelor of Science in Mechanical Engineering is consistent with that mission in that students will be able to address problems using knowledge gained through course instruction, internships and capstone projects. This program also aligns with UW-Green Bay's strategic plan, which emphasizes enrollment growth, particularly in the areas of science and technology, promoting opportunities for innovation, and establishing distinctive partnerships with the community.

This proposal for a new Bachelor of Science in Mechanical Engineering degree at UW-Green Bay is part of an intensive and coordinated transformation of the university to meet the needs of one of the three urban areas in the state of Wisconsin. The new Urban Serving Vision of the university is designed to (a) significantly increase access to postsecondary education in a geographic area in which the degree attainment is lower than the national average; (b) reshape academic programs to meet the current and future workforce needs in the region particularly in the areas of technology, manufacturing, health care, and global business; and (c) become a major regional leader in meeting social, economic, and educational challenges in the region. To operationalize this new imperative, UW-Green Bay operates four colleges designed to articulate with the major sectors of the region's economy. The College of Science and Technology, which now houses the programs in Mechanical, Electrical and Environmental Engineering Technology, will host the new program in Mechanical Engineering.

The new institutional focus of UW-Green Bay complements and is being closely coordinated with intensive efforts in the Green Bay region to shift the historical mill culture economy to an innovation economy focused in advanced manufacturing, health care and professional sports, with a more nurturing entrepreneurial ecosystem. UW-Green Bay is taking a leadership role in the strategic planning being conducted by the Greater Green Bay Chamber of Commerce, with assistance from Tip Strategies of Austin, Texas. That process has clearly demonstrated the need for engineering degree programs at UW-Green Bay.

Market Demand. Northeast Wisconsin is one of two places in Wisconsin where the population of 25- to 55-year olds is expected to increase in the next ten years. If the region is to successfully support economic development, then growth in this age group must be supported via recruitment and development of human capital. In the Green Bay region, it is recognized that to attract and retain individuals of this age category more vibrant social and commercial opportunities must be developed. This is the primary goal of the Green Bay Packers Titletown Development, now underway west of Lambeau Field, and the Packers-Microsoft Titletown Tech partnership, both of which involve UW-Green Bay. To meet these challenges, UW-Green Bay will need to develop and implement relevant programs in science, math, business, and engineering, and importantly, it must position itself to be a valuable partner in nurturing a sustainable entrepreneurial and innovative culture in the region. The long-term prospects of some of the most important local business partners, including the Green Bay Packers, depend on this institutional transformation. Engineering programs are key to this requirement.

The Green Bay region is the leading manufacturing region in Wisconsin, an industry representing the third largest business sector in Wisconsin. Among companies in the region are some of the largest in the state, many with multinational operations. There are 90 engineering companies in Brown and Door counties. The leaders of these companies support the expansion of engineering at UW-Green Bay and have pledged to provide internships for students, help recruit new students, and hire graduates from the program. The boards of the New North and the NEW Manufacturing Alliance likewise are supportive and eager to assist in the establishment and continuation of the program.

The U.S. Bureau of Labor Statistics and the Wisconsin Department of Workforce Development occupational projections indicate continued occupational growth nationally and locally. Nationally, occupational projections indicate that mechanical engineering occupations will grow by 9% between 2016 and 2026.¹ In Wisconsin this growth between 2014 and 2024 is expected to be 4.85%, and 6.4% in the Green Bay region.²

Having a well-trained workforce in areas of STEM will support economic vitality and growth in the region. The addition of the proposed B.S. in Mechanical Engineering degree will support bachelor degree attainment in the northeast region of Wisconsin, which accounts for 12% of the Wisconsin population but has one of the lowest degree attainment rates in the state. With respect to STEM degrees, UW-Green Bay delivers only 2% of the state's non-health STEM degrees and 3% of the state's health-related STEM degrees. This deficiency in meeting regional needs is a direct result of a mismatch between the program array at UW-Green Bay, a legacy array not revised in decades, and the workforce and talent needs of the region. UW-Green Bay is a member of the NEW ERA higher education alliance, which includes UW-Oshkosh, UW-Fond du Lac, UW-Fox Valley, UW-Manitowoc, College of Menominee Nation, Fox Valley Technical College, Lakeshore Technical College, Marine Park Technical College and NWTC. An innovative feature of this alliance is the multiple-entry strategy whereby students interested in engineering technology degrees at UW-Oshkosh and UW-Green Bay may enter those programs through any of the alliance member institutions. The new engineering program at UW-Green Bay will employ this model, thereby increasing access to the program.

Student Demand. It is estimated that by the end of the fifth year of the program, 265 new students will have enrolled in the B.S. in Mechanical Engineering. These projections are supported by a number of factors.

First, current applicants and new freshmen consistently indicate interest in engineering or STEM-related fields as a program of study. Between 2006 and 2015, prior to the establishment of the three engineering technology programs, nearly 750 of student applicants to UW-Green Bay stated a desire to become an engineer. The average annual number of applicants who indicate engineering as a field of interest is roughly three times the number of freshmen

¹ Retrieved from U.S. Bureau of Labor Statics Occupational Handbook, located at https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineers.htm.

² Retrieved from Wisconsin Department of Workforce Development Worknet, located at <u>http://worknet.wisconsin.gov/worknet/downloads.aspx?menuselection=da&pgm=occprj</u>.

engineering students UW-Green Bay uses to model the financials for this program. As well, approximately one-quarter (225) of this year's UW-Green Bay freshman class of 975 students have declared interest in a STEM degree.

Sustainability of this applicant pool is supported by a strong pipeline of traditional and non-traditional age students in Brown County. Unlike nearly every other county in Wisconsin, the Brown County population is growing and getting younger. The Wisconsin Department of Administration (DOA) predicts Brown County will grow by over 25% between 2010 and 2040, as compared to projected average state growth of 14%. Further, the percentage of 25- to 55-year-olds is projected to grow only 2% statewide, while this cohort is expected to grow by more than 10% in Brown County. The population growth also presents opportunities to build access to degrees in STEM fields by serving more students from underrepresented minority groups. Currently, over 27% of the city of Green Bay's population is comprised of individuals from underrepresented minority groups. The Green Bay Area Public Schools is a minority-majority school district. Enrollment trends indicate that the proportion of both Hispanic student populations and non-white, non-Hispanic student populations are increasing, and white, non-Hispanic populations of students are decreasing.

Second, in the northeast region there exists high demand for associate degree programs in the area of STEM and engineering technology. Graduates from these associate degree programs comprise a potential population of transfer students to the UW-Green Bay engineering program. In general, the three Wisconsin Technical College System (WTCS) districts in the northeast region - Northeast Wisconsin Technical College (NWTC), Fox Valley Technical College (FVTC), and Nicolet Area Technical College – comprise 18% of the WTCS districts in the state; however, they produced 29% of all non-health-related STEM associate degrees in Wisconsin during the years 2013 to 2015. These figures suggest that there is strong interest in engineering and technical fields in the region. NWTC and FVTC are the third and fourth largest technical colleges in Wisconsin, next only to Madison Area Technical College (Madison College) and Milwaukee Area Technical College (MATC). However, the engineering technology programs at NWTC and FVTC enroll a higher proportion of engineering technology students, relative to their size, than at either Madison College or MATC. Further, at the beginning of 2016, NWTC had 313 students enrolled in its engineering technology associate degree programs, 48% of whom completed more than 31 credits. These figures suggest that there is a pipeline of engineeringready students, and an enrollment pool much higher than UW-Green Bay currently models.

Third, providing engineering degree opportunities within the region may increase access and affordability to engineering degrees, thereby supporting enrollment of student populations who are economically disadvantaged and/or place-bound. As well, access to an affordable engineering degree may draw back students who have left Wisconsin to pursue an engineering degree in neighboring Michigan. As an example, Wisconsin students make up roughly 10% of the freshman class at Michigan Technical University. If the proportion of Wisconsin students enrolled in the mechanical engineering majors at Michigan Tech is equitable to general enrollments, then 137 of the 1,373 students enrolled in a mechanical engineering program at Michigan Tech may be from Wisconsin. An out-of-state undergraduate student at Michigan Tech can expect to pay approximately \$32,900 per year in non-resident tuition and fees according to the Michigan Tech Cost Calculator, as compared to \$19,084 per year to enroll in the proposed B.S. in Mechanical Engineering at UW-Green Bay. If one-quarter of that number (37) can be recruited to stay or return to UW-Green Bay, that number alone would exceed the projected new enrollments.

Finally, there is potential for out-of-state and international enrollment as the program matures. There is potential to recruit and attract because name recognition and access to large population pools, coupled with low out-of-state tuition, relative to in-state tuition in many neighboring states, provide a strong foundation for a productive recruitment program for out-of-state students. Because of the Green Bay Packers, the city of Green Bay has an international brand and is widely known nationally and internationally. Additionally, UW-Green Bay is the only comprehensive university in the UW System with a NCAA Division I athletic program. This program gives the university reach and recognition in all upper-Midwestern cities and into 90 million homes via ESPN3.

Credit Load and Tuition. The proposed program curricula will be comprised of 126 credits, and will prepare graduates to apply principles of engineering, basic science, and multivariate calculus and differential equations to model, analyze, design and realize physical systems, components and processes. Students who apply to the Mechanical Engineering program and have adequate preparation in mathematics will be able to complete the degree in four years. Time to degree may be accelerated by taking summer courses.

Students will be subject to the standard undergraduate fee schedule. Based on the 2017-18 schedule, residential full-time undergraduate tuition will be \$3,149.16 per semester, or \$263.00 per credit for part-time students. In addition to tuition, engineering program fees will be charged in the amount of \$700 per semester for full-time students, or \$53.33 per credit for parttime students. The special program fees are comparable to those charged for the Engineering Technology programs at UW-Green Bay, and are similar to those recently approved engineering programs in UW System. Finally, segregated fees will be charged at the standard published rate of \$790 per semester for full-time students, or \$65.83 per credit for part-time students.

Program Collaboration and Management. Historically, UW-Green Bay has offered pre-professional programs in engineering, with students transferring from the UW-Green Bay pre-engineering program to complete engineering programs at other institutions including UW-Madison, UW-Milwaukee, UW-Platteville, Milwaukee School of Engineering, Marquette University and Michigan Technological University. UW-Green Bay also has a formalized cooperative program (the NEW Program), providing for direct, upper-level transfer into the College of Engineering and Applied Sciences at UW-Milwaukee. The two institutions also collaborate on a 3+2 dual degree program in which students can earn two bachelor's degrees over five years of study: a Bachelor of Science in Environmental Sciences from UW-Green Bay and a Bachelor of Science in civil/environmental engineering from UW-Milwaukee. The current proposal is expected to enhance general interest in these programs and provide other avenues for inter-institutional collaboration.

In spring 2015, UW-Green Bay established three new collaborative degree programs with UW-Oshkosh in Electrical, Environmental, and Mechanical Engineering Technology. These programs will be entering their third full year during 2017-18. Enrollments in the engineering

technology programs are higher than expected, especially in mechanical engineering technology. The number of declared majors in the Mechanical Engineering Technology program at UW-Green Bay was 10 in the first full year, 54 in the second year, and is currently at 68 students for the third year (fall of 2017).

The proposed program will be housed in the College of Science, Engineering and Technology. Pending Board of Regents approval, a School of Engineering will be created as an academic unit within the College of Science, Engineering, and Technology to house the proposed program.

RELATED REGENT AND UW SYSTEM POLICIES

Regent Policy 4-12: Academic Program Planning, Review, and Approval in the University of Wisconsin System.

UW System Administrative Policy 102: Policy on University of Wisconsin System Array Management: Program Planning, Delivery, Review, and Reporting.

REQUEST FOR AUTHORIZATION TO IMPLEMENT A BACHELOR OF SCIENCE (B.S.) IN MECHANICAL ENGINEERING AT UW-GREEN BAY PREPARED BY UW-GREEN BAY

ABSTRACT

The proposed B.S. in Mechanical Engineering program will be a business- and community-based program designed to meet a critical talent need in northeast Wisconsin, increase the college attainment rate for the region, and contribute to the realignment of regional higher education assets to support economic growth for the region. A recent community-wide economic strategic plan sponsored by the Greater Green Bay Chamber of Commerce strongly argued for the introduction of highly focused engineering programs at UW-Green Bay. The need for an engineering program in northeast Wisconsin also was recognized by the Wisconsin legislature when it established and authorized the construction of a Brown County science, technology, engineering and mathematics innovation center to be located on the UW-Green Bay campus. The proposed program curricula will be comprised of 126 credits, and will prepare graduates to apply principles of engineering, basic science, and multivariate calculus and differential equations to model, analyze, design and realize physical systems, components and processes. The program will be built on the current UW-Green Bay pre-engineering curricula. As well, the program will draw from the success of current degree offerings in the areas of mechanical, electrical and environmental engineering technology.

PROGRAM IDENTIFICATION

Institution Name University of Wisconsin-Green Bay

Title of Proposed Program Mechanical Engineering

Degree/Major Designation Bachelor of Science

Mode of Delivery

Single institution, primarily face-to-face. Internships and capstone projects will be completed at businesses in northeast Wisconsin.

Projected Enrollment by Year Five

As illustrated in Table 1, it is anticipated that by year five 265 new students will have enrolled in the program and 25 students will have graduated. New student figures include both new freshmen and new transfer students. Retention is estimated to be approximately 75%, and is based on the current retention data from the current engineering technology program. The justification for these enrollment figures is discussed in the student demand section.

	Year 1	Year 2	Year 3	Year 4	Year 5
New students admitted	26	40	60	66	73
including transfer students					
Continuing students	0	20	45	78	108
Enrollment total	26	60	105	144	181
Graduating students	0	0	0	10	15

 Table 1: Five-Year Projected Student Enrollments (Headcount)

Tuition Structure

Students will be subject to the standard undergraduate fee schedule. Based on the 2017-18 schedule, residential full-time undergraduate tuition will be \$3,149.16 per semester, or \$263.00 per credit for part-time students. In addition to tuition, engineering program fees will be charged in the amount of \$700 per semester for full-time students, or \$53.33 per credit for parttime students. The special program fees are comparable to those charged for the Engineering Technology programs at UW-Green Bay, and are similar to those recently approved engineering programs in UW System. Finally, segregated fees will be charged at the standard published rate of \$790 per semester for full-time students, or \$65.83 per credit for part-time students.

Department, College, School or Functional Equivalent

The proposed program will be housed in the College of Science, Engineering and Technology. Pending Board of Regent approval, a School of Engineering will be created as an academic unit within the College of Science, Engineering, and Technology to house the proposed program.

Proposed Date of Implementation

The B.S. in Mechanical Engineering will be implemented in the fall of 2019, although given the fact that lower-level courses for the program are already available, pending necessary program approvals, new freshmen could be recruited to the program beginning in the fall of 2018.

INTRODUCTION

Rationale and Relation to Mission

UW-Green Bay's mission is based on a commitment to provide a problem-focused educational experience that enhances critical thinking skills to address complex issues. The proposed B.S. in Mechanical Engineering is consistent with that mission in that students will be able to address problems using knowledge gained through course instruction, internships and capstone projects. This program also aligns with UW-Green Bay's strategic plan, which emphasizes enrollment growth, particularly in the areas of science and technology, promoting opportunities for innovation and establishing distinctive partnerships with the community.

This proposal for a new B.S. in Mechanical Engineering degree at UW-Green Bay is part of an intensive and coordinated transformation of the university to meet the needs of one of the three urban areas in the state of Wisconsin. The new Urban Serving Vision of the university is designed to (a) significantly increase access to postsecondary education in a geographic area in which the degree attainment is lower than the national average; (b) reshape academic programs to meet the current and future workforce needs in the region particularly in the areas of technology, manufacturing, health care, and global business; and (c) become a major regional leader in meeting social, economic, and educational challenges in the region. To operationalize this new imperative, UW-Green Bay operates four colleges designed to articulate with the major sectors of the region's economy. The College of Science and Technology, which now houses the programs in Mechanical, Electrical and Environmental Engineering Technology, will host the new program in Mechanical Engineering.

The new institutional focus of UW-Green Bay complements and is being closely coordinated with intensive efforts in the Green Bay region to shift the historical mill culture economy to an innovation economy focused in advanced manufacturing, health care and professional sports, with a more nurturing entrepreneurial ecosystem. UW-Green Bay is taking a leadership role in the strategic planning being conducted by the Greater Green Bay Chamber of Commerce, with assistance from Tip Strategies of Austin, Texas. That process has clearly demonstrated the need for engineering degree programs at UW-Green Bay.

Northeast Wisconsin is one of two places in the state where the population of 25- to 55year olds is expected to increase in the next ten years (see need section below). Despite this, the growth in that age group must be supplemented even more via recruitment if the region is to support economic development. It is recognized in the Green Bay region that to attract and retain individuals of this age category will require the development of more vibrant social and commercial opportunities. This is the primary goal of the Green Bay Packers Titletown Development now underway west of Lambeau Field, and the Packers-Microsoft Titletown Tech partnership, both of which involve UW-Green Bay. To meet these challenges, UW-Green Bay will need to develop and implement relevant programs in science, math, business, and engineering, and importantly, it must position itself to be a valuable partner in nurturing a sustainable entrepreneurial and innovative culture in the region. The long-term prospects of some of the most important local business partners, including the Green Bay Packers, depend on this institutional transformation. Engineering programs are key to this requirement.

Historically, UW-Green Bay has offered pre-professional programs in engineering, with students transferring from the UW-Green Bay pre-engineering program to complete engineering programs at other institutions including UW-Madison, UW-Milwaukee, UW-Platteville, Milwaukee School of Engineering, Marquette University and Michigan Technological University. UW-Green Bay also has a formalized cooperative program (the NEW Program), providing for direct, upper-level transfer into the College of Engineering and Applied Sciences at UW-Milwaukee. The two institutions also collaborate on a 3+2 dual degree program in which students can earn two bachelor's degrees over five years of study: a Bachelor of Science in Environmental Sciences from UW-Green Bay and a Bachelor of Science in civil/environmental engineering from UW-Milwaukee. The current proposal is expected to enhance general interest in these programs and provide other avenues for inter-institutional collaboration.

In spring 2015, UW-Green Bay established three new collaborative degree programs with UW-Oshkosh in Electrical, Environmental, and Mechanical Engineering Technology. These programs will be entering their third full year during 2017-18. Enrollments in the engineering technology programs are higher than expected, especially in mechanical engineering technology. The number of declared majors in the Mechanical Engineering Technology program at UW-

Green Bay was 10 in the first full year, 54 in the second year, and is currently at 68 students for the third year (fall of 2017).

Need as Suggested by Current Student Demand

As indicated in the enrollment projections, it is estimated that by the end of the fifth year of the program, 265 new students will have enrolled in the B.S. in Mechanical Engineering. These projections are supported by a number of factors.

First, current applicants and new freshmen consistently indicate interest in engineering or STEM-related fields as a program of study. Between 2006 and 2015 (prior to the establishment of the three engineering technology programs), nearly 750 of student applicants to UW-Green Bay stated a desire to become an engineer. The average annual number of applicants who indicate engineering as a field of interest is roughly three times the number of freshmen engineering students UW-Green Bay uses to model the financials for this program. As well, approximately one-quarter (225) of this year's UW-Green Bay freshman class of 975 students have declared interest in a STEM degree.

Sustainability of this applicant pool is supported by a strong pipeline of traditional and non-traditional age students in Brown County. Unlike nearly every other county in Wisconsin, the Brown County population is growing and getting younger. The Wisconsin Department of Administration (DOA) predicts Brown County will grow by over 25% between 2010 and 2040, as compared to projected average state growth of 14%. Further, the percentage of 25- to 55-year-olds is projected to grow only 2% statewide, while this cohort is expected to grow by more than 10% in Brown County. The population growth also presents opportunities to build access to degrees in STEM fields by serving more students from underrepresented minority groups. Currently, over 27% of the city of Green Bay's population is comprised of individuals from underrepresented minority groups. The Green Bay Area Public Schools is a minority-majority school district. Enrollment trends indicate that the proportion of both Hispanic student populations and non-white, non-Hispanic student populations are increasing, and white, non-Hispanic populations of students are decreasing.

Second, in the northeast region there exists high demand for associate degree programs in the area of STEM and engineering technology. Graduates from these associate degree programs comprise a potential population of transfer students to the UW-Green Bay engineering program. In general, the three Wisconsin Technical College System (WTCS) districts in the northeast region – Northeast Wisconsin Technical College (NWTC), Fox Valley Technical College (FVTC), and Nicolet Area Technical College – comprise 18% of the WTCS districts in the state; however, they produced 29% of all non-health-related STEM associate degrees in Wisconsin during the years 2013 to 2015. These figures suggest that there is strong interest in engineering and technical fields in the region. NWTC and FVTC are the third and fourth largest technical colleges in Wisconsin, next only to Madison Area Technical College (Madison College) and Milwaukee Area Technical College (MATC). However, the engineering technology programs at NWTC and FVTC enroll a higher proportion of engineering technology students, relative to their size, than at either Madison College or MATC. Further, at the beginning of 2016, NWTC had 313 students enrolled in its engineering technology associate degree programs, 48% of whom

completed more than 31 credits. These figures suggest that there is a pipeline of engineeringready students, and an enrollment pool much higher than UW-Green Bay currently models.

Third, providing engineering degree opportunities within the region may increase access and affordability to engineering degrees, thereby supporting enrollment of student populations who are economically disadvantaged and/or place-bound. As well, access to an affordable engineering degree may draw back students who have left Wisconsin to pursue an engineering degree in neighboring Michigan. As an example, Wisconsin students make up roughly 10% of the freshman class at Michigan Technical University. If the proportion of Wisconsin students enrolled in the mechanical engineering majors at Michigan Tech is equitable to general enrollments, then 137 of the 1,373 students enrolled in a mechanical engineering program at Michigan Tech may be from Wisconsin. An out-of-state undergraduate student at Michigan Tech can expect to pay approximately \$32,900 per year in non-resident tuition and fees according to the Michigan Tech Cost Calculator, as compared to \$19,084 per year to enroll in the proposed B.S. in Mechanical Engineering at UW-Green Bay. If one-quarter of that number (37) can be recruited to stay or return to UW-Green Bay, that number alone would exceed the projected new enrollments.

Finally, there is potential for out-of-state and international enrollment as the program matures. There is potential to recruit and attract because name recognition and access to large population pools, coupled with low out-of-state tuition (relative to in-state tuition in many neighboring states), provide a strong foundation for a productive recruitment program for out-of-state students. Because of the Green Bay Packers, the city of Green Bay has an international brand and is widely known nationally and internationally. Additionally, UW-Green Bay is the only comprehensive university in the UW System with a NCAA Division I athletic program. This program gives the university reach and recognition in all upper Midwestern cities and into 90 million homes via ESPN3.

Need as Suggested by Market Demand

The Green Bay region is the leading manufacturing region in Wisconsin, an industry representing the third largest business sector in Wisconsin. Among companies in the region are some of the largest in the state, many with multinational operations. There are 90 engineering companies in Brown and Door counties. The leaders of these companies support the expansion of engineering at UW-Green Bay and have pledged to provide internships for students, help recruit new students, and hire graduates from the program. The boards of the New North and the NEW Manufacturing Alliance likewise are supportive and eager to assist in the establishment and continuation of the program.

The U.S. Bureau of Labor Statistics and the Wisconsin Department of Workforce Development occupational projections indicate continued occupational growth nationally and locally. Nationally, occupational projections indicate that mechanical engineering occupations will grow by 9% between 2016 and 2026.¹ In Wisconsin this growth between 2014 and 2024 is expected to be 4.85%, and 6.4% in the Green Bay region.²

Having a well-trained workforce in areas of STEM will support economic vitality and growth in the region. The addition of the proposed B.S. in Mechanical Engineering degree will support bachelor degree attainment in the northeast region of Wisconsin, which accounts for 12% of the Wisconsin population but has one of the lowest degree attainment rates in the state. With respect to STEM degrees, UW-Green Bay delivers only 2% of the state's non-health STEM degrees and 3% of the state's health-related STEM degrees. This deficiency in meeting regional needs is a direct result of a mismatch between the program array at UW-Green Bay, a legacy array not revised in decades, and the workforce and talent needs of the region. UW-Green Bay is a member of the NEW ERA higher education alliance, which includes UW-Oshkosh, UW-Fond du Lac, UW-Fox Valley, UW-Manitowoc, College of Menominee Nation, Fox Valley Technical College, Lakeshore Technical College, Marine Park Technical College and NWTC. An innovative feature of this alliance is the multiple entry strategy whereby students interested in engineering technology degrees at UW-Oshkosh and UW-Green Bay may enter those programs through any of the alliance member institutions. The new engineering program at UW-Green Bay will employ this model, thereby increasing access to the program.

DESCRIPTION OF PROGRAM

General Structure

The proposed B.S. in Mechanical Engineering at UW-Green Bay will be housed in the School of Engineering in the College of Science, Engineering and Technology, pending confirmation and approval by the Board of Regents. The mechanical engineering program curricula will be designed to meet Accreditation Board for Engineering and Technology, Inc. (ABET) accreditation, as ABET accredits college and university programs in the disciplines of applied science, computing, engineering and engineering technology. Accreditation by ABET provides confidence to employers that the program meets the quality standards that produce graduates prepared to enter the global workforce. Students completing the program would also be eligible to sit for the Principles and Practices of Engineering Examination required to become a Professional Engineer (PE) in the United States.

Based on ABET accreditation requirements, the mechanical engineering program at UW-Green Bay will follow the constructs of most undergraduate mechanical engineering degrees, which include required courses on the principles of motion, energy, force and materials. Elective courses can include subject areas such as biomechanics, energy conversion, thermodynamics, fluid mechanics, heat transfer, combustion and air pollution, shock and vibration analysis, acoustics and noise control, robotics and mechatronics, and heating, ventilation and air conditioning (HVAC). These areas of specialized expertise serve as examples of the skills that

¹ Retrieved from U.S. Bureau of Labor Statics Occupational Handbook, located at

https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineers.htm.

² Retrieved from Wisconsin Department of Workforce Development Worknet, located at <u>http://worknet.wisconsin.gov/worknet/downloads.aspx?menuselection=da&pgm=occprj</u>.

faculty and students can apply to a range of businesses in the areas of manufacturing, research and development, and material testing. With the large manufacturing sector in northeastern Wisconsin, students completing the degree in mechanical engineering will likely have many opportunities to participate in high-impact experiences such as internships and capstone projects done collaboratively with business and industry. In an effort to maximize the economic impact of graduates from the program, businesses in the region would be actively engaged to determine the most relevant elective course offerings for the program.

Institutional Program Array

UW-Green Bay currently provides pre-engineering courses that transfer to other accredited engineering schools within UW System and other public and private universities in the region. UW-Green Bay also offers three Engineering Technology programs that have demonstrated strong enrollment growth since their inception in the fall of 2015. In addition to general education and Mechanical Engineering courses, other coursework will be drawn from chemistry, mathematics, and physics. This program aims to retain northeast Wisconsin students in northeast Wisconsin.

Other Programs in the University of Wisconsin System

Four UW System institutions offer a bachelor's degree program in Mechanical Engineering: UW-Madison, UW-Milwaukee, UW-Platteville, and UW-Stout. UW-Platteville offers the degree in the region in partnership with UW-Fox Valley and UW-Sheboygan.

Collaborative Nature of the Program

When authorized, program faculty and staff will seek to collaborate with the UW-Platteville and UW-Fox Valley and also with the UW-Platteville and UW-Sheboygan mechanical engineering programs, as these partnerships would leverage UW College investments in regional engineering training, allow student access to some courses in an online format, and provide some flexibility, cost reduction and risk mitigation during the early years of the new program.

Diversity

The College of Science and Technology (CST) currently enrolls a student population that includes 15.7% (158) students from underrepresented minority groups. This figure is consistent with the makeup of the university population that includes 15.7% (882) underrepresented minority students. However, the UW-Green Bay enrollment goals are to enroll a student population that is reflective of the current Green Bay Public School demographics that has a minority-majority student population. It should be noted that of the current CST student population (1,005), 58.1% (584) of students are female and that most students in CST (84.4%) are full-time students.

Long-standing efforts like Phuture Phoenix will provide a solid foundation for student recruitment. Since the formation of CST in July of 2016, several additional initiatives have been implemented to enhance student recruitment and diversity, which should be easily transferrable to the new mechanical engineering program. This includes a science open house held each fall, as well as structured visits by students from high schools in the region. Green Bay West High School would be one example of a high school with a high level of diversity that has taken
advantage of these opportunities, particularly for students in their International Baccalaureate (IB) program that has now been in place for several years.

UW-Green Bay is committed to achieving a diverse workforce and to maintaining a community that welcomes and values a climate supporting equal opportunity and difference among its members. The campus engages in several strategic initiatives to recruit a more diverse student population, and offers a wide range of experiences and perspectives to its students. As part of this process, the Chancellor's Council on Diversity and Inclusive Excellence offers a certificate program to develop and recognize commitment to the UW-Green Bay Inclusive Excellence Initiative. In fall 2016, the campus added a Director of Student Success and Engagement in the Provost's Office charged with improving student retention and degree completion. The Office of Admissions also supports recruiters specialized in working with multicultural, bilingual, and international students. In fall 2017, UW-Green Bay added a Vice Chancellor for Student Affairs and Campus Climate to the Chancellor's Cabinet to improve, in part, campus initiatives on diversity and inclusivity. This position will play a critical role in furthering campus efforts to attract and support a diverse campus community reflective of the metropolitan area served by UW-Green Bay.

Student Learning Outcomes

In addition to the UW-Green Bay Institutional Learning Outcomes that were adopted in 2017,³ the curricular learning outcomes developed for this program will be closely related to the ABET program criteria specific to Mechanical Engineering. The ABET criteria articulate the 11 student outcomes listed below, as well as additional outcomes that may be articulated by the program.⁴

- 1. an ability to apply knowledge of mathematics, science, and engineering
- 2. an ability to design and conduct experiments, as well as to analyze and interpret data
- 3. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- 4. an ability to function on multidisciplinary teams
- 5. an ability to identify, formulate, and solve engineering problems
- 6. an understanding of professional and ethical responsibility
- 7. an ability to communicate effectively
- 8. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- 9. a recognition of the need for and an ability to engage in life-long learning
- 10. a knowledge of contemporary issues
- 11. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

³ See <u>http://www.uwgb.edu/provost/accreditation/institutional-learning-outcomes.asp</u>)

⁴ ABET Criteria for Accrediting Engineering Programs, 2016-2017. General Criterion 3: Student Outcomes. Located at <u>http://www.abet.org/accreditation/accreditation-criteria/criteria-for-accrediting-engineering-programs-2016-2017/#objectives</u>.

Additional employment and career-related learning outcomes will include the following four outcomes:

- 1. Graduates in mechanical engineering will secure and maintain employment in a position appropriate for education and training that they received.
- 2. Graduates will apply their knowledge and expertise in mechanical engineering and related disciplines to the design, development and implementation of mechanical systems.
- 3. Graduates will exhibit a desire for life-long learning through higher education, training, membership in professional societies, and other activities appropriate for their long-term career development.
- 4. Graduates will demonstrate a high level of communication skills, critical thinking, responsible and ethical behavior, teamwork, and appreciation for diversity and leadership.

Assessment of Objectives

The chair of the program, in collaboration with the program faculty, will have responsibility for the assessment of student learning. As documented in the ABET accreditation for general program outcomes, the engineering program will document student outcomes that prepare graduates to attain the program's educational objectives. The curriculum committee of the program will set specific learning goals for each course that are designed to address identified core competencies related to ABET. The assessment plan will outline how each of the ABET competencies are assessed throughout the program. Direct and indirect assessments of program learning outcomes will take place throughout the students' enrollment in the program. A more detailed assessment plan will be created as the courses are implemented over the next two years, and the assessment will align to the ABET assessment matrix. The assessment plan will be evaluated for the clarity of the learning outcomes; the appropriate alignment of assessment tools and the learning outcomes; the process used to collect, analyze and interpret data; and the use of data to inform program changes and continuous improvement decisions.

Program Requirements and Curriculum

As detailed in Table 2, the proposed program curricula will be comprised of 126 credits, and will prepare graduates to apply principles of engineering, basic science, and multivariate calculus and differential equations to model, analyze, design and realize physical systems, components and processes.

General Ed	36 credits
Math	18 credits
Science	15 credits
Engineering	11 credits
Mechanical Engineering	46 credits
Total	126 credits

Table 2: B.S. in Mechanical Engineering Program Curriculum

Math		Credits
MATH 202	Calculus I	4
MATH 203	Calculus II	4
MATH 320	Linear Algebra I	3
MATH 260	Statistics	4
MATH 305	Differential Equations	3
	Total credits	18
Science		Credits
ET 206	Chemistry *	5
PHY 201	Physics I *	5
PHY 202	Physics II *	5
	Total credits	15
Engineering		Credits
ENGR 213	Statics	3
ENGR 214	Dynamics	3
ET 130	Fundamentals of Electrical Engineering (or Circuits I) *	3
	Introduction to Programming (Matlab) *	2
	Total credits	11
Mechanical	Engineering	Credits
	Introduction to Mechanical Engineering *	2
ET 207	Parametric Modeling *	3
	Numerical Methods	3
ET 220	Mechanics of Materials *	3
	Mechanics of Materials Lab	1
	Fluid Dynamics	3
	Fluids Laboratory *	1
	Thermodynamics	3
	Heat Transfer	3
	Thermal Laboratory *	1
	Engineering Measurements & Instrumentation	3
	Measurements Laboratory *	1
	Analysis of Dynamic Systems	3
	Automatic Controls	3
	Controls Laboratory *	1
	Materials & Manufacturing Processes	3
ET 221	Design of Machine Elements	3
ET 360	Project Management	3
	Senior Design Project *	3
	Total Credits	46
Electives		Credits
ET 308	Finite Element Analysis	3
	Kinematics & Dynamics of Machines	3
	Manufacturing Systems	3
	Mechanical Vibrations	3

	Acoustics	3
ET 390	Mechatronics *	3
	Introduction to Composite Materials	3
	Robotics *	3
	Experimental Mechanics *	3

* *Require a laboratory component. Costs associated with new laboratories and equipment is delineated in the accompanying Budget Narrative.*

Projected Time to Degree

Students who apply to the Mechanical Engineering program and have adequate preparation in mathematics will be able to complete the degree in four years. Time to degree may be accelerated by taking summer courses.

Program Review Process

UW-Green Bay's Academic Affairs Council (AAC) is charged with oversight of all undergraduate programs on campus, including review and approval of all coursework and academic program development at the undergraduate level. In compliance with UW-Green Bay's Academic Program Review and Student Learning Outcome Policy and Procedure, the B.S. in Mechanical Engineering program will be reviewed on a seven-year cycle by the department, the Dean of the College of Science and Technology, the AAC, and the Provost. The AAC forwards all recommendations and decisions to the Faculty Senate, and provides advice regarding issues of undergraduate-level education policy and implementation. In addition, program chairs (or designees) are responsible for coordinating an annual student learning outcome assessment and submitting a report for review by the Academic Program Assessment Subcommittee of the University Accreditation and Assessment Committee.

Accreditation

Notice of the addition of this program to the UW-Green Bay academic array will be sent to the Higher Learning Commission. The institution will seek accreditation by the Accreditation Board for Engineering and Technology, Inc. (ABET). ABET requires that at least one class has graduated from the program before accreditation may be pursued. UW-Green Bay anticipates pursuing accreditation two years after the program implementation date.

	University of Wisconsin - Green Bay Cost and Revenue Projections For Proposed BS in Mechanical Engineering							
	Items		vicchanical	Projections				
		20	20	20	20	20		
		Year 1	Year 2	Year 3	Year 4	Year 5		
I	Enrollment (New Student) Headcount	26	40	60	66	73		
-	Enrollment (Continuing Student) Headcount	0	20	45	78	108		
	Enrollment (New Student) FTE	24	37	55	61	67		
	Enrollment (Continuing Student) FTE	0	18	41	72	100		
TT	Total New Credit Hours (# new sections & and its new section)	04	24	40	0.4	40		
11	Existing Credit Hours	24	24	40	24	48		
	Existing Creat nours		24	40	90	120		
III	FTE of New Faculty/Instructional Staff	0	1	2	1	2		
	FTE of Current Fac/IAS	0.5	0.5	1.5	3.5	4.5		
	FTE of New Admin Staff	0	0	0	0	0		
	FTE Current Admin Staff	2	2	2	2	2		
117	N D							
	Even Twitien (new wedit because a ETE)	¢151.400	0045 510	\$607.560	\$000 00 C	Φ1 0 <i>2</i> 0 11 (
	From Tullion (new creatt nours x FIE)	\$151,488	\$345,519	\$607,562	\$838,936	\$1,053,116		
	Program Revenue - Endowment Income	\$30,400	\$60,000	\$140,473 \$00,000	\$202,230	\$255,892 \$150,000		
	Program Revenue - Other	\$1 013 667	\$752.667	\$777 667	\$711,000	\$130,000		
	Reallocation	\$100.000	\$100.000	\$100,000	\$100.000	\$100,000		
	Total New Revenue	\$1,331,555	\$1.341.486	\$1,721,704	\$1.972.192	\$2,268,008		
V	New Expenses				· · · · · · · · · · · · · · · · · · ·	+-,,		
	Salaries plus Fringes							
	Faculty/Instructional Staff	\$0	\$150,000	\$450,000	\$600,000	\$900,000		
	Other Staff	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000		
	Other Expenses							
	Facilities	\$0	\$80,000	\$80,000	\$80,000	\$80,000		
	Equipment	\$750,000	\$750,000	\$500,000	\$500,000	\$500,000		
	Older: Total Exponses	\$50,000	\$50,000	\$75,000	\$100,000	\$100,000		
	Total Expenses	\$875,000	\$1,105,000	\$1,180,000	\$1,355,000	\$1,655,000		
VI	Net Revenue	\$456,555	\$236,486	\$541.704	\$617.192	\$613.008		
					· · · · · · ·	+,		
N	arrative: Explanation of the Numbers and Other Ongoing	g Commitme	ents that will	Benefit the	Proposed P	rogram		
	Attached							
<i>a</i> - Nu	mber of students enrolled				· · · ·			
b - To be based on 12 credits at the undergraduate level and 7 credits at the graduate level								
c - Number of faculty/instructional staff providing significant teaching and advising for the program								
<i>d -</i> Nu	mber of other staff providing significant services for the program	J	,					
Prov	ost's Signature:		Date:					
			22	JA. 18				
	per xa			JAN .U				

UNIVERSITY OF WISCONSIN-GREEN BAY COST AND REVENUE PROJECTIONS NARRATIVE BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

Two tables accompany this narrative: (1) Table 1- Cost & Revenue Projections for Newly Proposed UW-Green Bay Program in Mechanical Engineering (expected enrollment) and (2) Table 2 – Cost & Revenue Projections for Newly Proposed UW-Green Bay Program in Mechanical Engineering (low enrollment).

The Green Bay-UWGB Partnership

The UW-Green Bay proposal for Mechanical Engineering is a community partnership. UW-Green Bay has delivered engineering courses for over 50 years. The university currently hosts three engineering technology programs whose enrollments have expanded rapidly (several students have graduated from those programs). A strong foundation (facilities, faculty, preparatory curriculum, support services) for engineering exists at the university. Thus, the university is not starting from scratch in developing mechanical engineering. Nevertheless, there are significant startup costs (mostly new equipment) required for the mechanical engineering program. Because of the urgency of the need for engineering programs at UW-Green Bay (for both talent development and economic transformation), the Green Bay, Brown County and New North communities have joined in a partnership with the university to secure the mechanical engineering program. Community partners have pledged to fund a significant portion of the startup costs for the program through pledges of financial, material and other types of support (e.g., internships) and to secure the future of the program through endowment support.

At the time of the submission of this proposal, the university has received gifts and pledges of approximately \$7.6 million including a substantial naming gift for the School of Engineering, all contingent on Board of Regents' approval of the ME program and the School of Engineering. It is a testament to the very strong desire of the Green Bay community to have engineering at UW-Green Bay that these pledges were made prior to approval of the ME program or the school.

In addition to the \$7.6 million goal for mechanical engineering, the university and its partners (Brown County and the Einstein Project) are working to raise an additional \$5 million to complete the STEM Innovation Center to be funded in a partnership with Brown County and the state of Wisconsin and to be constructed on the UW-Green Bay campus.

The System *Cost & Revenue Projections* template does not anticipate community partnerships such as this; therefore, UW-Green Bay has added two lines to the template: "Program Revenue – endowment income" and "Program Revenue – other - community investment."

Enrollment Implications on Existing UW-Green Bay Engineering Programs

During review of the Notice of Intent to Plan, the question was raised whether a new mechanical engineering program at UW-Green Bay would diminish the very strong enrollments in the three currently existing engineering technology programs, which include: mechanical

engineering technology, electrical engineering technology and environmental engineering technology.

Two approaches were used to examine this possibility: (1) the graduation rates of twenty-three universities outside the UW System that established engineering programs where previously only engineering technology programs existed were examined¹ and (2) a survey of current UW-Green Bay mechanical engineering technology students was conducted to determine the likelihood those students would have chosen the ME degree instead of one of the three ET degrees had the ME degree been available at the time of their enrollment.

Twenty-three universities with engineering technology degrees in 2004-05 introduced engineering degrees after 2004-05. Between 2004-05 and 2014-16, the number of engineering technology graduates and the number of engineering graduates increased on average across the universities. In 2004-05 (prior to the introduction of engineering), the average percent of graduates with engineering technology degrees was 3.8%. In 2014-15, the average percent of graduates with engineering technology degrees was 3.0% and the average number of engineering degrees was 1.6%. These results suggest enrollments in engineering technology remained stable and the overall percent of engineering graduates increased because of the new engineering majors.

Results from a survey of current UW-Green Bay MET students indicated that there is strong interest in both the MET and ME degrees. Of these students, 70% indicated a preference toward the ME degree had it been available when they began their studies at UW-Green Bay. A fraction of current students, approximately 57%, indicated that they would be interested in switching majors from MET to ME if the degree were available currently at UW-Green Bay. It is expected that, after an initial redistribution of students, both MET and ME programs experience strong growth. Also, the development of an ME program is expected to have little or no impact on enrollment in UW-Green Bay's electrical and environmental engineering technology programs.

Facilities

Planning for the Brown Count STEM Innovation Center to be constructed on the UWGB campus is underway. The facility is being funded in part from the state budget, in part from Brown County, and in part from private sources. When completed, this facility will house a portion of the UWGB mechanical engineering program along with units of the UW Extension, the Einstein Project and Brown County. The construction schedule for this facility depends on the design schedule, the state approval process and completion of fund raising. Since this is an atypical building project for the university, it is anticipated that more time than normal will be required to complete the project. Moreover, a recent lawsuit challenges one of the funding sources the county plans to use to fund the project. This may delay the project.

¹ Vermont Technical College, University of Maryland Eastern Shore, SUNY Polytechnic Institute, Western Illinois University, Purdue University-North Central Campus, Ferris State University, Missouri State University, Bowling Green State University, The University of West Florida, Georgia Southern University, Morehead State University, University of Southern Mississippi, East Carolina University, Western Carolina University, Middle Tennessee State University, Norfolk State University, Marshall University, Texas A&M University – Corpus Christi, Texas Southern University, Central Washington University, Eastern Washington University, Western Washington University

The initiation of the proposed Mechanical Engineering program is not dependent on the completion of construction of the STEM Innovation Center. Capacity for the early years of the program exists on campus. Renovations underway will increase that capacity. In the event the STEM Innovation Center is delayed for a significant period of time, UW-Green Bay will conduct appropriate portions of the program using existing space at NWTC in the same way it shares space for the three UWGB engineering technology programs under a current MOU between NWTC and UWGB. President Jeff Rafn of NWTC has confirmed capacity exists at NWTC under its enrollment models, and he has offered the use of the NWTC materials lab, instrumentation and controls lab, fluids lab, thermodynamics lab, computer lab (54 stations) and standard classroom space for the UWGB mechanical engineering program. In addition, President Rafn has affirmed continued use (now used in engineering technology programs) of the equipment and facilities of manufacturing technology hall which includes labs in pneumatics, hydraulics, mechanics, electrical safety, devices, electronics, industrial controls, programmable logic controllers, human machine interfaces, variable frequency drives, automation controls, motion control drivers, robotics, power electricity, power electronics and process control systems.

Extending its partnership with NWTC will not delay initiation or ramp up of the program nor does UWGB expect sharing space will reduce enrollment or be inconvenient for students. Currently, UWGB has multiple joint programs in partnership with NWTC in each of its four colleges. UWGB has encountered no problems with student transportation between the two campuses. City bus service connects the two locations. However, in the event it appears necessary to offer transportation between the two campuses UW-Green Bay will allocate funds from anticipated STEM Innovation carrying costs or other sources to provide transportation for students between the two campuses.

Cost & Revenue Projections – Expected Enrollment (Table 1)

Enrollment (Table 1; I. a-f)

Table 1 depicts the expected enrollment pattern based on UWGB's experience with engineering technology, local demand, a decade-long pattern of demand for engineering among applying students, an analysis of transfer preparation at its partner university NWTC and other factors. In this projection, the initial enrollment of 26 new and transfer students in fall 2018 increases by 50% in years 2 and 3, followed by 10% growth in years 4 and 5, resulting in a total student enrollment of approximately 167 FTE in year 5.

The new mechanical engineering program would be in addition to the existing mechanical engineering technology program. (UWGB also offers engineering technology programs in electrical engineering and environmental engineering.) Survey data presented in the proposal indicates that existing students in mechanical engineering technology at UWGB have an interest in mechanical engineering, while data from multiple institutions nationally demonstrates that enrollments in engineering technology programs typically remain stable or increase with the addition of new engineering programs. The existing mechanical engineering technology program at UWGB has a calculus-based curriculum (Calculus I and II are currently required), which would allow students to start the lower-level engineering curriculum

(mathematics, physics, and basic engineering courses like statics, dynamics, and mechanics of materials). Subsequently, students would determine if they prefer the applied and hands-on curriculum of engineering technology or the more theoretical curriculum of engineering. Therefore, UWGB anticipates that there could be a flow of students in either direction when both programs are fully implemented. Given that there are different accreditation requirements for mechanical engineering technology and mechanical engineering, there would need to be distinct curriculum for each program at the upper level that students would need to meet to fulfill graduation requirements.

The two different enrollment models for the mechanical engineering program provided in the budget narrative and the expected and low enrollment models, both demonstrate financial viability. It should be noted that actual enrollments in year three of the mechanical engineering technology program exceed those presented in the low enrollment model. Importantly, the mechanical engineering technology and mechanical engineering are both revenue-based programs (131 funding, as opposed to 102 funding), so having students move from one program to the other would not affect the overall revenue for the School of Engineering and management of faculty resources for upper-level courses will reflect enrollment dynamics of each program.

Credit Hours

The pattern of new credit hour introduction is shown in Table 1; II. a-b. For the moderate enrollment model that has been presented, 167 new FTE in mechanical engineering would require the delivery of approximately 5300 SCH/Year to matriculate to graduate in 4 years (126 credits/4 years = 31.5 credits/year and 167 FTE x 31.5 credits/year = 5260 SCH). Based on the proposed curriculum for mechanical engineering, this would include the following: 24 credits in general education; 44 credits in supporting courses like mathematics, science, and engineering (several of these courses would also meet general education requirements); and 58 credits in mechanical engineering. Some capacity exists in general education, where class sizes are also significantly higher, so the additional faculty included in this proposal would be hired in mechanical engineering and supporting areas in the sciences. Given this total of 102-credit hours/year in supporting courses and mechanical engineering, and typical faculty teaching loads, approximately 6 new faculty would need to be hired to meet program needs at the projected 5year enrollment target. It should be noted that credit hours and contact hours are not equal due to the prevalence of laboratory-based courses in the mechanical engineering curriculum where the credit hours are lower than the contact hours. Under this scenario, there would be a need for approximately 172 new faculty contact hours by year 5, which accounts for the need for multiple sections of some courses, while also accounting for instructional efficiencies obtained through larger lecture sections in the mechanical engineering courses, although laboratory sections would still be capped at 24 students. These new faculty hires would be done at a frequency of one/year in year 2 through year 5 of the program, with additional faculty hires in year 3 and year 5, which would be done to meet the increasing enrollment for the program and the need to offer more upper-level mechanical engineering courses. This corresponds to the credit hours listed in the table (increase of 24/year for each new faculty member).

FTE

UW-Green Bay currently offers most of the foundation courses for engineering and has two mechanical engineers on staff currently assigned to the engineering technology program.

Based on contact-hour analysis for the mechanical engineering degree, to serve the students in this enrollment scenario will require the addition of four mechanical engineers and two additional STEM-related faculty. The plan is to recruit mechanical engineering faculty in years 2-5 and non-engineering STEM-related faculty in years 3 and 5 (**Table 1; III. a-d**). No new administrative support will be needed for this program.

New Revenue

Tuition is calculated as new credit hours multiplied by total student FTE (based on 12hour load) per year (**Table 1; IV. a**). The current UW-Green Bay tuition is \$263 for resident students and \$515 for non-resident students. No tuition increase is anticipated. The cost and revenue models presented here anticipate 100% residential students. Additionally, similar to the engineering technology programs at UW-Oshkosh and UW-Green Bay and the mechanical engineering program at UW-Stout, UWGB proposes a \$700/semester fee for all students in the program (**Table 1; IV. b**).

Endowment and pledged community investment to initiate the program is shown in lines **IV. c and IV. d** respectively in the tables. Based on UWGB Foundation experience in Green Bay (most recent capital campaign ended in 2014), UWGB expects the default rate on pledges to be very low. However, to be conservative, Tables 1 and 2 present the following scenario:

- UWGB presents a total amount in gifts and pledges roughly equal to 92% of the total received reflecting an 8% pledge default rate. The default rate of the last capital campaign (ending in 2015; athletics) was 6%; however, that number reflects one large gift that was withdrawn during the campaign but later actually paid.
- (2) UWGB assigns \$3 million (roughly half of the simulated amount) as endowment. This has the effect of lowering the annual amount of money available to start the program but increasing the sustainability of the program. (The actual amount of funds to be placed into endowment is being negotiated with a major donor.) Entries in line IV .c of Tables 1 and 2 show the endowment income for a \$3 million pledge paid out in equal amounts over five years with an endowment payout rate of 5% (recently negotiated by the UWGB Foundation).
- (3) Using the MOUs of existing gifts and pledges UWGB calculated the annual income of 92% of pledged community support (line IV. d, Tables 1 and 2). This is the best approximation of the timing of available funds expected.
- (4) Annual expenses related to the STEM Innovation Center (lease, etc.) are unknown at this time. These are estimated in V. c of Amended Tables 1 and 2. These expenses will depend on a number of factors related to the MOU developed with Brown County (the STEM Innovation Center is a Brown County building being constructed on the UWGB campus) and will be affected by the final cost of the building, the contribution of other occupants of the building, arrangements made related to utilities and other factors.

The university reallocation (**Table 1; IV. e**) is primarily related to adjusting capacity in the general education program to accommodate the growth in engineering students. Currently, capacity exists in the general education program to accommodate engineering student growth in

the early years of this program. Thus, this projection is higher than expected for the early years of this program.

New Expenses

Faculty and instructional staff expenses are accumulated across the five years of the projection (Table 1; V. a) (different than the template instructions). Salary and fringe benefits are set at \$150,000 for engineering faculty and \$120,000 for non-engineering STEM faculty. These levels exceed the salary levels for recently recruited engineers and non-engineering STEM faculty at UW-Green Bay.

Mechanical engineering faculty that are currently on staff, as well as the new faculty and instructional staff hired for the mechanical engineering program, would teach courses in both mechanical engineering technology and mechanical engineering. This would allow for greater diversity of faculty and staff expertise, which would be particularly important for teaching upperlevel courses required for program accreditation or aligned with regional engineering needs. The program staffing presented in the proposal for both the expected and low enrollment models indicate that new mechanical engineers will be added on an incremental basis as enrollments increase during the first five years of program implementation. In both models, no new faculty are added in the first year, which accounts for existing instructional capacity and the potential to increase section sizes in some lower-level courses in general education, mathematics, physics and basic engineering. Existing mechanical engineering faculty would also be able to teach a limited number of upper-level electives in the first year of the program. Therefore, the numbers for current faculty included in the models do not all come from existing engineering staff. Also, as noted under enrollment dynamics, both mechanical engineering technology and mechanical engineering are revenue-based programs, so any growth beyond the numbers provided in the expected enrollment model would be supported by additional program revenue.

The UW-Green Bay ME program will be housed in current facilities (some under renovation from other university funds), in the STEM Innovation Center to be constructed adjacent to the UW-Green Bay science facilities (Brown County-UW-Green Bay-Community Partnership) or in space deployed in partnership with NWTC. New expenses related to facilities and other new expenses (**Table 1; V. c and V. e**) are included to provide flexibility regarding facilities and other needs during program development.

	Table 1. Cost & Revenue Projections for UW-Green Bay Mechanical Engineering. (expected enrollment)						
		Items	Projections				
			2018	2019	2020	2021	2022
			Year 1	Year 2	Year 3	Year 4	Year 5
1	а	Enrollment (New Student; including transfers) Headcount	26	40	60	66	73
	b	Enrollment (Continuing Student) Headcount (based on Inst. Retention rate)	0	20	45	78	108
	с	Total Enrollment Headcount (adj for predicted graduation rate)	26	60	105	144	181
	с	Enrollment (New Student; including tranfers) FTE	24	37	55	61	67
	е	Enrollment (Continuing Student) FTE	0	18	41	72	100
	f	Total FTE	24	55	96	133	167
п	а	Total New Credit hours (# new sections x credits per section)	24	24	48	24	48
	b	Existing Credit Hours	0	24	48	96	120
			24	48	96	120	168
ш	а	FTE of New Faculty/Instructional Staff	0	1	2	1	2
	b	FTE of Current FAC/IAS	0.5	0.5	1.5	3.5	4.5
	с	FTE of New Admin Staff	0	0	0	0	0
	d	FTE Current Admin Staff	2	2	2	2	2
IV		New Revenues					
	а	From Tuition (new credit hours x FTE)	\$151,488	\$345,519	\$607,562	\$838,936	\$1,053,116
	b	From Fees	\$36,400	\$83,300	\$146,475	\$202,256	\$253,892
	с	Program Revenue - Endowment income	\$30,000	\$60,000	\$90,000	\$120,000	\$150,000
	d	Program Revenue - Other - Community Investment	\$1,013,667	\$752,667	\$777,667	\$711,000	\$711,000
	e	Reallocation	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
	f	Total New Revenue	\$1,331,555	\$1,341,486	\$1,721,704	\$1,972,192	\$2,268,008
v		New Expenses					
		Salaries plus Fringes					
	а	Faculty/Instructional Staff	\$0	\$150,000	\$450,000	\$600,000	\$900,000
	b	Other Staff	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000
		Other Expenses					
	c	Facilities	\$0	\$80,000	\$80,000	\$80,000	\$80,000
	d	Equipment	\$750,000	\$750,000	\$500,000	\$500,000	\$500,000
	е	Other	\$50,000	\$50,000	\$75,000	\$100,000	\$100,000
		Total Expenses	\$875,000	\$1,105,000	\$1,180,000	\$1,355,000	\$1,655,000
VI	а	Net Revenue	\$456,555	\$236,486	\$541,704	\$617,192	\$613,008

Cost & Revenue Projections – Low Enrollment (Table 2)

Enrollment (Table 2; I. a-f)

Table 2 depicts a low enrollment scenario for the program. These projections fall far below UW-Green Bay's experience in engineering technology, and run strongly counter to expressed interest of students and strong market signals for engineers in northeast Wisconsin. However, with appropriate adjustments in staffing, the low enrollment projects are sustainable.

Credit Hours

The pattern of new credit hour introduction is shown in **Table 2; II. a-b.** For the low enrollment model that has been presented, 91 new FTE in mechanical engineering would require the delivery of approximately 2900 SCH/Year to matriculate to graduate in 4 years (126 credits/4 years = 31.5 credits/year and 91 FTE x 31.5 credits/year = 2867 SCH). Based on the proposed curriculum for mechanical engineering, this would include: 24 credits in general education; 44 credits in supporting courses like mathematics, science, and engineering (several of these courses would also meet general education requirements); and 58 credits in mechanical engineering. Some capacity exists in general education, where class sizes are also significantly higher, so the additional faculty hires included in this proposal would be in mechanical engineering and supporting areas in the sciences. Given a total of 102-credit hours/year in supporting courses and mechanical engineering and typical faculty teaching loads, approximately 4 new faculty would

need to be hired to meet program needs at the projected 5-year enrollment target. It should be noted that credit hours and contact hours are not equal due to the prevalence of laboratory-based courses in the mechanical engineering curriculum, where the credit hours are lower than the contact hours, so there would be a need for approximately 110 new faculty contact hours by year 5. These new faculty hires would be done at a frequency of one/year in year 2 through year 5 of program implementation, which also corresponds to the new credit hours listed in the table (increase of 24/year).

FTE

The staffing pattern in the low enrollment scenario is adjusted downward to adjust for reduced contact hours (Table 2; III. a-d). Additional staffing would be required, however, in order to offer the entire curriculum.

New Revenue

All new revenue is calculated as in Table 1. The community investment is not affected by enrollment. The university reallocation (**Table 2; IV. e**) is retained at the same level but it is likely this would be reduced under the low enrollment scenario.

New Expenses

New expenses are calculated as in Table 1. Since the STEM Innovation Center is a multi-use facility, its construction will not be affected by enrollment.

	Table 2. Cost & Revenue Projections for UW-Green Bay Mechancial Engineering program (low enrollment).						
		Items	Projections				
			2018	2019	2020	2021	2022
			Year 1	Year 2	Year 3	Year 4	Year 5
ı	а	Enrollment (New Student; including transfers) Headcount	26	26	26	34	40
	b	Enrollment (Continuing Student) Headcount (based on Inst. Retention rate)	0	20	34	45	59
	с	Total Enrollment Headcount (adj for predicted graduation rate)	26	46	60	79	99
	с	Enrollment (New Student; including tranfers) FTE	24	24	24	31	37
	е	Enrollment (Continuing Student) FTE	0	18	31	41	55
	f	Total FTE	24	42	55	73	91
п	а	Total New Credit hours (# new sections x credits per section)	24	24	24	24	24
	b	Existing Credit Hours	0	24	48	72	96
			24	48	72	96	120
ш	а	FTE of New Faculty/Instructional Staff	0	1	1	1	1
	b	FTE of Current FAC/IAS	0.5	0.5	1.5	2.5	3.5
	с	FTE of New Admin Staff	0	0	0	0	0
	d	FTE Current Admin Staff	2	2	2	2	2
IV		New Revenues					
	а	From Tuition (new credit hours x FTE)	\$151,488	\$264,220	\$349,148	\$459,301	\$576,757
	b	From Fees	\$36,400	\$63,700	\$84,175	\$110,731	\$139,048
	с	Program Revenue - Endowment income	\$30,000	\$60,000	\$90,000	\$120,000	\$150,000
	d	Program Revenue - Other - Community Investment	\$1,013,667	\$752,667	\$777,667	\$711,000	\$711,000
	е	Reallocation	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
	f	Total New Revenue	\$1,331,555	\$1,240,587	\$1,400,990	\$1,501,032	\$1,676,805
v		New Expenses					
		Salaries plus Fringes					
	а	Faculty/Instructional Staff	\$0	\$150,000	\$300,000	\$450,000	\$600,000
	b	Other Staff	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000
		Other Expenses					
	с	Facilities	\$0	\$80,000	\$80,000	\$80,000	\$80,000
	d	Equipment	\$750,000	\$750,000	\$500,000	\$500,000	\$500,000
	е	Other	\$50,000	\$50,000	\$75,000	\$100,000	\$100,000
		Total Expenses	\$875,000	\$1,105,000	\$1,030,000	\$1,205,000	\$1,355,000
vi	а	Net Revenue	\$456,555	\$135,587	\$370,990	\$296,032	\$321,805

Laboratory Space and Equipment

Laboratory Space

A new STEM Innovation Center will be constructed on the UW-Green Bay campus and be located directly adjacent to the existing Laboratory Science and Environmental Science buildings. The STEM Innovation Center has a proposed budget of \$15 million and will be approximately 55,000 ft² in size. Somerville of Green Bay has been selected as the architect/engineer for the project, and preliminary planning has already been initiated. The FY 2017-19 state budget included \$5 million for the STEM Innovation Center, and another \$5 million has been committed from a recently approved Brown County sales tax increase of 0.5% effective January 1, 2018. The balance of the \$15 million construction cost, as well as start-up funding for the mechanical engineering program, will be come from community donations and sponsorships.

As part of the preliminary planning process for the STEM Innovation Center, estimates on space requirements were provided to Somerville by the participating community partners in the project. The UW-Green Bay mechanical engineering program will tentatively have access to approximately 12,000 ft² in the STEM Innovation Center, which will include the following:

- Teaching/research laboratories (Mechanics of Materials, Controls and Measures, Fluids, and Thermodynamics)
- Computer laboratory
- Machine shop
- Faculty offices

There will also be additional classroom space, a maker space, storage space, and other collaborative spaces that will be shared with the other tenants in the STEM Innovation Center. This will include a commons, a small kitchen and other small project/work rooms.

Identification of Required Laboratory Equipment

A summary of the initial equipment costs for the laboratories is summarized below, while noting that detailed information is only provided for the first two years of expenditures, even though the budget as proposed has support for the five-year implementation plan. The expenditures are summarized below in relation to the laboratories and facilities that would be included in the proposed STEM Innovation Center.

	COST	COMMENTS
LABORATORY	ESTIMATE	
Intro to Mechanical Engineering	\$25,000	Existing equipment available from ET
		program is available.
Mechanics of Materials	\$200,000	Located in STEM Innovation Center.
Fluids	\$200,000	Located in STEM Innovation Center.
Thermal	\$250,000	Located in STEM Innovation Center.
Controls and Measures	\$200,000	Located in STEM Innovation Center.
Machine Shop	\$200,000	Located in STEM Innovation Center.
Contingency	\$425,000	Furniture, fixtures, etc., associated with
		the construction and occupancy of the
		STEM Innovation Center.
TOTAL COST ESTIMATE	\$1,500,000	Based on the budget model for the
(Years 1-2)		program, these expenditures would be
		approximately \$750K/year.
COST ESTIMATE (Years 3-5)	1,500,000	Based on the budget model for the
		program, an additional \$1.5 million
		would be available for capital
		expenditures in years 3-5
		(\$500K/year).
TOTAL COST ESTIMATE	\$3,000,000	

Detailed information on the equipment for each laboratory can be found in the following tables, while noting that the estimates have been increased in the table above to account for potential cost increases.

Equipment	Vendor	Unit Cost (\$)	Qty	Total Cost (\$)
Universal testing machine (UTM)	Instron	68,875	1	68,875
UTM wedge grips	Instron	9,150	1	9,150
UTM clip-on extensometer	Instron	10,300	1	10,300
UTM video extensometer	Instron	29,810	1	29,810
UTM flexure fixture	Instron	5,650	1	5,650
UTM Compression platen	Instron	8,680	1	8,680
Torsion test apparatus	TecQuipment	9,205	1	9,205
Beam deflection apparatus	Didactec	9,366	1	9,366
Column buckling apparatus	Didactec	7,078	1	7,078
Strain indicator & recorder box	Vishay	1,970	4	7,880
Pregaged beams	Vishay	1,500	4	6,000
Hardness tester	Struers	8,324	1	8,324
Computer	HP	700	5	3,500
Laboratory accessories	-	-	-	5,000
Total Budget				188,818

Mechanics of Materials Laboratory

Fluids Laboratory					
Equipment	Vendor	Unit Cost (\$)	Qty	Total Cost (\$)	
Digital hydraulic bench	LAB Midwest	6,427	1	6,427	
Francis turbine	LAB Midwest	7,639	1	7,639	
Pelton turbine	LAB Midwest	3,946	1	3,946	
Optical tachometer	LAB Midwest	709	1	709	
Stroboscope	LAB Midwest	2,880	2	5,760	
Hydrostatics & fluid properties					
apparatus	LAB Midwest	18,878	1	18,878	
Surface tension balance	LAB Midwest	1,088	1	1,088	
Hares tube	LAB Midwest	1,096	1	1,096	
Jet trajectory & orifice flow	LAB Midwest	5,535	1	5,535	
Fluid friction apparatus	LAB Midwest	21,941	1	21,941	
Viscosity & particle drag	LAB Midwest	5,309	1	5,309	
Single-stage centrifugal pump test set	LAB Midwest	21,397	1	21,397	
Analogue pressure display	LAB Midwest	2,437	1	2,437	
Versatile data acquisition system	LAB Midwest	2,352	3	7,056	
Flow over a notch apparatus	LAB Midwest	2,747	1	2,747	
Reciprocating compressor module	LAB Midwest	23,157	1	23,157	
Dynamometer & instrumentation	LAB Midwest	9,361	2	18,722	
Centrifugal compressor module	LAB Midwest	23,157	1	23,157	
Computer	HP	700	5	3,500	
Laboratory accessories	-	-	-	5,000	
Total Budget				185,501	

Thermal Laboratory

		Unit Cost		
Equipment	Vendor	(\$)	Qty	Total Cost (\$)
Forced convection heat transfer	LAB Midwest	29,896	1	29,896
Boyle's law apparatus	LAB Midwest	7,923	1	7,923
Versatile data acquisition system (bench				
mounted)	LAB Midwest	1,868	2	3,736
Guy-Lussac's law	LAB Midwest	10,000	1	10,000
Steam motor & energy conversion test				
set	LAB Midwest	53,620	1	53,620
Small engine test set	LAB Midwest	17,897	1	17,897
Manual volumetric fuel gauge	LAB Midwest	1,501	1	1,501
Boiling & condensing heat transfer	LAB Midwest	34,813	1	34,813
Natural convection & radiation	LAB Midwest	43,137	1	43,137
Versatile data acquisition system (frame				
mounted)	LAB Midwest	2,352	2	4,704

Computers	HP	700	5	3,500
Laboratory accessories	-	-	-	5,000
Total Budget	215,727			

Controls and Measurements Laboratory

		Unit Cost		
Equipment	Vendor	(\$)	Qty	Total Cost (\$)
Ball & beam apparatus	LAB Midwest	10,960	1	10,960
Controller (Analogue & digital)	LAB Midwest	7,103	3	21,309
Ball & hoop apparatus	LAB Midwest	13,027	1	13,027
Servo trainer	LAB Midwest	13,188	1	13,188
PLC process	LAB Midwest	9,979	1	9,979
PLC trainer	LAB Midwest	8,155	1	8,155
Process trainer	LAB Midwest	15,144	1	15,144
Magnetic levitation	LAB Midwest	17,897	1	17,897
	Turbine			
Programmable automation trainer	Technologies	8,159	1	8,159
Computer	HP	700	5	3500
Laboratory accessories (wires, rulers,				
etc.)	-	-	-	5,000
Arduino uno starter kit	Arduino	100	20	2,000
	National			
National Instruments VirtualBench	Instruments	1,999	10	19,990
Strain gaging apparatus	Vishay	-	-	5,000
Arduino shields	Arduino	-	-	1,000
Measuring instruments	-	-	-	10,000
Electrical items	-	-	-	8,000
Computer	HP	700	5	3,500
Laboratory accessories	-	-	-	5,000
Total Budget				180,808

Machine Shop

		Unit Cost		
Equipment	Vendor	(\$)	Qty	Total Cost (\$)
CNC vertical drill/tap/mill machine	HAAS	59,995	1	59,995
CNC toolroom lathe (10" chuck)	HAAS	29,995	1	29,995
Horizontal band saw	Tyler Tool	3,499	1	3,499
Metal/wood vertical band saw	Tool Orbit	2,599	1	2,599
Engine lathe (13" geared head)	Tool Orbit	12,375	1	12,375
Vertical mill (10x50 variable speed)	Toolup	15,489	1	15,489
Drill press (15", step pulley & variable				
speed)	JEGS	1,899	1	1,899
	International			
Bench grinder	Tool	459	1	459
Belt & disc sander	Tool Orbit	1,399	1	1,399
Shear, break & roll Machine	Nevins Tools	799	1	799
Arbor press	Travers Tool	69	1	69
3D printer (dimension elite)	Stratasys	31,900	1	31,900
Bench vise	Home Depot	80	5	400
Hack saw	Home Depot	15	10	150
Vacuum cleaner (dry/wet)	Home Depot	40	2	80
	Global			
Cabinet work benches	Industrial	507	5	2,535
Tables, cabinets, stools	-	-	-	5,000
Machine shop accessories	-	-	-	10,000
(Blades, drill bits, mill bits, hammers,				
wrenches, nuts, bolts, clamps, squares,				
hand tools, dremel, etc.)				
Total Budget				178,642

As noted previously, the STEM Innovation Center would be located on the UW-Green Bay campus and would house the mechanical engineering program. The proposed budget includes an additional \$1.5 million that would be available for equipment and expenditures in years 3-5.



MEMO

DATE:30 November 2017TO:UW- System President Ray Cross

FROM: Gregory Davis, Provost and Vice Chancellor for Academic Affairs

SUBJECT: Authorization to Implement: B.S. in Mechanical Engineering

I confirm the University of Wisconsin-Green Bay's extremely strong commitment to adding a B.S. in Mechanical Engineering (ME) to our undergraduate program array. The program gained final, formal support from shared governance at Faculty Senate on 11 October 2017. The ME program is designed to satisfy all accreditation requirements set forth by the Accreditation Board for Engineering and Technology (ABET) as well as graduation requirements for UW-Green Bay.

The program will be funded primarily through new program revenue, gifts and pledges of approximately \$8 million, as well as with supplemental support from existing resources in the College of Science and Technology. This proposal builds upon our long – successful undergraduate offerings of engineering coursework and programs. UW-Green Bay has delivered engineering courses for over fifty years. The University currently offers three engineering technology programs whose enrollments have expanded rapidly since their conception. A strong foundation (facilities, faculty, preparatory curriculum, support services) for engineering exists at the University.

We are extremely excited by the mission driven problem-focused nature of this program; the direct relevance to UW-Green Bay's Urban Serving Vision that aims to 'reshape academic programs to meet the current and future workforce needs in the region particularly in the areas of technology, manufacturing ...'; as well as, the strengthening our long-standing, undergraduate STEM programs.

The ME program will be housed in a new School of Engineering residing within the College of Science and Technology. Courses in the program will be delivered primarily in a face-to-face format. In addition to general education, coursework currently available will provide much of foundational work in chemistry, engineering, mathematics, and physics.

I am unequivocally behind, and supportive of, the development of a B.S. in Mechanical Engineering at UW-Green Bay. Please let me know if you require any additional information regarding the ME program, and thank you in advance for your consideration. I look forward to receiving authorization from the Board of Regents for the implementation of this important program.

INNOVATIONTRANSFORMATIONPLACEOffice of the Provost and Vice Chancellor for Academic Affairs, David A. Cofrin Library, Suite 835
University of Wisconsin-Green Bay, 2420 Nicolet Drive, Green Bay, WI 54311-7001
Phone: 920-465-2334•Fax: 920-465-2430

Approval Establishment of a School of Engineering, and Renaming of the College of Science and Technology UW-Green Bay

EDUCATION COMMITTEE

Resolution I.1.d.2.:

Upon the recommendation of the Chancellor of UW-Green Bay and the President of the University of Wisconsin System, the Board of Regents authorizes the University of Wisconsin-Green Bay to establish a School of Engineering, and to change the name the College of Science and Technology to the "College of Science, Engineering and Technology."

CREATION OF A SCHOOL OF ENGINEERING AND RENAMING OF THE COLLEGE OF SCIENCE AND TECHNOLOGY AT UW-GREEN BAY

EXECUTIVE SUMMARY

BACKGROUND

This proposal is presented in accord with the procedures outlined in Academic Planning and Program Review (SYS 102, revised July 2016, available at <u>https://www.wisconsin.edu/program-planning/</u>).

REQUESTED ACTION

Adoption of Resolution I.1.d.2., approving establishment of a School of Engineering, and changing the name the College of Science and Technology to the "College of Science, Engineering and Technology."

DISCUSSION

Historically, UW-Green Bay has offered Pre-Professional programs in engineering for many decades, dating back to the early years of the institution, and including courses in mathematics, chemistry, physics, and several lower-level courses in engineering. More recently, three engineering technology programs, including electrical, environmental and mechanical, were added at UW-Green Bay and UW-Oshkosh, and have seen rapid enrollment growth since implementation in the fall of 2015.

Students in the Pre-Engineering program have successfully transferred to the other universities in the region that offer engineering degrees, including UW-Madison, UW-Milwaukee, UW-Platteville, UW-Stout, Marquette University, the Milwaukee School of Engineering, and Michigan Technological University. In addition, the proposed Mechanical Engineering degree program provides for direct, upper-level transfer of courses into the College of Engineering and Applied Sciences at UW-Milwaukee. The two institutions also collaborate on a 3+2 dual degree program, in which a student can earn two bachelor's degrees over five years of study: a bachelor's in Environmental Science from UW-Green Bay, and a bachelor's in civil/environmental engineering from UW-Milwaukee.

RATIONALE

Given the goals of UW System FWD2020 and the intensified local desire for engineering at UW-Green Bay, as well as several independent studies stating that engineering is critical to the long-term economic success of the region, now is the ideal time to move forward with the establishment of a School of Engineering at UW-Green Bay. It also should be noted that the university is being asked by the community to play a key role in fundamentally transforming the

economics of one of the state's most important regions, which goes beyond just producing degrees.

BUSINESS MODEL

As part of a campus-wide reorganization at the University of Wisconsin-Green Bay that occurred during the 2015-16 academic year, the College of Science and Technology (CST) was established on July 1, 2016. The College of Science and Technology includes programs in Biology, Chemistry, Electrical Engineering Technology, Environmental Engineering Technology, Environmental Science, Geoscience, Human Biology, Mathematics, Mechanical Engineering Technology and Physics.

The School of Engineering would be housed in the renamed College of Science, Engineering, and Technology. Under this model, the School of Engineering would be able to utilize the existing administrative infrastructure of the college (Dean, Associate Deans, and administrative support), as well as the existing Chair of Engineering. Therefore, the immediate incremental cost associated with the creation of the School of Engineering would be minimal and not require the redirection of campus resources for administration.

The engineering technology programs were established based on a tuition recovery model, which is similar to how the mechanical engineering program would be established. This business model also depends on contributions from the community in support of these programs.

CONFIRMATION OF APPROVAL BY APPROPRIATE INSTITUTIONAL GOVERNANCE BODIES

Review of this proposal has been done by Engineering, the Department of Natural and Applied Sciences, and the Academic Affairs Committee. It was subsequently approved by the Dean of the College of Science and Technology, the University Committee, the Faculty Senate, the Provost and the Chancellor. Accordingly, campus governance groups, Dean John Katers, Provost Greg Davis, and Chancellor Gary Miller all endorse the establishment of the School.

RELATED REGENT AND UW SYSTEM POLICIES AND STATE STATUTE

Section 36.09(1)(gm), Wis. Stats.

Regent Policy 4-12: Academic Program Planning, Review, and Approval in the University of Wisconsin System.

UW System Administrative Policy 102: Policy on University of Wisconsin System Array Management: Program Planning, Delivery, Review, and Reporting.



Memorandum

GARY L. MILLER *Chancellor*

To:	President Ray Cross Jim Henderson, Vice President of Academic & Student Affairs		
From:	Gary L. Miller Gary F. Miller		
Date:	December 4, 2017		
Subject:	Authorization to Implement BS Degree in Mechanical Engineering		

We appreciate the time and care you have taken over the last year or so working with us to respond to significant community demands for engineering and technology talent. Please find attached four items for consideration by the Board of Regents at its February meeting: (1) Authorization to Implement the BS Degree in Mechanical Engineering at UW-Green Bay; (2) Proposal for the establishment of the School of Engineering in the College of Science and Technology; (3) Proposal to name the School of Engineering based on a significant private gift and (4) Proposal to change the name of the College of Science and Technology to the College of Science, Engineering and Technology.

Items (2) and (4) affect organizational changes to better leverage our four (assuming approval of ME) engineering programs and computer science programs, which will be clustered in the School of Engineering. Item (3) is in recognition of the significant community support we have received for our emerging engineering program.

Dr. Henderson's memo of October 20, 2017, extending permission to move our proposal to the Board, requested responses to a number of questions from you and our colleagues at other UW institutions. We have addressed these questions in the authorization document attached. (I would also draw your attention to our lengthy response memos of September 8 and October 9, which address parts or all of these concerns.)

This program is a partnership between the greater Green Bay community and UW-Green Bay. The community has responded with a total of approximately \$8 Million in gifts and pledges to help start up the program. It is likely our campaign for this important program will accelerate once the program is approved. We have been asked to list those pledges in the authorization document. We respectfully decline to do so since these pledges were made contingent on BOR approval of the program, BOR approval of the establishment of the School of Engineering, and under the presumption of anonymity until that time. We will, of course, be happy to make those pledges available to the Board in closed session.

INNOVATION TRANSFORMATION PLACE

We have commented on the opportunity to partner with UW-Platteville in a number of our response documents. We continue to believe such a collaboration would be beneficial to the new UWGB engineering programs and to UWP. Since our initial responses, the Board has approved joining UW Sheboygan – where UWP offers an engineering program – to UW-Green Bay. While we cannot predict the configuration of the collaboration in this new environment, we are committed to working with UWP (and the rest of the engineering programs in the state) to develop a collaboration.

As always, thank you for your partnership in our work to transform UW-Green Bay to match the needs of this region.

c: Cabinet

INNOVATION TRANSFORMATION PLACE

APPENDIX A

PROPOSAL TO ESTABLISH A SCHOOL OF ENGINEERING AT THE UNIVERSITY OF WISCONISN – GREEN BAY

SUBMITTED BY THE UNIVERSITY OF WISCONSIN-GREEN BAY

October 15, 2017

BACKGROUND

As part of a campus-wide reorganization at the University of Wisconsin-Green Bay that occurred during the 2015-16 academic year, the College of Science and Technology (CST) was established on July 1, 2016. The College of Science and Technology includes programs in Biology, Chemistry, Electrical Engineering Technology, Environmental Engineering Technology, Environmental Science, Geoscience, Human Biology, Mathematics, Mechanical Engineering Technology and Physics.

At the Board of Regents meeting in Madison, Wisconsin, on December 7-8, 2017, the University of Wisconsin-Green Bay is requesting approval for the authorization to implement a bachelor of science degree program in Mechanical Engineering, which would bring the total number of engineering related programs in the College of Science and Technology to four. In conjunction with the request for the authorization to implement for Mechanical Engineering, a request is also being made to establish a School of Engineering at the University of Wisconsin-Green Bay, which would be housed in the renamed College of Science, Engineering, and Technology.

REQUESTED ACTION

Adoption of a resolution authorizing the establishment of a School of Engineering at the University of Wisconsin-Green Bay.

RELEVANT STATUTES AND REGULATIONS

A key goal of the UW System FWD2020 strategic plan is business and community mobilization to "...address the State's greatest needs and help Wisconsin business and communities become more successful." Past community leaders in Green Bay recognized that engineering was a key missing program array, with recent community-wide studies again highlighting this need and further intensifying the community desire for engineering.

UW System Administrative Policy 102 requires the UW System Administration and the Board of Regents to approve the establishment of a new college or school. This request is for approval to establish a School of Engineering at the University of Wisconsin-Green Bay, which will reside within the College of Science, Engineering, and Technology.

APPENDIX A

HISTORY

The University of Wisconsin-Green Bay has offered a Pre-Engineering program for many decades, dating back to the early years of the institution. The Pre-Engineering program includes courses mathematics, chemistry, physics, and several lower level courses in engineering. Students in the Pre-Engineering program have successfully transferred to the other universities in the region that offer engineering degrees, including UW-Madison, UW-Milwaukee, UW-Platteville, UW-Stout, Marquette University, the Milwaukee School of Engineering, and Michigan Technological University. In addition, the NEW Program provides for direct, upper-level transfer of courses into the College of Engineering and Applied Sciences at UW-Milwaukee. The two institutions also collaborate on a 3+2 dual degree program in which a student can earn two bachelor's degrees over five years of study: a bachelor's in Environmental Science from UW-Green Bay and a bachelor's in civil/environmental engineering from UW-Milwaukee. More recently, three engineering technology programs (electrical, environmental and mechanical) were added at UW-Green Bay and UW-Oshkosh and have seen rapid enrollment growth since implementation in the fall of 2015.

RATIONALE

Given the goals of UW System FWD2020 and the intensified local desire for engineering at UW-Green Bay, as well as several independent studies stating that engineering is critical to the long-term economic success of the region, now is the ideal time to move forward with the establishment of a School of Engineering at UW-Green Bay. It should be noted that the university is being asked by the community to play a key role in fundamentally transforming the economics of one of the State's most important regions, which goes beyond just producing degrees.

BUSINESS MODEL

The School of Engineering would be housed in the renamed College of Science, Engineering, and Technology. Under this model, the School of Engineering would be able to utilize the existing administrative infrastructure of the college (Dean, Associate Deans, and administrative support), as well as the existing Chair of Engineering. Therefore, the immediate incremental cost associated with the creation of the School of Engineering would be minimal and not require the redirection of campus resources for administration.

The engineering technology programs were established based on a tuition recovery model, which is similar to how the mechanical engineering program would be established. This business model also depends on contributions from the community in support of these programs, which have been outlined in detail in the Authorization to Implement document

CONFIRMATION OF APPROVAL BY APPROPRIATE INSTITUTIONAL GOVERNANCE BODIES

Review of this proposal has been done by Engineering, the Department of Natural and Applied Sciences, and the Academic Affairs Committee. It was subsequently approved by the Dean of

APPENDIX A

the College of Science and Technology, the University Committee, the Faculty Senate, the Provost and the Chancellor.

DESIRED EFFECTIVE DATE

The desired effective date for the School of Engineering is July 1, 2018.

APPENDIX B

$\frac{\text{University of Wisconsin}}{GREEN BAY}$

To: Dean Katers

From: Professor Patricia Terry

Date: 11/1/2017

The Engineering technology faculty met on October 20, 2017, and unanimously approved the proposal for a School of Engineering within the UW-Green Bay College of Science and Technology. The Engineering Technology faculty also approved the re-naming of the College of Science and Technology to the College of Science, Engineering, and Technology. The numerous advantages to both of these proposals, including marketing, recruitment, and growth of engineering technology and future engineering at UW-Green Bay were all discussed.

Sincerely,

Patricia Terry Engineering Chair

APPENDIX C



Minutes of NAS Faculty meeting F17-4. ES-317 Conference Room 3:00 – 4:00 pm, Friday 20 October 2017: Note shortened time to allow for 4 pm Executive Committee meeting (Currier tenure review)

 Present: Amiri, Arendt, Chen, Currier, Draney (Chair), Fencl, Forsythe, Grubisha, Holzem, Hossain, Howe, Intemann, Jeon, Luczaj, Mahfuz, Malysheva, McIntire, S. Meyer, Norfleet, Olson Hunt, Schoenebeck, Stahlheber, Thota, Welsch, Wolf, Wondergem
 Excused: Fermanich, Terry, Zorn
 Absent: Bakshi

- Minutes from 8 October meeting were approved by consensus.
- Updates (from Chair)
 - ET Faculty Search has closed and has produced a strong pool. We will be bringing candidates to campus before the end of the semester.
 - Reminder: Laboratory Modernization Grant deadline Monday 6 November.
 - Uwgb.edu/phoenix-cares is a way for students to reach out if they have problems or are feeling harassed, etc. This is a good additional tool for advisors.
 - CST Public Spaces Committee update (Olson Hunt). The committee is drafting guidelines for displays and other uses of CST public space. They are also interested in producing "roadmap" signs for our majors and minors and other program offerings.
 - Other
- Committee Updates
 - Faculty Senate/UC:
 - UW-System Colleges reorganization was briefly discussed. No one has the relevant details yet of how this will proceed, so we tabled discussion.
 - Proposal to drop interdisciplinary major/minor requirement will get a first reading on 15 November's Senate meeting. The UC is working hard to get necessary votes for passage of this change, which will be very positive to STEM students going forward. All NAS faculty seemed to concur that the requirement is unhelpful, hurts marketing, and prevents some students from taking their ideal major/minor requirements.

Old Business. All old business was tabled until next meeting, due to important new business that Dean of CST requested we attend to.

• Mathematics Discipline: Unit, prefix, major & minor name changes (Jeon) This issue was tabled under next meeting.

APPENDIX C

- LS workroom: Kitchen provisioning and policies. This issue was tabled until next meeting.
- NAS/CST policy on student loss/damage of equipment (Howe) Tabled until next meeting.
- NAS Personnel review policies on "*de facto* faculty administrators" Tabled until next meeting.

New Business

Proposal to change the name of the College of Science and Technology (CST) at the University of Wisconsin-Green Bay to the College of Science, Engineering, and Technology (CSET).

- A motion was proposed (S. Meyer/Holzem) to approve this proposal.
- Short discussion followed. A few people wished we could slow this
 process down so that our Dean could answer any questions or
 concerns we had about this proposal. It was noted that we were not
 asked to approve the previous name of the College, and some were
 appreciative of this opportunity. Some faculty expressed alternative
 opinions for the name, but the general consensus was that the new
 name will be better in terms of marketing our programs to students.
- The motion passed 19 for/0 against/3 abstentions.

Proposal to establish a School of Engineering at the University of Wisconsin-Green Bay

- Chair Draney introduced the proposal by answering some questions he had posed to Dean Katers by email. The School is planned to begin at the next fiscal year, i.e., July 2018. Katers' current understanding is that only the Engineering Technology faculty (and future hired Engineering faculty) would be part of this School; it is not planned to included Mathematics, Science, or Computer Science faculty. This "School" is so named due to professional tradition, and in recognition of potential naming rights for the school, but in reality it will have the same administrative position as a budgetary unit, so the future CSET would include three units, HUB, School of Engineering, and the (possibly renamed?) remains of NAS.
- Following introduction, some faculty expressed dissatisfaction with being asked to approve this significant proposal without opportunity for clarification. Draney stated that Dean Katers (who was out of town on a previously scheduled meeting) is also frustrated with the timing of events, but persistent opposition from other UW-Campuses to establishing Engineering programs at UW-Green Bay had necessitated this timeline.
- A motion was proposed (Fencl/Wolf) to accept the School of Engineering Proposal "under the condition of significant faculty input". Much discussion followed; Some faculty objected

APPENDIX C

to the addition on the grounds of inadequate precision, but mainly Chair Draney and others worried that approving such a conditional proposal was tantamount to not approving the proposal provided, and would not allow the proposal to move forward. Eventually a consensus emerged that it was important that we not stand in the way of our own good opportunities, and that we could afford to trust administration in this matter because there will be many future opportunities for us to provide input or withhold our approval of anything we disagree with.

- A motion was proposed (Holzem/Thota) to amend the first proposal by eliminating the conditional clause. After some discussion (including assurance of following Robert's Rules of Order), the motion passed 19/2/3.
- The amended motion (simply to approve of the proposal to establish a School of Engineering at UW-Green Bay) then passed 22/0/2.
- CCIHS Requirements for Introduction to Environmental Sciences...this proposal was tabled until next meeting, due to lack of time.
- Einstein Project STEM Expo, 3 Feb. 2018, 9-4. We discussed this event, which is a big opportunity to get our name "out there" which was initially developed by Luczaj. He is not able to take the lead this year, and Grubisha volunteered to do so; Holzem also volunteered to help out on the day.

The meeting was adjoured at 4 pm so that the Executive Committee tenure review of professor Currier could commence.

cc: John Katers, Dean of Sciences and Technology Secretary of the Faculty and Staff

APPENDIX D



November 1, 2017

Dear Dr. Katers,

The Academic Affairs Council met yesterday to consider the two proposals to form a School of Engineering and to change the name of the College of Science and Technology (CST) to the College of Science, Engineering and Technology (CSET). After discussion and consideration of the proposal as presented by Dr. Patricia Terry who attended the meeting, the AAC voted unanimously to approve the both proposals.

Sincerely,

Sylvia (Mimi) Kubsch, Chair AAC

APPENDIX E



December 1, 2017

Dr. John Katers Dean, College of Science and Technology University of Wisconsin-Green Bay 2420 Nicolet Drive Green Bay, WI 54311

Dear Dean Katers:

It is with great pleasure that I am writing this letter expressing my support for the establishment of a School of Engineering and Mechanical Engineering program at the University of Wisconsin-Green Bay (UWGB). As the President of Infinity Machine & Engineering Corp., which has been expanding rapidly since its formation in 2003, I can unequivocally state that the need for engineering talent is critical to our continued growth and success. Given the nature of our products, which serve the paper industry throughout the world, mechanical engineers are particularly important and I applaud the efforts of UWGB to create a local source of talent in this area.

After reviewing the implementation plan and curriculum for the mechanical engineering program, I believe that graduates of the program will be well equipped to meet our workforce needs, as well as the needs of other companies in the region. Based on our discussions, I am also very willing to share our expertise in helping UWGB optimize the curriculum through our involvement on an Advisory Board. I am also particularly excited about the opportunity for these locally educated students to be involved in internships and capstone projects with Infinity Machine, as this provides great opportunities for hands-on learning, which would not only benefit the students but also expose them to the many career opportunities in engineering that exist within our growing company.

On a more personal note, I made the choice to attend the University of Wisconsin-Green Bay as a student athlete in the fall of 1982. At that time, I had a strong interest in engineering, which was unfortunately not available at UWGB. Therefore, upon completing my athletic eligibility after seven semesters, I made the decision to transfer to the Milwaukee School of Engineering where I ultimately completed my bachelor's degree in mechanical engineering several years later. My career then took me away from the Green Bay area, which is likely the case for many others that do not have local access to an engineering program. However, when the opportunity presented itself to start Infinity Machine the choice was clear that it should be in Green Bay.

In summary, the decision by UWGB to pursue approval by the Board of Regents for a School of Engineering and a program in Mechanical Engineering is certainly welcome news and I again want to express my utmost support. Good luck with your efforts in moving this important community initiative forward, and please do not hesitate to contact me at 920-965-0222 or ssantaga@infinitymec.com if I can be of any additional assistance.

Sincerely,

Scott Santaga President Infinity Machine & Engineering Corp.

Infinity Machine & Engineering Corp.

USA Headquarters: 2249 American Blvd | De Pere, WI 54115 | USA | Tel: (+1) 920-965-0222 | Fax: (+1) 920-965-0223 | info@infinitymec.com



APPENDIX F

December 4, 2017

John F. Katers University of Wisconsin-Green Bay 2420 Nicolet Drive Green Bay, WI 54311-7001

Dear John -

As we've discussed previously, the Foth Companies (Foth) strongly supports the efforts to implement a school of engineering at the University of Wisconsin-Green Bay (UWGB).

Founded in 1938, in Green Bay, Wisconsin, Foth is the largest Wisconsin headquartered engineering consulting firm in the United States. We provide infrastructure, environmental and production solution services to a variety of government, industrial and commercial clients. Our more than 600 employee members are based largely in 21 locations, with just less than half of those members are in our Green Bay area location. The talent is this location is comprised of civil, environmental, chemical, mechanical and electrical engineers – with the mechanical and electrical groups being the largest of the disciplines.

Having an engineering program in northeastern Wisconsin would greatly benefit our company and the region. Consistent with the economic forecasts for the region, Foth is planning for considerable growth and a need to replace an aging workforce with new talent – talent which is short supply and high demand.

Given the local talent shortage, while our current growth needs require us to recruit talent from outside the area, our company is among a number of employers in the region who, as part of a long-term recruiting strategy, actively promote science, technology, engineering, and math (STEM) education at the middle- and high-school levels. The goal of this activity is to encourage the youth in our community to pursue advanced education in engineering. However, for students to receive a degree in engineering, they currently need to leave the region.

My personal experience resembles the above scenario. I was raised in the Green Bay area and began my college education at UWGB. However, because UWGB did not offer an engineering program, I needed to transfer to UW-Madison to earn my BS in Mechanical Engineering. In my case, I moved back to the area after college to begin my career. However, that is where my story is different than many. The concern we have as a company, and for our region, is that when students have to leave the region to attend college, they may also be compelled to begin their careers outside of the region. This drain of talent from our region is of detriment to Foth and to the economic well-being of our area.

APPENDIX F

While the implementation of an engineering technology program was a step in the right direction for UWGB, it is of only limited value to companies like Foth. Professional engineering licensing requirements require an ABET accredited engineering program (as differentiated from an engineering technology program). An ABET accredited program at UWGB would include coursework in the principles of motion, energy, force, and materials, as well as elective courses in such areas as biomechanics, thermodynamics, fluid mechanics, shock and vibration analysis, and robotics and mechatronics. This curriculum would be readily applied to the production solutions consulting services Foth provides.

In building an engineering program at UWGB, Foth looks forward to the opportunity to engage with faculty on specific curriculum offerings, to collaborate on capstone projects, and to employ future UWGB engineering students in internships. As a sign of our commitment of the efforts of UWGB to establish a school of engineering and implement a BSME degree program, Foth will be submitting a pledge for both annual and endowed scholarships to be awarded to students pursuing their engineering degree.

Educating, retaining and employing talent in our area, with high-paying engineering jobs, is certain to not only contribute to Foth's growth, but to the economic well-being of our region as a whole. I will forward to continued updates on your progress.

Sincerely,

The Foth Companies

full of Homel

Randall J. Homel, P.E. Chief Executive Officer

APPENDIX G

Pop Paper Converting Machine Company

2300 South Ashland Ave. P.O. Box 19005 Green Bay, WI 54307-9005 USA t. +1 (920) 494-5601 f. +1 (920) 494-8865 pcmc.com

December 4, 2017

This letter is in support of the application for UWGB to receive approval for a Mechanical Engineering Program. Paper Converting Machine Company (PCMC) has been located in Green Bay, WI supporting the paper industry for 98 years. The primary function of PCMC is to design and build paper converting machinery, primarily for the towel and tissue industry, which has several paper mills within a 50 mile radius of Green Bay. PCMC products are sold worldwide. PCMC employs 750 highly skilled Associates in Green Bay, with 140 of those working in the engineering department in various capacities. PCMC annual sales revenue is \$200 million per year with an annual payroll of \$60 Million.

The few details mentioned above very quickly demonstrate that PCMC is one of many local Green Bay companies that has a significant impact on the local economy and has a significant need for local educational programs that will develop the technological leaders that will sustain PCMC for the next 98 years. PCMC has committed to the existing state engineering programs over the last 15 years through an extensive summer intern program. Only recently in the last year, since UWGB formalized the engineering technology program locally, we have been able to expand those internships to year round opportunities for students. This past year PCMC had four UWGB engineering technology students that have been working part time in engineering capacities while going to school. One is a local military veteran that already achieved a two year Associate degree at NWTC and another was a PCMC full time Mechanical Designer that had a family and desired a four year degree, and the UWGB programming provided him that option and convenience. A third student, originally from Pulaski, transferred from UW Stout for financial issues and the fourth student originally graduated from Madison and wanted to pursue a local engineering degree when medical school was not an option.

Development of an engineering program at UWGB makes sense and will be a huge asset to the manufacturing sector of NE Wisconsin. The need for a local source of Associates (employees) with technical degrees continues to grow. Having an additional 4 year college degree program for engineering in Green Bay and north, east of Minneapolis and south of Michigan Tech. provides opportunities for local business, employees and high school students. High school students benefit from a local option to obtain a high skilled technical engineering degree closer webmiller


Pop Paper Converting Machine Company

2300 South Ashland Ave. P.O. Box 19005 Green Bay, WI 54307-9005 USA t. +1 (920) 494-5601 f. +1 (920) 494-8865 pcmc.com

to home. Existing employees benefit that may want to return to school or advance an existing two year Associate degree into a 4 year degree while maintaining their current job and family commitments. The partnership between the business community and UWGB would be very unique. Having the concentration of manufacturing in NE Wisconsin so close to campus allows UWGB to offer students a wide array of experiences within a 30 minute drive from their dorm room. Internships, full or part time employment opportunities and real world engineering class projects develop and grow when business and higher education come together. Each partner has a need to fill and common interests and goals develop. High School teachers, college professors and business leaders coming together to provide an environment that will benefit NE Wisconsin. That makes good sense.

PCMC is very supportive of this application for UWGB to establish a Mechanical Engineering program and views this as an opportunity to invest in the future of NE Wisconsin and local Manufacturing.

President, PCMC

Mike Kwaterski

Director of Human Resources, PCMC



Program Authorization (Implementation) Master of Arts in Applied Professional Studies UW-Parkside

EDUCATION COMMITTEE

Resolution I.1.e.:

That, upon the recommendation of the Chancellor of UW-Parkside and the President of the University of Wisconsin System, the Chancellor is authorized to implement the Master of Arts in Applied Professional Studies.

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NEW PROGRAM AUTHORIZATION MASTER OF ARTS IN APPLIED PROFESSIONAL STUDIES UNIVERSITY OF WISCONSIN-PARKSIDE

EXECUTIVE SUMMARY

BACKGROUND

The University of Wisconsin-Parkside submits this request to establish a Master of Arts in Applied Professional Studies. This proposal is presented in accord with the procedures outlined in Academic Planning and Program Review (SYS 102, revised July 2016, available at <u>https://www.wisconsin.edu/program-planning/</u>).

REQUESTED ACTION

Adoption of Resolution I.1.e., approving the implementation of the Master of Arts degree in Applied Professional Studies proposed by the University of Wisconsin-Parkside.

DISCUSSION

Program Description. The University of Wisconsin Parkside, through its College of Social Sciences and Professional Studies and the Center for Professional Studies, proposes the establishment of a Master of Arts in Applied Professional Studies (MAPS). The MAPS is an applied professional program with workforce development, organizational leadership and personal development at the core of its vision. Students seeking this path are able to graduate with a unique skill set that does not exist in a current degree program such as general management and social and community service managers. The mission of the program is to develop advanced skill sets in multiple subject areas to meet emerging workforce development needs. The graduate degree is designed to provide students an accessible, online, and affordable opportunity to achieve professional and personal goals that align with potential for career advancement and upskilling needs.

Mission. The proposed program allows UW-Parkside to "extend knowledge and its application beyond the boundaries of the campus" by offering the program in an online format, and "to serve and stimulate society by developing in students heightened intellectual, cultural, and humane sensitivities, scientific, professional, and technological expertise, and a sense of value and purpose," through the interdisciplinary course content, which directly supports the mission of the <u>University of Wisconsin System</u>.

The MAPS program aligns with <u>UW-Parkside's mission</u> and <u>core values</u>, specifically academic excellence and community engagement. UW-Parkside is deepening its community relationships in southeastern Wisconsin by preparing its students to enter the workforce. The

MAPS extends this commitment by offering an opportunity to learn essential career-relevant¹ applied professional skills to those who are already in the workforce, and are ready for the next step in their career, whether it be a promotion or a lateral career move.

The Strategic Plan, Pillar of Excellence 3: Advance Economic Growth through Community Engagement and Partnerships² called for building the current graduate-level enrollments, offering an online graduate-level degree, with a strong advising component, all of which has been accomplished in the development of the proposed program. The program will follow the advising model developed by the Adult and Continuing Education Leadership Committee discussed in detail in the Emerging Knowledge and Advancing Directions sections of this document.

Market and Student Demand. Support for the content of the proposed program has been expressed by the leaders of local and regional business during quarterly round-table discussions hosted at UW- Parkside between spring 2016 and spring 2017. These employers consistently reported that new college graduates lack many necessary soft skills to advance and be successful in their careers, skills that are addressed in the program's core requirements. The program was designed after meeting with leader input from the Racine County Economic Development Corporation that had surveyed its membership and shared constituent feedback from prior board and committee meetings.

Moreover, larger economic trends indicate that Wisconsin has shifted its statewide focus from one addressing economic development to one that includes workforce development. Secondary education certifications and associate and bachelor degrees can help to gain an entry-level position; the MAPS program is designed to respond to the current and future demands for professions and occupations³ in order to assist individuals who wish to gain promotions, which in turn can work towards the retention of workers in Wisconsin. "Millennial workers agree: the majority rank improving skills and qualifications at the top of their career wish list and many are even willing to spend their own time and money to do so."⁴

Credit Load and Tuition. This program is a 30-credit, interdisciplinary master's degree combining the academic social sciences and applied professional experience. There is a common set of core courses (15 credits) and a concentration (15 credits). Within the degree, students may select from one of three separate and unique concentrations: Leadership in Public Service, Data Visualization and Interpretation, and/or Content Expertise for the Professional Educator. Students also have the opportunity to explore graduate-level coursework across the concentrations for a self-designed degree. Students who wish to design their own degree program will be required to complete the core courses and an additional 15 credits of graduate level electives within the MAPS program.

For academic year 2017-18, the UW-Parkside graduate tuition is \$497.78 per credit for resident students, \$1,020.27 for nonresident students and \$716.38 for Midwest Exchange

¹ UW-Parkside 20147 – 2018 Strategic Plan Executive Summary, page 3.

² UW-Parkside 20147 – 2018 Strategic Plan Executive Summary, page 11.

³ UW-Parkside 20147 – 2018 Strategic Plan Executive Summary, page 5.

⁴ A Skills Revolution: From Consumers of Work To Builders of Talent, Manpower Group (2017).

students. There is a tuition plateau (standard rate) for full-time students who enroll in 9-12 credits at \$4,469.40 per semester for resident students, \$9,171.81 for nonresident students and \$6,436.80 for Midwest Exchange students. Segregated fees are \$60.58 per credit (with a full-time plateau of \$545.28); the distance education tuition surcharge is \$65 per online credit. All classes will be offered online, with the exception of one face-to-face elective course, so the additional cost to the student will be approximately \$195 per three-credit course. No other special fees or charges are anticipated.

UW-Parkside will be the most affordable online applied professional studies master's degree program in the region at the current per-credit tuition rate. The University of Wisconsin-Oshkosh offers a Master of Arts in Public Administration, which has some curricular overlap, at \$536.80 per credit and 36 credits required for the degree, and Ball State University offers a Master of Arts in Executive Development for Public Service at \$603 per credit and 30 credits required for the degree.

Program Funding and Management. All of the courses required to support the proposed M.A. in Applied Professional Studies will be taught by the five participating department current faculty and instructional staff. There will be courses offered during the summer term, and, therefore, the salary and fringe expenses are calculated based on the current personnel cost of faculty projected to teach during that term. There are no expenses for facilities as this is an online program, as well as no equipment expenses are projected. No new faculty hires will be required to begin this program because of the interdisciplinary nature of existing courses offered throughout departments within the college. The program will add 0.2, 0.5 and 0.5 FTE faculty in years 3-5, respectively; and add 0.5 and 0.5 FTE for administration in years 4 and 5. The budget projection reflects standard UW-Parkside graduate tuition costs.

RELATED REGENT AND UW SYSTEM POLICIES

Regent Policy 4-12: Academic Program Planning, Review, and Approval in the University of Wisconsin System.

UW System Administrative Policy 102: Policy on University of Wisconsin System Array Management: Program Planning, Delivery, Review, and Reporting.

REQUEST FOR AUTHORIZATION TO IMPLEMENT A MASTER OF ARTS IN APPLIED PROFESSIONAL STUDIES AT UW-PARKSIDE PREPARED BY UW-PARKSIDE

ABSTRACT

The University of Wisconsin Parkside, through its College of Social Sciences and Professional Studies and the Center for Professional Studies, proposes the establishment of a Master of Arts in Applied Professional Studies (MAPS). The MAPS is an applied professional program with workforce development, organizational leadership and personal development at the core of its vision. The mission of the program is to develop advanced skill sets in multiple subject areas to meet emerging workforce development needs. The graduate degree is designed to provide students an accessible, online, and affordable opportunity to achieve professional and personal goals that align with potential for career advancement and upskilling needs.

This program is a 30-credit, interdisciplinary master's degree combining the academic social sciences and applied professional experience. There is a common set of core courses (15 credits) and a concentration (15 credits). Within the degree, students may select from one of three separate and unique concentrations: Leadership in Public Service, Data Visualization and Interpretation, and/or Content Expertise for the Professional Educator. Students also have the opportunity to explore graduate-level coursework across the concentrations for a self-designed degree. Students seeking this path are able to graduate with a unique skill set that does not exist in a current degree program such as general management and social and community service managers. Students who wish to design their own degree program will be required to complete the core courses and an additional 15 credits of graduate-level electives within the MAPS program.

PROGRAM IDENTIFICATION

Institution Name

University of Wisconsin-Parkside

Title of Proposed Program Applied Professional Studies

Degree/Major Designation Master of Arts

Mode of Delivery

Single institution; distance education/online (30 credits); one optional face-to-face elective course (3 credits).

Projected Enrollment by Year Five of Program

As noted in Table 1 below, UW-Parkside anticipates that the proposed degree will enroll upwards of 60 new students over the five-year period and graduate 31 students by the end of year

five. Following the results of the Master's Completion Project¹ performed by the Council of Graduate Schools, the projected average retention rate is 80 percent for students in this program, which represents an average between STEM programs and MBA programs since data is not available for programs exactly like the MAPS program.

Students/Year	Year 1	Year 2	Year 3	Year 4	Year 5			
New Students	8	10	15	15	15			
Continuing Students	0	6	10	14	16			
Total Headcount	8	16	25	29	31			
Graduating Students	0	4	7	9	11			

Table 1: Five Year Projected Student Enrollments

Tuition Structure

For academic year 2017-18, the UW-Parkside graduate tuition is \$497.78 per credit for resident students, \$1,020.27 for nonresident students and \$716.38 for Midwest Exchange students. There is a tuition plateau (standard rate) for full-time students who enroll in 9-12 credits at \$4,469.40 per semester for resident students, \$9,171.81 for nonresident students and \$6,436.80 for Midwest Exchange students. Segregated fees are \$60.58 per credit (with a full-time plateau of \$545.28); the distance education tuition surcharge is \$65 per online credit. All classes will be offered online, with the exception of one face-to-face elective course, so the additional cost to the student will be approximately \$195 per three-credit course. No other special fees or charges are anticipated.

UW-Parkside will be the most affordable online applied professional studies master's degree program in the region at the current per-credit tuition rate. The University of Wisconsin-Oshkosh offers a Master of Arts in Public Administration, which has some curricular overlap, at \$536.80 per credit and 36 credits required for the degree, and Ball State University offers a Master of Arts in Executive Development for Public Service at \$603 per credit and 30 credits required for the degree.

Department or Functional Equivalent

Center for Professional Studies

College, School, or Functional Equivalent

College of Social Sciences and Professional Studies

Proposed Date of Implementation Fall 2018

INTRODUCTION

Rationale and Relation to Mission

The proposed program allows UW-Parkside to "extend knowledge and its application beyond the boundaries of the campus" by offering the program in an online format and "to serve

¹ <u>Completion and Attrition in STEM Master's Program: Pilot Study Findings</u> (2013), <u>http://cgsnet.org/masters-completion-project</u>.

and stimulate society by developing in students heightened intellectual, cultural, and humane sensitivities, scientific, professional, and technological expertise, and a sense of value and purpose," through the interdisciplinary course content, which directly supports the mission of the <u>University of Wisconsin System</u>.

The MAPS program aligns with <u>UW-Parkside's mission</u> and <u>core values</u> specifically academic excellence and community engagement. In 2017, a synergistic interaction was produced among the newly adopted <u>civic action plan</u>, UW-Parkside's <u>academic plan</u> which seeks to increase diversity and inclusion, and its overarching <u>strategic pillars of community</u> <u>engagement</u> as described in the 2014-2018 Strategic Plan Executive Summary. This synergy has created wider and stronger engagement with the community. UW-Parkside is deepening its community relationships in southeastern Wisconsin by preparing its students to enter the workforce. The MAPS extends this commitment by offering an opportunity to learn essential career-relevant² applied professional skills to those who are already in the workforce, and are ready for the next step in their career, whether it be a promotion or a lateral career move.

Wisconsin has shifted its statewide focus from one addressing economic development to one that includes workforce development. Secondary education certifications, associate degrees and bachelor degrees can help to gain entry-level positions; the MAPS program is designed to respond to the current and future demands for professions and occupations³ in order to assist individuals who wish to gain promotions, which in turn can work towards the retention of workers in Wisconsin. Millennial workers agree, "[T]he majority rank improving skills and qualifications at the top of their career wish list and many are even willing to spend their own time and money to do so."⁴

UW-Parkside's Strategic Plan, Pillar of Excellence 3: Advance Economic Growth through Community Engagement and Partnerships⁵ called for building the current graduate-level enrollments and offering an online graduate-level degree, with a strong advising component, all of which has been accomplished in the development of this proposed program. The program will follow the advising model developed by the Adult and Continuing Education Leadership Committee discussed in detail in the Emerging Knowledge and Advancing Directions sections of this document.

Support for the content of this proposed program has been expressed by the leaders of local and regional businesses during quarterly round-table discussions hosted at UW-Parkside between spring 2016 and spring 2017. These employers consistently reported that new college graduates lack many necessary soft skills to advance and be successful in their careers, skills that are addressed in the program's core requirements. The program was designed after meeting with leaders who provided input from the Racine County Economic Development Corporation that had surveyed its membership and shared constituent feedback from prior board and committee meetings.

² UW-Parkside 20147 – 2018 Strategic Plan Executive Summary, page 3.

³ UW-Parkside 20147 – 2018 Strategic Plan Executive Summary, page 5.

⁴ A Skills Revolution: From Consumers of Work To Builders of Talent, Manpower Group (2017).

⁵ UW-Parkside 20147 – 2018 Strategic Plan Executive Summary, page 11.

Need as Suggested by Current Student Demand

An interest survey of students in upper-level classes in the social sciences in fall 2017 yielded 260 responses (a 60% response rate). Of the respondents, 66% were seniors and 29% were juniors. Sixty-four percent indicated that, in considering graduate study, they would prefer a skills-based program. Students expressed an interest in all three proposed tracks of the master's in professional studies, with 53% interested in public service, 45% in data visualization, and 59% in an applied content area. Of those who were interested in a specific content area, 47% identified criminal justice, 32% sociology, 26% history, 21% political science, and 19% geography.

U.S. News reports that a Master of Professional Studies offers prospective international students hands-on learning with industry leaders and can prove cost-effective for prospective international students.⁶ This strategy is supported through the recently created Institute for China Studies. The Institute's mission is to promote and coordinate China-related teaching, research, and services at the University of Wisconsin-Parkside. Additionally, the Institute's director is devoted to educational and cultural exchanges between the U.S. and China, and has taught Chinese managers and scholars in a series of seminars (four weeks of intensive training) on the social and cultural background of American management theories and practices. The MAPS director expects to market this proposed degree program to this particular group of international individuals.

Need as Suggested by Market Demand

According to the University of Wisconsin System 2017 study on the alignment of workforce needs and the academic array available to students, each year until 2022 there will be a need for 1,413 individuals with master's degrees to fill open positions.⁷ In quarterly round-table discussions hosted at UW-Parkside between spring 2016 and spring 2017, employers consistently reported that new college graduates lack many necessary soft skills to advance and be successful in their careers. EMSI data supports local employer input; some of the most relevant soft skills found in job postings were leadership, creativity, listening, ethics, team building, critical thinking, and persuasive communication. These skills are also part of the MAPS core curriculum. When comparing all occupations, EMSI data was consistent with reporting high demand soft skills rankings in job postings.

The MAPS program with a concentration in public service meets a significant need in local, regional, and national demands for public administration-related occupations. Job posting data from 2011-2017 consistently showed that the highest demand for top hard skills in over 15,000 job postings for public administration-related occupations were management, written and oral communication, administration, education, innovation, problem solving, social work, research, and decision-making. All reported competencies are included in the MAPS core curriculum. Research by EMSI shows a total increase of 35% growth nationwide from 2001-2016 for public administration-related occupations that includes general management and social

⁶ Durrani, Anayat. *US Master of Professional Studies: 3 Facts for International Students* US News and World Report, <u>https://www.usnews.com/education/best-graduate-schools/articles/2017-05-23/us-master-of-professional-studies-3-facts-for-international-students</u>, May 23, 2017.

⁷ Demonstrating the Alignment of the University of Wisconsin System Academic Array with the Workforce Needs of Wisconsin, Stephen H. Kolison, Jr. (2017).

and community service managers. Estimated job growth for public administration-related careers between 2017 and 2027 is projected at 14% overall nationwide. A subset of that data shows social and community services managers with a greater projected increase of 6.71%. A review of the 2017-2022 data for the next five years shows an overall 8% increase for all related occupations and a 7.61% growth for social and community services managers. The median salary for professionals in these types of occupations is \$77,979, which is significantly more than the median salary of \$45,240 for all occupations as reported by the May 2016 U.S. Bureau of Labor Statistics report.

The accumulation of data in the 21st century and the concomitant increase in the demand to make data-driven decisions are the most impactful and change generative features of the organizational and management sector. Professionals across all sectors must be able to organize, interpret, and communicate large amounts of data to a technologically diverse audience. In southeastern Wisconsin, the need for data visualization skills has been recognized by Jenny Trick, Executive Director of the Racine Economic Development Corporation, as well as the by the Southeast Chapter of the Public Relations Society of America. Marketing and Public Relations is a high-growth employment area in Wisconsin; jobs are expected to increase by 19% by 2024 (WORKnet, 2017).

An important and urgent consideration is the fast-paced development of business and industry in southeastern Wisconsin. Manpower's 2016-17 study estimates that there will be an upward surge of new and advanced skills needed to prepare individuals for 165 new roles in the workforce. In order to retain and attract new talent to support job growth, it is critical that competency-based programs like the MAPS are available to help prepare individuals with required skills to lead and manage others. There will be a minimum of 33,000 additional open positions in the southeast Wisconsin labor market due to new development and expansion of companies such as Foxconn, Amazon, Uline and others.

Emerging Knowledge and Advancing New Directions

The proposed program has been created after extensive research and consultation with local economic development professionals. Manpower Group reports that skills and talent matter. Skill cycles are shorter and 65% of the jobs that Generation Z will perform do not even exist yet. The need for robust talent pipelines with relevant skills and an appetite for continuous learning will be greater than ever in the Skills Revolution, where the focus will be on developing resilient careers versus just jobs. According to Manpower, "Helping people upskill and adapt to this fast-changing world of work will be the defining labor challenge of our time."⁸

The skills in the MAPS are designed to be broadly applicable to the challenges of the 21st century workplace, which require adaptability, flexibility, inclusive communication skills, and nimbleness with various current and yet-to-be-determined technologies. Further, these skills have been proven to be useful to all sectors of the workforce: manufacturing, healthcare, service industries, social welfare, and education.

⁸ A Skills Revolution: From Consumers of Work To Builders of Talent, Manpower Group (2017).

In alignment with the Adult and Continuing Education Leadership Committee initiative on-campus at UW-Parkside, the MAPS program has developed structured supports to increase student success that are tailored to the adult learner. During the 2015 academic year, the university partnered with the Council on Adult and Experiential Learning (CAEL), and students at UW-Parkside completed the *Adult Learning Inventory* (*ALI*), which reflects the perceptions of the university's adult students. The institution completed another survey, the *Institutional Self-Assessment Survey* (*ISAS*), which reflects the perceptions of the faculty, staff, and administrators on the campus. The combination of these two constitutes the *Adult Learning Focused Institution* (*ALFI*) *Toolkit*. One challenge identified through this research was that students do not receive credit for learning derived from prior work and life experience. UW-Parkside is actively working on processes to improve this particular benchmark by encouraging a wider use of Prior Learning Assessment campus-wide.

The MAPS program values the work experience and more importantly the knowledge that graduate students bring into the program. During the development process of new courses, faculty have created mechanisms to assess prior learning, offering students the ability to articulate their knowledge in a variety of ways. The MAPS program will be the first of its kind in the state, and one of few that can identify for students which courses allow prior learning assessment (PLA) and what those assessment methods will be. The program will use the standards set by the Council on Adult and Experiential Learning (CAEL) as a guideline to its implementation of PLA.

In alignment with UW-Parkside's <u>Academic Plan</u> and CAEL recommendations, the MAPS program student support will follow the Integrated, One-Stop Center for Adults model. For the adult learner, the one-stop shop will increase recruitment yields and retention of adult students, improving adult student services through a more coordinated, campus-wide student services office.

DESCRIPTION OF PROGRAM

General Structure

The proposed MAPS program will focus on adult and non-traditional students who hold a bachelor's degree, have the desire to continue their skill development, and expand the opportunity to advance in their careers. The MAPS program will be offered online, with degree completion for full-time students in two years (15 credits each year, including fall, spring and summer).

The program will have a Student Success coach, who is a dedicated current faculty member in the program with responsibility to advise and coach MAPS students. Faculty and staff will have online office hours, as well as access by telephone and email.

Admission into the program will follow the established procedures at UW-Parkside. Admission applications will be accepted on a rolling basis. An applicant is required to have an undergraduate degree with a cumulative GPA of 2.75, or if the applicants has a graduate degree, the GPA requirement is waived. Applicants are also required to submit all undergraduate and graduate transcripts, a current resume/curriculum vitae (CV), and two letters of recommendation, preferably one from a current supervisor if employed. For applicants who do not meet the admission criteria, admission with probationary status may be granted after taking into consideration the applicant's special qualifications and circumstances. Students admitted on probation will be on probation for their first 9 semester credits. A student who is admitted on probation is required to attain a minimum GPA of 3.00 on the first 9-credit hours of coursework completed at UW-Parkside. Students who do not meet the above requirement will be dropped from the program. Applicants are not required to take the GRE or MAT assessment for admission to the program.

Institutional Program Array

The proposed program enhances education at the UW-Parkside integrating social sciences and professional studies at the graduate level with a variety of undergraduate majors. The MAPS fills a gap in UW-Parkside's graduate program array that allows students to pursue an applied master's degree within their interest, as well as offering a professional skill development opportunity for individuals with any major.

Other Programs in the University of Wisconsin System

UW-Oshkosh offers an online Master's in Public Administration. This program and MAPS are similar in that they both offer a core curriculum and opportunities to pursue specializations. While there is some overlap between the two, the UW-Oshkosh program focuses primarily on management and administrative skills, evidenced in their 9-credit professional emphases in fire service management, healthcare management, and general public administration. In contrast, the MAPS is less focused on management-level skills and more on individual professional development and the nurturing of public service values as applied to work and career environments. Thus, two of the MAPS concentrations are completely distinct from the UW-Oshkosh emphases. One should also note that it is likely some UW-Oshkosh courses will easily transfer into UW-Parkside's MAPS program.

Collaborative Nature of the Program

The proposed program will be a single institution effort; however, it is designed as an interdisciplinary degree combining the academic social sciences, communication, and professional experiences. As needs evolve and change in the region, efforts will be made to adapt to those needs by whatever means necessary, including continuing the interdisciplinary partnerships across the UW-Parkside campus as well as exploring external partnerships.

Diversity

Consistent with the UW-Parkside <u>Office of Diversity and Inclusion's</u> mission, vision and diversity statement, along with the university's core values, this program will deliver on the promise of diversity and inclusiveness. UW-Parkside consistently ranks as the most diverse campus in the UW System in terms of underrepresented populations and first-generation college students. The MAPS program will recruit from its current and alumni student populations. The CDR 10th day data reports that 33.8% of UW-Parkside's undergraduate students identify as non-white/Caucasian. UW-Parkside is situated in a location in southeastern Wisconsin, an area with the largest percentage of African Americans and Hispanics in the state. Increased access to the online MAPS will mean that there is the possibility for face-to-face (f2f) consultation and assistance that would not be as easily obtained in online degree programs for students who are further from their residence.

Additionally, the online delivery of the MAPS program will enhance diversity since the distance education model enables students, particularly working professionals, from a broad array of geographic areas, including rural areas and cultural and employment settings to enroll. This program will strive to enroll and graduate students from local, national, urban, rural, and international backgrounds allowing for students to draw on each other's experiences and cultural differences in the same professions. The initiatives currently in place at UW-Parkside to recruit and retain the most diverse student body in the UW System will also be available to this program.

The MAPS program outcomes support inclusivity, diversity, and cultural competence through 3 of the 4 outcomes: develop strategies to resolve value-based conflict, consider organizational change in the context of a dynamic society, and employ effective communication strategies for diverse settings and audiences. The core courses required by all students address these learning outcomes through Professional Communication, Formal Organization and the Practicum. Central to Professional Communication is addressing the different meanings and perspectives of communication and what *professional* means in addition to discussing the role of the many forms of *difference* in the workplace. Formal Organization will use a sociological lens to gain a comprehensive understanding of organizations and the individuals and groups that make up organizations. Finally, the Practicum will allow students to put into practice what they have learned, while demonstrating their understanding of institutional culture and its relationship to work.

Many of the MAPS concentration courses contain content that has been intentionally designed to address diversity and inclusion in the public and the private sectors. Learning outcomes in the public service concentration explicitly address the ability of the student to apply critical theory to questions of social justice in community and economic development and to utilize conflict management and resolution strategies in a variety of situations. Learning outcomes in the data visualization and interpretation concentration will focus on the presentation of data and best practices to diverse audiences, data ethics as a social responsibility, and the recognition of the clash between law and cultural values.

The faculty teaching in the program represent very diverse cultures and backgrounds from which the students will be able to draw upon in their courses. Recruiting, hiring, recognizing, and retaining a diverse and quality workforce is a key goal for UW-Parkside. Faculty recruitment practices at UW-Parkside, through its outreach efforts to a wide range of diverse graduate programs, will encourage a diverse applicant pool.

Student Learning Outcomes/Program Objectives

All participating students will integrate theory, research and practice to render professional judgment and choice in applied contexts. This will result in decisions and actions that effectively and ethically promote the viability of organizations and activities in the private and/or public sectors. Student learning outcomes for the degree program are noted in Table 2 and Table 3 below.

Table 2: MAPS Program Outcomes

MAPS Program Outcomes

Graduates will:

- 1. Evaluate and critique existing structures in the public or private sector
- 2. Produce a problem solving policy based on evidence, professional inquiry, and decisive action
- 3. Plan effective implementation strategies

Core outcomes:

- 1. Develop strategies to resolve value based conflict
- 2. Analyze and interpret data in the professional setting
- 3. Consider organizational change in the context of a dynamic society
- 4. Employ effective communication strategies for diverse settings and audiences

Table 3: Concentration Learning Outcomes

Concentration Learning Outcomes

Public Service

- 1. Apply ethical principles to leadership practice in the public and private sectors
- 2. Conduct successful research in public policy analysis
- 3. Develop a public policy position, taking into account both scholarship and interest group narratives
- 4. Apply critical theory to questions of social justice in community and economic development
- 5. Utilize conflict management and resolution strategies in a variety of situations

Data Visualization and Interpretation

- 1. Demonstrate a knowledge of a variety of design and research approaches
- 2. Describe the main goals of data visualization in a way that demonstrates general understanding
- 3. Utilize the different technologies associated with data mining, data visualization, text analytics and data graphics
- 4. Translate data into clear, actionable insights
- 5. Present information clearly, logically, and critically, to support decision making

Content Expertise for the Professional Educator

- 1. Effectively communicate the subject matter of their discipline with other professionals
- 2. Understand current research approaches in their discipline
- 3. Utilize advanced knowledge in the subject matter of their discipline to address a practical challenge
- 4. Articulate the significance of the subject matter of their discipline in an applied setting
- 5. Demonstrate mastery of the subject matter of the discipline through its integration with other disciplines

Assessment of Objectives

The program will include formative and summative assessment methods to evaluate the program learning outcomes and the concentration-specific learning outcomes. Formative assessment methods will include: (1) course embedded assessments; (2) course projects, presentations; (3) research papers; (4) peer reviews; and (5) performance on the practicum project. Summative assessment methods will include: (1) course evaluations; (2) student satisfaction surveys, graduating student surveys; and (3) alumni surveys.

The assessment of the MAPS program will be directed by the Center for Professional Studies Steering Committee. The Steering Committee will meet each semester, with a full review of programmatic assessment results being presented annually. Results will be shared with all faculty teaching in the MAPS program, faculty of the college, students, alumni, and the Provost.

Program Curriculum

The proposed 30-credit online degree will require a combination of core courses with a practicum experience (15 credits) and one of three, self-selected, 15-credit concentration areas: Leadership in Public Service, Data Visualization and Interpretation, and Content Expertise for the Professional Educator. The core courses are designed to ensure that all graduates have the basic, requisite skills needed to succeed in the ever-evolving professional world. The practicum involves a faculty-supervised project that at its core has a business or community partner-identified problem to which the student intern seeks a solution. Table 4 identifies these 15-credit, core courses. Tables 5, 6, and 7 share courses in Leadership in Public Service, Data Visualization and Interpretation, and Content Expertise for the Professional Educator concentrations, respectively. Students who choose the Content Expertise for the Professional Educator may select the political science/ government pathway or the sociology pathway by completing 15 credits in the content area.

	CORE COURSES	
MAPS 700	Formal Organization	3 cr.
MAPS 701	Applied Research for Professionals	3 cr.
MAPS 702	Professional Ethics	3 cr.
MAPS 703	Professional Communication	3 cr.
MAPS 705	Practicum	3 cr.

Table 4: Core Courses

LEADERSHIP IN PUBLIC SERVICE (15 credits required) Global Warming Policy and Governance MAPS 512 3 cr. MAPS 517 Strategic Decision Making 3 cr. MAPS 523 Institutional Racism in America 3 cr. MAPS 606 Advanced Program Evaluation 3 cr. MAPS 710 The Global City 3 cr. **MAPS 720** Foundations of Public Service (Required) 3 cr. **MAPS 721 Public Policy (Required)** 3 cr. MAPS 722 Social Justice and Public Service 3 cr. MAPS 729 Special Topics in Public Service 3 cr. **MAPS 799** Independent Study 1-3 cr.

Table 5: Leadership in Public Service Concentration

Table 6: Data Visualization and Interpretation Concentration

DATA	A VISUALIZATION AND INTERPRETATION (15 cre	dits require	d)	
MAPS 507	Survey Methods		3 cr.	
MAPS 584	Modeling Landscape Ecology		3 cr.	
MAPS 634	Ethics in Data Technology		3 cr.	
MAPS 660	Introduction to GIS Analysis		3 cr.	
MAPS 710	The Global City		3 cr.	
MAPS 730	Data Visualization Concepts (Required)		3 cr.	
MAPS 731	Data Visualization and Communication; Tableau	1 course	1 cr.	
MAPS 732	required	1 cr.		
MAPS 733	3 The Essentials of SPSS for Professionals			
MAPS 739	Special Topics in Data Visualization and Interpretation	r	3 cr.	
MAPS 799 Independent Study				

CONTENT E	XPERTISE FOR THE PROFESSIONAL EDUCATOR (15 credit	s required)
POLITICAL SC	IENCE/GOVERNMENT	
MAPS 512	Global Warming Policy and Governance	3 cr.
MAPS 517	Strategic Decision Making	3 cr.
MAPS 523	Institutional Racism in America	3 cr.
MAPS 710	The Global City	3 cr.
MAPS 720	Foundations of Public Service	3 cr.
MAPS 721	Public Policy (Required)	3 cr.
MAPS 799	Independent Study	1-3 cr.
SOCIOLOGY		
MAPS 523	Institutional Racism in America	3 cr.
MAPS 710	The Global City	3 cr.
MAPS 720	Foundations of Public Service	3 cr.
MAPS 721	Public Policy	3 cr.
MAPS 722	Social Justice and Public Service (Required)	3 cr.
MAPS 729	Special Topics in Public Service	3 cr.
MAPS 799	Independent Study	1-3 cr.

 Table 7: Content Expertise for the Professional Educators Concentration

Students also have the opportunity to explore graduate-level coursework across the concentrations for a self-designed degree. Students seeking this path are able to graduate with a unique skill set that does not exist in a current degree program. Students who wish to design their own degree program will be required to complete the core courses and an additional 15 credits of graduate-level electives within the MAPS program. Self-designed degree programs must be created in consultation with a MAPS advisor and require an approved Individualized Degree Plan.

Projected Time to Degree

The proposed program is designed to be as flexible as possible, allowing students to complete the degree requirements on their own terms/timetable. Assuming a six-credit load per semester and a three-credit load in the summer, most students will be able to complete the proposed program in two years. A student could be aggressive and complete the program in one calendar year by taking 12, 12, and six credits in the fall, spring and summer semesters, respectively.

Finally, if a student wishes to move at a slower pace, the flexible schedule and delivery format, along with the frequent course offerings, allow a student to be self-paced, subject only to the seven-year completion window for graduate programs currently in place at UW-Parkside.

Program Review

The Center for Professional Studies (CPS) Steering Committee will review the program annually with the Director of the CPS responsible for the oversight. The Steering Committee is composed of a faculty director, faculty, academic instructional staff and academic staff. The CPS will manage the resources to ensure that funds are available to invest in the program as needed in consultation with the Dean of the College of Social Sciences and Professional Studies. The CPS and others as required will conduct the required five-year formal program review. New programs are reviewed approximately every five years. The program will work with internal and external partners to ensure a high-quality graduate learning experience is being delivered to students. Such efforts will include periodic review of learning outcomes and levels of success of graduates in their chosen field. The program will also work with internal and external partners to ensure equity and inclusive excellence are achieved. This will include review of the course array, review of student and graduate demographics, along with meetings with healthcare industry partners and executives, to ensure the program is providing the graduates needed by the industry. Program faculty will review formative and summative evaluation results annually to inform ongoing program development.

The program will work with internal and external partners to ensure quality is being delivered to students. Such efforts will include periodic review of learning outcomes and levels of success of graduates in their chosen field. The program will also work with internal and external partners, including meeting with industry partners and executives, to ensure the program is providing graduates with competencies needed by the industry.

Accreditation

UW-Parkside is currently authorized by the Higher Learning Commission to offer the M.A. degrees in the online (hybrid) delivery formats. Therefore, the Master of Arts in Applied Professional Studies would not require professional accreditation.

	University of Wise Cost and Revenue Projections For Newly Propose	consin - Parl	kside MA in App	lied Profess	ional Studies	5
2	Items	u riogram -	ма ш Арр	Projection		5
		2018	2019	2020	2021	2022
	4	Year 1	Year 2	Year 3	Year 4	Year 5
I	Enrollment (New Student) Headcount	8	10	15	15	15
	Enrollment (Continuing Student) Headcount ^a	0	6	10	15	16
	Enrollment (New Student) FTE ^b	6 66	8 2 2	12.5	12.5	12.5
	Enrollment (Continuing Student) FTE	0.00	0.55	12.5	12.5	12.3
			SINTERIC DISCOURSE DI	International State		
п	Total New Credit Hours (# new sections x credits per section)	30	15	0	0	0
	Existing Credit Hours ^c	18	48	63	63	63
						ndania 1990 - States
ш	FTE of New F aculty/Instr uctional Staff ^d	0	0	0.2	0.5	0.5
	FTE of Current Fac/IAS ^e	0.875	1.125	1	1.125	0.875
	FTE of New Admin Staff	0	0	0	0.5	1
Same	FTE Current Admin Staff	0.2	0.2	0.2	0.2	0.2
and a second						and an an and an and an
	New Revenues	an and a second s	in initiant	AND	interior and in the second	
	From Tuition '	\$59,734	\$119,467	\$185,174	\$223,553	\$231,468
	From Fees [®]	\$7,800	\$15,600	\$24,180	\$29,192	\$30,225
	Program Revenue - Grants					
	Program Revenue - Other					
	GPR (re)allocation				:	
	Total New Revenue	\$67,534	\$135,067	\$209,354	\$252,745	\$261,693
	Expenses					
	Salaries plus Fringes	Mac 002	#24.010	040.550	#20 400	
	Puculy/Instructional Staff	\$35,803	\$34,810	\$42,553	\$32,422	\$42,553
	Other Expenses			The second s	\$22,300	\$31,000
	Facilities	YW 14 1	A. C. Andrewski (Marine		Lanna a seconda de la constante	11-12-14-14-14-14-14-14-14-14-14-14-14-14-14-
	Equipment					
	Other: Recruitment/marketing	\$10,000	\$10,000	\$10,000	\$8,000	\$8,000
	Total Expenses	\$45,803	\$44,810	\$52,553	\$62,922	\$101,553
AND AND A	anorodiana bereantana (u. 1. amananangan dan kasakanangan yang baryan dan kasakanananan menjari) (u. 1. amananangan (u. 1. amananangan kasakanananan kasakanananan kasakanan kasakanan kasakanan kasakanan kasak (u. 1. amanananananananananananananananananana	เลสนิยมเป็นสร้างกา พบฟรียุกัสปาส สร้านโร้างสร้างและสรรณ์ได้เรื่อง	มา รถี่เริ่มกุลกุลกุลกุลกิลรูก การการการการการการการการการการการการการก	(المراجع المراجع) المراجع المراجع		800)
VI	Net Revenue	\$21,731	\$90,257	\$156,801	\$189,823	\$160,140
Subn	hit hudget narrative in MS Word Format	81. 10.5				
Suon	Narrative: Explanation of the Numbers and Other Ongoin	og Commitm	ents that wi	ll Benefit th	e Proposed	Program
a-	Continuing student headcount assumes 70% 2 vr graduation	rate: remaine	ed is then rea	luced by a 20	% attrition r	ate
b-	Based on 9 credits (full time) for each semester on graduate l	evel				
c-	In the first year, existing credit hours refer to courses that are	e offered as U	JG/G.			
d-	New FTE refers to additional courses taught by associate lect	urers				
	Reflects realignment of existing workload across 5 department	t. Adjuncts	will replace of	current instru	uctors at the	standard UW-
e-	Parkside rate of 918.00/credit. Twenty one credits is .875 of a	current FTE	E in the 1st a	nd 5th year.	Twenty four	credits is a
	Students anticipated to be enrolled part time, at 15hours per y	year. Tuition	a calculated of	on headcoun	t* 15* 497.70	8, includes
f-	seg fees (60.58/credit)					
g-	65.00/credit online fee * total sch		-		-	
Prov	ost s signature:		Date:	11	Q	
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UNIVERSITY OF WISCONSIN-PARKSIDE COST AND REVENUE PROJECTIONS NARRATIVE MASTER OF ARTS IN APPLIED PROFESSIONAL STUDIES

Introduction

The proposed MA in Applied Professional Studies program is an interdisciplinary master's degree combining the academic social sciences and applied professional experience with a common set of core courses (15 credits) and a concentration (15 credits). There are three separate concentrations within the degree for students to choose graduate-level courses: Leadership in Public Service, Data Visualization and Interpretation, and/or Content Expertise for the Professional Educator. Students select graduate coursework individually suited to their chosen area of concentration. No new faculty hires will be required to begin this program because of the interdisciplinary nature of existing courses offered throughout departments within the college. The program will add 0.2, 0.5 and 0.5 FTE faculty in years 3-5 respectively; and add 0.5 and 0.5 FTE for administration in years 4 and 5. The budget projection reflects standard UW-Parkside graduate tuition costs.

Section I – Headcount/Enrollment

All anticipated enrollments are considered new student headcount as the graduate program does not exist. The enrollment projection is based on 9 credits (full time) for each semester on a graduate level. The projections assume a 70% two-year graduation rate with the remaining student enrollment reduced by a 20% attrition rate from year to year.

Section II – Credit Hours

The proposed budget reflects the number of credit hours per estimated student FTE. All credit hours for these students will be within the College of Social Sciences and Professional Studies and the Communication Department.

Section III – Faculty and Staff

No new faculty appointments are needed in years 1 and 2 beyond the existing faculty and Instructional Academic Staff currently teaching in the undergraduate programs in The College of Social Sciences and Professional Studies and the Communication Department. There will be no faculty workload strain because of the interdisciplinary array of courses and realignment of existing workloads across the five participating departments. The FTE of new faculty/ instructional staff in years 3-5 refers to additional courses to be taught by associate lecturers. It is anticipated that in year 4 the program will require the addition of a half-time new administrative staff, growing to full-time in year 5.

Section IV – New Revenues

The program is projected to be revenue-generating in the first year. The budget projections for new revenue from tuition is calculated based on the anticipation that students will enroll part-time at 15 credits per year. Tuition is therefore calculated on headcount multiplied by 15 credits by \$497.78, which includes segregates fees. Fees of \$65.00 per student credit hour are reflected in the new revenue for the online course fee per credit.

Section V – Program Expenses

All of the courses required to support the proposed M.A. in Applied Professional Studies will be taught by the 5 participating department current faculty and instructional staff.

There will be courses offered during the summer term and, therefore, the salary and fringe expenses are calculated based on the current personnel cost of faculty projected to teach during that term. There are no expenses for facilities as this is an online program, as well as no equipment expenses are projected. There are projections for recruitment and marketing of the program reflected in the budget proposal.



Office of the Provost

P.O. Box 2000 I 900 Wood Road Kenosha, WI 53141-2000

Phone: 262-595-2261 Fax: 262-595-2630 www.uwp.edu Keyword: Provost

January 3, 2018

Dear President Cross,

The University of Wisconsin-Parkside has submitted a request for authorization to implement a new Master of Arts degree program in Applied Professional Studies. All program materials have been approved by our Course and Curriculum Committee and Committee on Academic Planning and finally by the Faculty Senate at its November 28, 2017 meeting. This master's degree program is an important addition to our growing array of graduate programs, and is aligned with both our strategic plan and our strategic enrollment management plan. Financial and human resources to support the program are either in place or committed. The quality of the program will be ensured by our regular program review process. As Provost, I fully support this new master's degree program.

Sincerely,

RD_l

Rob Ducoffe, Ph.D. Provost & Vice Chancellor Office of Academic Affairs

Program Authorization (Implementation) Master of Science in Education in Montessori Education UW-River Falls

EDUCATION COMMITTEE

Resolution I.1.f.:

That, upon the recommendation of the Chancellor of UW-River Falls and the President of the University of Wisconsin System, the Chancellor is authorized to implement the Master of Science in Education in Montessori Education.

NEW PROGRAM AUTHORIZATION MASTER OF SCIENCE IN EDUCATION IN MONTESSORI EDUCATION UNIVERSITY OF WISCONSIN-RIVER FALLS

EXECUTIVE SUMMARY

BACKGROUND

The University of Wisconsin-River Falls submits this request to establish a Master of Science in Education in Montessori Education. This proposal is presented in accord with the procedures outlined in Academic Planning and Program Review (SYS 102, revised July 2016, available at https://www.wisconsin.edu/program-planning/).

REQUESTED ACTION

Adoption of Resolution I.1.f., approving the implementation of the Master of Science in Education in Montessori Education proposed by the University of Wisconsin-River Falls.

DISCUSSION

Program Description. The University of Wisconsin-River Falls proposes to establish a Master of Science in Education (MSE) in Montessori Education. This degree program responds to identified market needs, faculty and student interests, and the need for graduates with Montessori credentials. The proposed program will be the first MSE in Montessori Education degree program in the state of Wisconsin. Since 2012 UW-River Falls has offered Montessori credentialing options under the existing MSE in Elementary Education degree and the MSE in Secondary Education degree, with a total of 29 students enrolled in the Montessori options in 2014, 45 students in 2015, and 38 students in 2016. The proposed MSE in Montessori Education degree has been designed as a stand-alone master's degree with a title that reflects the content and purpose of the degree program. The proposed MSE in Montessori Education degree program will be financially supported as a cost-recovery program.

Mission. The proposed MSE in Montessori Education degree program fits well with the university's mission. The university's focused mission statement is to "help prepare students to be productive, creative, ethical, engaged citizens and leaders with an informed global perspective." (https://www.uwrf.edu/AboutUs/mission.cfm, https://www.uwrf.edu/AboutUs/vision.cfm). The proposed MSE in Montessori Education degree program is designed to prepare adult learners who already possess a bachelor's degree. Students must possess the knowledge, understanding, and skills necessary to exercise leadership in their field and beyond, contribute to the common good, and utilize the Montessori concepts of ethical behavior and global citizenship in their practice. In addition, the program addresses the university's three strategic goals (https://www.uwrf.edu/PathwayToDistinction/Goals.cfm). Regarding goal one, "distinctive academic excellence," as the only MSE in Montessori

Education degree program in the state of Wisconsin, the program is distinctive. Regarding goal two, "global education and engagement," students with an MSE in Montessori Education degree both learn from an international curriculum and are prepared to teach in Montessori schools, both across the United States and abroad. Regarding goal three, "innovation and partnerships," the current graduate credentialing program in Montessori education has already developed partnerships with the River Falls and Appleton school districts and works with the Milwaukee Public Montessori Schools through a federal grant.

Market and Student Demand. The development of the current graduate credentialing program in Montessori education responded to an identified need for more teachers with Montessori training, to faculty and student interest, and to the continuing need for graduates with Montessori training in Wisconsin and Minnesota. The proposed MSE in Montessori Education degree program will continue to serve graduate students, the majority of whom are already employed full-time by Montessori schools and are required to earn their Montessori credential per their teaching contract.

Moreover, in November and December 2011, nearly 600 superintendents and 115 principals in Wisconsin and eastern Minnesota were surveyed by the UW-River Falls Survey Research Center. Responses were received from 176 superintendents (30 percent response rate) and 52 principals (46 percent response rate). Based on the responses from the superintendents, there appeared to be between 44 to 50 existing school-age (PK-12) Montessori programs in the region and another 15-18 districts contemplating the creation of Montessori programs. These survey results indicate an increasing need for Montessori-trained teachers.

In addition, the demand for teachers nationally remains high. For example, according to the U.S. Bureau of Labor Statistics, employment of high school teachers is projected to grow 8 percent from 2016 to 2026, https://www.bls.gov/ooh/education-training-and-library/high-school-teachers.htm), while employment of kindergarten and elementary school teachers is projected to grow by 7 percent over the same timeframe, (https://www.bls.gov/ooh/education-training-and-library/kindergarten-and-elementary-school-teachers.htm). The Economic Development and Employer Planning System shows similar results, with national demand for both elementary and secondary teachers growing 5.8 percent in the 2014-2028 period. In Wisconsin, annual growth in demand for both elementary and secondary teachers is expected to grow 0.9 percent in the 2014-24 period. With Montessori training, elementary and secondary teachers have more options for professional advancement and mobility, and can potentially command higher salaries.

Salaries also remain competitive. The Minneapolis-St. Paul-Bloomington region (which includes River Falls, Wisconsin), as defined by the U.S. Bureau of Labor Statistics, is among the country's top ten metropolitan areas for employment in both elementary education and secondary education, with annual mean wages of \$65,920 and \$68,220, respectively. The Economic Development and Employer Planning System indicates that the median salary for elementary teachers in Wisconsin is \$54,530, and the median salary for secondary teachers is \$55,800.

Credit Load and Tuition. The existing graduate credentialing program in Montessori education was specifically designed to accommodate teachers working full-time from within a 200-mile radius. Face-to-face class meetings are held one weekend per month during the

academic year, and clustered within three to four weeks in summers; all courses include online components throughout the semesters.

The proposed MSE in Montessori Education will have the same curricular array and structure as the existing graduate credentialing program in Montessori education. Students who complete the MSE in Montessori Education degree will take three credits of research methods and two credits of a final research paper, after completing all coursework for the option(s) they have chosen. The current credentialing program will continue to exist in order to meet the needs of the small number of adult learners who do not choose to pursue a master's degree.

Students enrolled in the proposed MSE in Montessori Education degree program will pay the Special Continuing Education tuition rate of \$440 per credit. This rate applies to all students regardless of state of residency. The special tuition rate is required to cover the additional costs related to running the program (e.g., accreditation, materials and supplies, and classroom rental). Students in this program will not be subject to the tuition plateau.

Program Funding and Management. The degree program will be financially supported as a cost-recovery program. The proposed MSE in Montessori Education degree will not require the development of any new courses, as all of the coursework for the proposed new degree is already being offered under the current graduate credentialing program in Montessori education.

RELATED REGENT AND UW SYSTEM POLICIES

Regent Policy 4-12: Academic Program Planning, Review, and Approval in the University of Wisconsin System.

UW System Administrative Policy 102: Policy on University of Wisconsin System Array Management: Program Planning, Delivery, Review, and Reporting.

REQUEST FOR AUTHORIZATION TO IMPLEMENT A MASTER OF SCIENCE IN EDUCATION IN MONTESSORI EDUCATION AT UW-RIVER FALLS PREPARED BY UW-RIVER FALLS

ABSTRACT

The University of Wisconsin-River Falls proposes to establish a Master of Science in Education (MSE) in Montessori Education. The development of the program responds to identified market needs, faculty and student interests, and the need for graduates with Montessori credentials. The proposed program will be the first MSE in Montessori Education degree program in the state of Wisconsin. Since 2012 UW-River Falls has offered Montessori credentialing options under the existing MSE in Elementary Education degree and the MSE in Secondary Education degree, with a total of 29 students enrolled in the Montessori options in 2014, 45 students in 2015, and 38 students in 2016. Consistent enrollment is expected if the request for an authorization to offer an MSE in Montessori Education is approved. The proposed MSE in Montessori Education degree has been designed as a stand-alone master's degree with a title that reflects the content and purpose of the degree program. The proposed degree program will offer students four options. All of the credits needed for these four options are currently being taught as part of the existing credentialing options under the university's MSE degrees in elementary and secondary education. The current credentialing program will continue to exist in order to meet the needs of the small number of adult learners who do not choose to pursue a master's degree. The proposed MSE in Montessori Education degree program will be financially supported as a cost-recovery program.

PROGRAM IDENTIFICATION

Institution Name University of Wisconsin - River Falls

Title of Proposed Program

Master of Science in Education in Montessori Education

Degree/Major Designations

Master of Science in Education (with four options)

- Montessori Early Childhood, ages 3-6
- Montessori Elementary 1, ages 6-9
- Montessori Elementary 1-2, ages 6-12
- Montessori Secondary 1-2, ages 12-18

Mode of Delivery

Single institution; hybrid/blended (combines face-to-face and online instruction)

Projected Enrollments and Graduates by Year Five

Currently, all of the credits needed for the proposed MSE in Montessori Education degree program are being taught as part of the credentialing options under the university's MSE degrees in elementary and secondary education. Table 1 represents projected enrollment and graduation numbers for the proposed MSE in Montessori Education degree program. Based on existing patterns for the current credentialing option program, it is anticipated that from 2018-2022 a minimum of 76 new students will have enrolled in the program, and a minimum of 79 existing students will have graduated from the program. Retention in the current credentialing option program has been about 90 percent since 2014, and this is expected to continue through 2022 for the proposed MSE in Montessori Education degree program. It is anticipated that 35 students currently in the credentialing option program will move to the proposed MSE in Montessori Education degree program in Year 1.

Year	2018-19	2019-20	2020-21	2021-22	2022-23
New Students	12	16	16	16	16
Continuing Students	35	26	25	24	24
Total Enrollment	47	42	41	40	40
Graduating Students	19	15	15	15	15

 Table 1: Five-Year Degree Program Enrollment Projections (Headcount)

Tuition Structure

Students enrolled in the proposed MSE in Montessori Education degree program will pay the Special Continuing Education tuition rate of \$440 per credit. This rate applies to all students regardless of state of residency. The special tuition rate is required to cover the additional costs related to running the program (e.g., accreditation, materials and supplies, and classroom rental). The proposed MSE in Montessori Education degree program will be financially supported as a cost-recovery program. Students in this program will not be subject to the tuition plateau.

Department or Functional Equivalent

The Teacher Education Department is the academic home of the proposed program. As a cost-recovery program, its financial administrative home is in the Continuing Education unit.

College, School, or Functional Equivalent

The proposed program will be housed academically within the College of Education and Professional Studies.

Proposed Date of Implementation

July 2018

Rationale and Relation to Mission

The proposed MSE in Montessori Education degree program fits well with the university's mission. The university's focused mission statement is to "help prepare students to be productive, creative, ethical, engaged citizens and leaders with an informed global

perspective." (https://www.uwrf.edu/AboutUs/mission.cfm,

https://www.uwrf.edu/AboutUs/vision.cfm). The proposed MSE in Montessori Education degree program is designed to prepare adult learners who already possess a bachelor's degree. Students must possess the knowledge, understanding, and skills necessary to exercise leadership in their field and beyond, contribute to the common good, and utilize the Montessori concepts of ethical behavior and global citizenship in their practice. In addition, the program addresses the university's three strategic goals (https://www.uwrf.edu/PathwayToDistinction/Goals.cfm). Regarding goal one, "distinctive academic excellence," as the only MSE in Montessori Education degree program in the state of Wisconsin, the program is distinctive. Regarding goal two, "global education and engagement," students with an MSE in Montessori Education degree learn from an international curriculum and are prepared to teach in Montessori schools both across the United States and abroad. Regarding goal three, "innovation and partnerships," the current graduate credentialing program in Montessori education has already developed partnerships with the River Falls and Appleton school districts and works with the Milwaukee Public Montessori Schools through a federal grant.

Need as Suggested by Current Student Demand

UW-River Falls currently has 43 students in the existing graduate credentialing program in Montessori education, and 43 students have graduated since 2014. Of those 43 students, 42, or 97.67 percent, are employed in Montessori schools. The other student opened her own business. These data, collected by the program manager, provide a very strong indicator of successful placement in the field. Anecdotally, currently employed teachers who become students in the credentialing program have indicated that obtaining the MSE helps them advance in their field. It makes them more likely to be promoted and to receive additional compensation. It also makes them more attractive to additional potential employers.

Need as Suggested by Market Demand

The development of the current graduate credentialing program in Montessori education responded to an identified need (evidenced by a survey conducted in 2011) for more teachers with Montessori training, to faculty and student interest, and to the continuing need for graduates with Montessori training in Wisconsin and Minnesota. The proposed MSE in Montessori Education degree program will continue to serve graduate students, the majority of whom are already employed full-time by Montessori schools and are required to earn their Montessori credential per their teaching contract.

In November and December 2011, nearly 600 superintendents and 115 principals in Wisconsin and eastern Minnesota were surveyed by the UW-River Falls Survey Research Center. Responses were received from 176 superintendents (30 percent response rate) and 52 principals (46 percent response rate). Based on the responses from the superintendents, there appeared to be between 44 to 50 existing school age (PK-12) Montessori programs in the region and another 15-18 districts contemplating the creation of Montessori programs. These survey results indicate an increasing need for Montessori-trained teachers.

Currently, per listings of schools with Wisconsin's Department of Public Instruction and Minnesota's Department of Education, there are approximately 150 Montessori schools in the two states. These lists were compiled by the program manager using these sites:

https://dpi.wi.gov and http://education.state.mn.us/mde/index.html. There are more than 4,500 Montessori schools in the United States and about 20,000 Montessori schools worldwide (http://www.montessori-namta.org/FAQ/Montessori-Education/How-many-Montessori-schoolsare-there). The worldwide demand for Montessori teachers is further evidenced by the requests UW-River Falls has received in recent years from Canada, Chili, China, Honduras, and Thailand. In 2016-17, the program fielded over 20 requests from Wisconsin, Minnesota, Arizona, Florida, and Washington, D.C. seeking credentialed Montessori teachers.

The demand for teachers nationally remains high. For example, according to the U.S. Bureau of Labor Statistics, employment of high school teachers is projected to grow 8 percent from 2016 to 2026 https://www.bls.gov/ooh/education-training-and-library/high-school-teachers.htm), while employment of kindergarten and elementary school teachers is projected to grow by 7 percent over the same timeframe (https://www.bls.gov/ooh/education-training-and-library/kindergarten-and-elementary-school-teachers.htm). The Economic Development and Employer Planning System shows similar results, with national demand for both elementary and secondary teachers growing 5.8 percent in the 2014-2028 period (http://www.edeps.org/DemandIndicators.aspx?UA=1313A&pn=1&st=ZZ). In Wisconsin, annual growth in demand for both elementary and secondary teachers is expected to grow 0.9 percent in the 2014-2024 period (http://www.edeps.org/DemandIndicators.aspx?UA=1313A&pn=1&st=WI and

http://www.edeps.org/DemandIndicators.aspx?UA=1318B&pn=1&st=WI). With Montessori training, elementary and secondary teachers have more options for professional advancement and mobility, and can potentially command higher salaries.

Salaries also remain competitive. The Minneapolis-St. Paul-Bloomington region (which includes River Falls, Wisconsin), as defined by the U.S. Bureau of Labor Statistics, is among the country's top ten metropolitan areas for employment in both elementary education and secondary education, with annual mean wages of \$65,920 and \$68,220, respectively (https://www.bls.gov/oes/current/oes252021.htm#st and

https://www.bls.gov/oes/current/oes252031.htm#st). The Economic Development and Employer Planning System indicates that the median salary for elementary teachers in Wisconsin is \$54,530, and the median salary for secondary teachers is \$55,800 (http://www.edeps.org/DemandIndicators.aspx?UA=1313A&pn=1&st=WI and http://www.edeps.org/DemandIndicators.aspx?UA=1318B&pn=1&st=WI).

DESCRIPTION OF PROGRAM

General Structure

To meet the demand, the current graduate credentialing program in Montessori education was specifically designed to accommodate teachers working full-time from within a 200-mile radius. Face-to-face class meetings are held one weekend per month during the academic year, and clustered within three to four weeks in summers; all courses include online components throughout the semesters. The proposed MSE in Montessori Education will have the same curricular array and structure as the current graduate credentialing program in Montessori education.

Institutional Program Array

The current graduate credentialing program in Montessori education has its academic home in the College of Education and Professional Studies, one of four colleges at the university. The College of Education and Professional studies has five departments: 1) Communication Sciences and Disorders, 2) Counseling and School Psychology, 3) Health and Human Performance, 4) Social Work, and 5) Teacher Education. The College offers both undergraduate and graduate programs. The proposed MSE in Montessori Education degree will be a graduate program within the Department of Teacher Education. Of the 17 faculty members in this department, one tenure track faculty member and one clinical assistant professor have expertise and certification in Montessori education. In addition, 15 adjunct faculty members have expertise and certification in Montessori education. The MSE in Montessori Education degree program will complement the other education options within the department.

Graduate study in education occurs in a number of different areas, including agriculture, mathematics, STEM (Science, Technology, Mathematics and Engineering), TESOL (Teaching English to Speakers of Other Languages), Reading, Elementary Education, and Principal Licensure. A designated course of graduate study in Montessori Education is both unique and complementary to other UW-River Falls' graduate courses of study in education fields.

The proposed MSE in Montessori Education degree program is not dependent on general program revenue, but rather is self-funded by program revenue through the Continuing Education unit and will not impact support for undergraduate or other graduate programs.

Other Programs in the University of Wisconsin System

UW-River Falls is the first and only UW System institution to offer an MSE in Montessori Education degree.

Collaborative Nature of the Program

Partnerships with local Montessori schools have been instrumental in the success of the current graduate credentialing program in Montessori education. Local Montessori schools provide fully equipped classrooms that serve as the teaching sites for university weekend and summer classes. The partner schools benefit financially; they also gain access to faculty expertise, and opportunities for local training by program faculty. These off-campus teaching sites have been approved by the Higher Learning Commission and will continue to serve the proposed MSE in Montessori Education degree program.

The proposed MSE in Montessori Education degree program will be a collaborative venture between the College of Education Teacher Education Department and the Continuing Education Department.

Diversity

The foundation of Montessori education is individualized and differentiated instruction that is built upon each student's social, emotional, physical, and cognitive needs, learning preferences, cultural background, and life experiences. The proposed MSE in Montessori Education degree program is built upon the above-described foundation, both in addressing the needs of its participants and in teaching them to do the same for their classroom students. Each course within the curriculum includes elements and assignments related to diversity. For example, in methods courses, students are required to address diversity when designing lesson plans that meet all learners' needs (e.g., socioeconomic, cultural, ethic, and gender). Students complete practicum experiences in which they are required to approach all instruction within a diversity framework.

The program director of the current graduate credentialing program in Montessori Education actively recruits students from underrepresented populations through visiting with school administrators, recruiting at conferences, and direct marketing. Female and male students in the program come from public and private Montessori schools, from large urban and suburban schools to small rural schools, and from schools in high poverty areas to those in wealthier communities. Ethnic diversity within the student body has included Caucasian, African American, Asian, and Middle Eastern backgrounds. Students have also ranged in age from early 20s to mid-50s. This great variety in life experiences among the student body creates rich discussions as topics affecting these different situations are explored. The program director for the proposed MSE in Montessori Education degree will continue the same recruiting efforts.

Academic and support services are provided to students. For example, students with disabilities are supported (e.g., a deaf student was provided with sign-language interpreters). Retention and completion rates for traditionally underrepresented groups in the current graduate credentialing program in Montessori education are over 90 percent and mirror those of the majority population.

Student Learning Outcomes and Program Objectives

The proposed MSE in Montessori Education degree program is built upon the following four core pillars of competencies set by the Montessori Accreditation Council for Teacher Education, the accrediting body for Montessori Teacher Education Programs recognized by the United States Department of Education: 1) Montessori philosophy and human development, 2) classroom leadership, 3) curricular implementation, and 4) community involvement and partnership with families. Students will demonstrate these four core competencies and the associated learning outcomes—as shown below—upon completion of the proposed MSE in Montessori Education degree program.

The following learner outcomes are applicable to all of the options within the proposed MSE in Montessori Education degree:

Knowledge

Student is able to define the Montessori Philosophy.

Student is able to identify and apply the stages of human growth and development as they relate to Montessori principles.

Pedagogy and Methodology

Student is able to describe and apply the Montessori curriculum. Student is able to define and apply culturally responsive teaching methods. Student is able to create and implement academic assessment plans. Student is able to apply scientific observation and data collection principles to planning and implementing instruction.

Leadership

Student is able to identify and compare Montessori-defined professional responsibilities.

Assessment of Outcomes and Objectives

The current graduate credentialing program in Montessori education has already begun to assess its objectives. Course-level assessment occurs regularly through the use of papers, tests, quizzes, discussions, presentations, and group projects. Program assessment data are collected through the use of instruments, such as student exit surveys and employer surveys. Program faculty and university supervisors meet on an annual basis to discuss course- and program-level outcomes, the results of which are used to inform and revise the program and its curriculum when warranted. The proposed MSE in Montessori Education degree program will continue to use the same assessment protocols.

Program Requirements and Curriculum

The proposed MSE in Montessori Education degree will not require the development of any new courses, as all of the coursework for the proposed new degree is already being offered under the current graduate credentialing program in Montessori education. Students who complete the MSE in Montessori Education degree will take three credits of research methods and two credits of a final research paper, after completing all coursework for the option(s) they have chosen.

MSE in Montessori Education, 5 credits of coursework required for all students

Adult learners complete the courses required for option I, or option II, or option IV as listed below (option III is an add-on for those students who follow option II and wish to expand the age range) and then complete the following two courses that are required for all students in the program, regardless of option(s) chosen:

MONT 785 Research Methods, 3 cr.

MONT 793 Final Research Paper, 2 cr.

Program Curriculum Options

I. Early Childhood Montessori Option, 27credits

MONT 500 Montessori Philosophy & Pedagogy, 2 cr.
MONT 702 Supporting At-Risk Learners in Early Childhood Classrooms, 1 cr.
MONT 710 Practical Life and Preparation of the Environment, 2 cr.
MONT 711 Observation, 1 cr.
MONT 712 Child Development, 2 cr.
MONT 722 Language Arts & Literacy Foundations, 3 cr.
MONT 732 Cultural Arts (Social Studies & Science), 3 cr.
MONT 740 Sensorial, 2 cr.
MONT 742 EC Mathematics, 2 cr.
MONT 752 Movement and the Arts, 2 cr.

MONT 762 Classroom Leadership, 3 cr.

MONT 781 and MONT 782 Practicum A and B, 2 cr. each, total 4 cr.

II. Elementary 1 (ages 6-9) Montessori Option, 37 credits

MONT 500 Montessori Philosophy & Pedagogy, 2 cr.

MONT 704 Supporting At-Risk Learners in Elementary Classrooms, 1 cr.

MONT 705 Great Lessons, 1 cr.

MONT 711 Observation, 1 cr.

MONT 712 Child Development, 2 cr.

MONT 724 Reading and Language Arts, 4 cr.

MONT 734 E-1 Social Studies (Culture), 3 cr.

MONT 735 E-1 Science, 3 cr.

MONT 744 E-1 Math, 3 cr.

MONT 745 E-1 Geometry, 2 cr.

MONT 754 Physical Education and Arts, 4 cr.

MONT 763 Classroom Management, 2 cr.

MONT 764 Leadership & Practical Life, 3 cr.

MONT 783 and MONT 784 Practicum A and B, 3 cr. each, total 6 cr.

III. Add-On Elementary 2 (ages 6-12) Montessori Option, 15 additional credits

Adult learners complete the Elementary 1 courses (unless the applicant is already credentialed to teach ages 6-9) and also complete the following courses:

MONT 726 E-2 Language Arts and Literacy, 3 cr.

MONT 736 E-2 History and Geography, 3 cr.

MONT 737 E-2 Physical Sciences, 2 cr.

MONT 738 E-2 Biological Sciences, 2 cr.

MONT 747 E-2 Geometry, 2 cr.

MONT 746 E-2 Math, 3 cr.

IV. Secondary 1-2 (ages 12-18) Montessori Option, 31 credits

MONT 507 Introduction to Curriculum, 3 cr.

MONT 700 Philosophy and Psychology in Sec Education, 3 cr.

MONT 716 Erdkinder, 3 cr.

MONT 766 Sec Curriculum Development, 6 cr.

MONT 776 Pedagogy of Place, 3 cr.

MONT 778 Structure and Organization, 3 cr.

MONT 786* Sec 1-2 Practicum A, 4 cr.

MONT 787* Sec 1-2 Practicum B, 4 cr.

MONT 788 Sec 1-2 Practicum C, 2 cr.

* Practicums involve an intensive four-day weekend experience at a Montessori Secondary School.

Projected Time to Degree

The MSE in Montessori Education degree program is designed for people who are teaching full-time while completing their degree on a part-time basis. The number of credits taken per semester typically varies from three to nine, depending on the program option chosen.

Program Option	Number of Credits to Master's Degree	Number of Semesters to Complete
I. Early Childhood	32 credits	6 terms (Summer, Fall, Spring) or 2 years
II. Elementary 1	42 credits	6 terms (Summer, Fall, Spring) or 2 years
III. Elementary 1-2	57 credits	7 terms (Summer, Fall, Spring), or 2 years plus an additional Summer term
IV. Secondary 1-2	36 credits	7 terms (Summer, Fall, Spring) or 2 years plus an additional Fall term

Program Review

Ongoing evaluation, assessment, and review of academic programs, including graduate programs, are handled through several processes. Departments are required to have assessment plans and provide assessment reports that are reviewed every three years by the faculty senate assessment committee. In addition, every third year, each program is subjected to the university's program prioritization processes, which focus on intellectual factors (e.g., assessment, strategic planning, and faculty qualifications), enrollment factors (e.g., percentage of graduates within the university, time and credit to degree, and retention), and financial factors (e.g., revenue over expenses). Every sixth year, programs undergo a full program audit and review process that covers the above factors and additional considerations (e.g., role of the program in supporting the array of offerings at the university).

Accreditation

The Montessori options currently offered by UW-River Falls are accredited by the Montessori Accreditation Council for Teacher Education. Initial accreditation occurred in 2013, and it is effective through 2020. The proposed MSE in Montessori Education degree would be included in the accreditation that extends through 2020.

	University of Wiscon	sin - River	Falls MSE in N	Iontoson: I	Education		 	
	Items	eu rrogram	. MSE III N	Droiostia	Juncation		+	
	Items	2019	2010	Projections	2021	2022	 	
		2018 Voor 1	2019 Vaar 2	2020 Vaar 2	2021 Var. 4	2022	 +	
I	Enrollmont (Now Student) Headcount	Year 1	Y ear 2	Year 3	Year 4	Year 5		
1	Enrollment (New Student) Headcount	12	10	10	10	10	 	
	Enrollment (New Student) FTE	0.00	12.00	12.00	12.00	12.00		
	Enrollment (Continuing Student) FTE	9.00	12.00	12.00	12.00	12.00		
-	Enronment (Continuing Student) FTE	20.23	19.30	18.75	18.00	18.00	 +	
п	Total New Credit Hours (# new sections x credits per section)	0	0	0	0	0		
	Existing Credit Hours	740	662	646	630	630		
	5							
Ш	FTE of New Faculty/Instructional Staff	0.0	0.0	0.0	0.0	0.0		
	FTE of Current Fac/IAS	3.4	3.4	3.4	3.4	3.4		
	FTE of New Admin Staff	0.0	0.0	0.0	0.0	0.0		
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	rrom rees	\$0	\$0	\$0	\$0	\$0		
	Program Revenue - Grants	\$0	\$0	\$0	\$0	\$0	 	_
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V	Now Exponses	\$325,710	\$291,060	\$284,130	\$277,200	\$277,200	 	
v	Solorios nlus Fringos						 	
_	Faculty/Instructional Staff	\$127 001	\$122.012	\$122.012	\$122.012	\$122.012		
	Other Staff	\$127,801	\$132,913	\$132,913	\$132,913	\$132,913		
	Other Expanses	\$71,040	\$74,506	\$74,506	\$74,506	\$74,506	 ~	
	Facilities	\$10.022	\$11.250	¢11 500	\$11.750	¢12.000		
-	Fauinment	\$5.000	\$5.000	\$11,500	\$11,750	\$12,000	 	
	Other: Overhead	\$5,000	\$5,000	\$60,000	\$2,000	\$2,000		
	Total Expenses	\$270,222	\$280 157	\$280.010	\$33,000	\$33,330		
	rour Expenses	\$219,233	\$200,137	\$200,919	\$270,109	\$270,909	 	
VI	Net Revenue	\$46.477	\$2,903	\$3.211	\$1.031	\$231		
		÷ , /		<i>42</i> , 2 .1	41,001	φ		
Na	rrative: Explanation of the Numbers and Other Ongoing	Commitme	ents that wil	l Benefit the	e Proposed	Program		
ee C	Cost and Revenue Narrative.					<u> </u>		
								-
- Nu	umber of students enrolled							
- To	be based on 12 credits at the undergraduate level and 7 credits at the grad	duate level						
NI	mber of faculty/instructional staff providing significant teaching and advi	ising for the pr	ogram					
- Nu							 	
- Nu - Nu	mber of other staff providing significant services for the program							

UNIVERSITY OF WISCONSIN-RIVER FALLS COST AND REVENUE PROJECTIONS NARRATIVE MASTER OF SCIENCE IN EDUCATION IN MONTESSORI EDUCATION

Introduction

The proposed MSE in Montessori Education degree will be based on the current graduate credentialing program in Montessori Education, but structured as a stand-alone master's degree. The MSE in Montessori Education degree program will consist of four options. All of the credits needed for these four options are currently being taught as part of the existing credentialing options under the university's MSE degrees in elementary and secondary education. The proposed MSE in Montessori Education is designed as a cost-recovery program.

Section I – Enrollment

Enrollment (New Student and Continuing) Headcount

It is anticipated that 40-45 adult learners will be in the program at any given time.

Enrollment (New Student and Continuing) FTE

This is considered a part-time program. The FTE is based on the New Student numbers times 0.75, an estimate of the typical part-time enrollment status of students in the program.

Section II – Credit Hours

Total New Credit Hours

No new courses need to be created. All courses are approved and offered under the current graduate credentialing program in Montessori education.

Existing Credit Hours

21 credits (projected average number of credits taken in summer, fall and spring by students) times 0.75, an estimate of the typical part-time enrollment status of students in the program.

Section III - Faculty and Staff Appointments

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FTE of New Faculty/Instructional Staff
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No new FTEs are anticipated.

FTE of Current Faculty/IAS

Calculation of FTEs of existing faculty and Instructional Academic Staff (IAS) involved with the program.

FTE of New Administrative Staff

No new administrative staff are anticipated.
FTE of Current Admin Staff

Calculation of FTEs of current administrative staff.

Section IV – Program Revenues

From Tuition (tuition x projected enrollment)

Tuition of \$440/credit times the number of credit hours for each year (average 21) times the total student FTE. For example, Year 1 is \$440 x 21 credits x 35.25 total student FTE = \$325,710.

From Fees

No additional fees are anticipated.

<u>Program Revenue – Grants</u> No grants are anticipated.

Program Revenue - Other

No other program revenues are anticipated.

Reallocation None expected.

Total New Revenue

Same as New Revenue, since no additional revenues are expected.

Section V – Program Expenses

Faculty/IAS Salaries and Fringe

Calculation of current salaries and fringe benefits of existing faculty and IAS. A fourpercent base increase is projected in 2019 as per the Wisconsin State Budget.

Other Staff Salary and Fringe

Projected salaries and fringes are based on actual support for other staff involved in the operations of the program, including the Continuing Education Director, Program Manager, Marketing Manager, and Financial Specialist.

Other Expenses

Facilities

This is the rent paid to the partner schools used as teaching sites. It includes \$2000 plus \$18/student enrolled in the school to cover each partner school's required membership in the American Montessori Society.

Equipment

This is an allocation for the program to purchase specialized Montessori materials each year to supplement those at the schools. Occasionally some materials are missing completely at the schools, have broken or missing pieces, or additional sets are needed because of the number of adult learners in the class. This provides a materials lending library for the instructors.

Other

This is a catch-all for several other expenses, including overhead (\$28,000); travel, meals and lodging faculty and IAS (\$22,800); chargebacks, copying, printing, postage, (\$6060); annual accreditation expenses, workman's compensation, etc. (\$5000); and marketing (\$2000). It is anticipated that travel expenses will decrease after additional qualified adjunct faculty are identified who live in closer proximity to the satellite sites and to adult learners who are completing their practicums in distant locations.

Total Expenses

This is a summation of all of the expenses.

Section VI – Net Revenue

Net Revenue

Currently, as a program revenue unit, Continuing Education is increasingly asked to cover several additional university expenses (e.g., staff development technology, the State Authorization Reciprocity Agreement fees, budget shortfalls, support for the Admission's Office, and support for the Provost's Office). The Unit's excess revenues are already committed to ongoing expenses.



Office of the Provost and Vice Chancellor for Academic Affairs • 116 North Hall • (715) 425-3700

November 29, 2017

Ray Cross, President 1720 Van Hise Hall 1220 Linden Dr. Madison, WI 53706

Dear President Cross:

The proposed MSE in Montessori Education meets the University of Wisconsin – River Falls' definition and standards of quality and will make a meaningful contribution to the institution's select mission, overall academic plan, and academic degree program array. It is currently offered as options within our authorizations to provide MSE degrees in elementary and secondary education and, as the proposal indicates, it has a proven track record of success, measured in terms of student enrollment and financial stability. Internal assessment has indicated that it is a viable, long-term program and this request is to obtain a specific entitlement for an MSE in Montessori Education.

There is institution-wide support for the program, including institutional governance approval. The proposal has been approved by the Teacher Education Department, the College of Education and Professional Studies, and by the faculty governance system, including passage by the UWRF Faculty Senate.

The necessary financial and human resources are in place and have been committed to implement and sustain the program. The program is academically housed within the Teacher Education Department of the College of Education and Professional Studies. Financially it is housed within the Office of Outreach and Continuing Education because its budget is based on program revenue rather than GPR funds. Regular analyses occur to ensure the financial stability of the program. In addition, because this program has already been offered as options within our entitlements to provide MSE degrees in elementary and secondary education, it has already been subjected to regular program evaluations.

I fully recommend the proposed MSE in Montessori Education to both you and the Regents for adoption and inclusion into the System array. Thank you for providing it your most serious consideration.

Sincerely, NU

Interim Provost Faye Perkins

Copies: UW System Vice President James Henderson Chancellor Dean Van Galen Dean Michael Harris Associate Provost Wes Chapin Director of Outreach Randy Zimmermann

UW-Milwaukee Renewal of Charter School Contract Woodlands School, Inc.

EDUCATION COMMITTEE

Resolution I.1.g.:

That, upon recommendation of the Chancellor of the University of Wisconsin-Milwaukee and the President of the University of Wisconsin System, the Board of Regents approves renewal of the charter school contract with Woodlands School, Inc., maintaining a charter school known as Woodlands School-State Street, for the period of three years, effective July 1, 2018 until June 30, 2021.

UNIVERSITY OF WISCONSIN-MILWAUKEE OFFICE OF CHARTER SCHOOLS WOODLANDS SCHOOL-STATE STREET CHARTER RENEWAL PREPARED BY UW-MILWAUKEE

BACKGROUND

Legislative Background

In 1997, the Wisconsin Legislature authorized the University of Wisconsin-Milwaukee (UWM) to grant charters in the City of Milwaukee under s. 118.40 (2r), Wis. Stats. In the 2013 session of the Wisconsin Legislature, UWM's chartering authority was expanded from the geographic boundaries of the City of Milwaukee only, to a new boundary area defined as "only Milwaukee county and adjacent counties." Then under 2015 Wisconsin Act 55, the university was permitted statewide chartering authority effective July 15, 2015. With the expanded authority, the mission of the Office of Charter Schools (Office) remains to focus on authorizing charter schools in Milwaukee specifically and in other Wisconsin urban areas in which students have limited access to a variety of high-quality educational options. This mission is what guides the Application and Review Committee when making recommendations for charter applications submitted to the Office.

Request for Approval of Woodlands School-State Street

Woodlands School, Inc., was awarded a five-year charter by the Board of Regents on February 7, 2013, and opened Woodlands School-East in the fall of 2013. The UWM Office of Charter Schools undertook an extensive review process that began with the submission of a renewal application by Woodlands School, Inc., in September of 2017, and the UWM Office of Charter Schools Evaluation Committee site visit in October of 2017. The results of this review are detailed in the discussion below.

REQUESTED ACTION

Adoption of Resolution I.1.g., approving the renewal of the charter school contract with Woodlands School, Inc., to continue the operation of a public school known as Woodlands School-State Street, for three years effective July 1, 2018 until June 30, 2021.

DISCUSSION

School Profile

Woodlands School-State Street is located at 3121 W. State Street in Milwaukee, Wisconsin and enrolls approximately 282 students in K4-Grade 6 and by the 2019-20 school year will serve through grade 8. The mission of Woodlands School-State Street follows the organization's mission of "creating the character of the community through diverse education." Woodlands School uses character-based curriculum to prepare children, kindergarten through 8th grade, for lifelong learning in a rapidly changing world.

The major emphasis of the school is its concentration on using a multi-aged classroom instructional model along with differentiated academic plans; students grow as learners and reflective practitioners. Along with the previously mentioned focus on character, these two areas of emphasis work as the foundation for the Woodlands School model being replicated by Woodlands School-State Street campus. This innovative approach ensures a safe and nurturing environment and includes visual arts, physical education, music, French, multimedia services and 21st century technology.

Educational Program

Woodlands School-State Street campus educational programming provides students with the tools, skills, and confidence they need to succeed. Students, teachers, and parents share the responsibility for learning at Woodlands. The school's core curriculum consists of language arts, math, hands-on science, and social studies. Students are grouped in multi-aged classrooms with an average of 22-24 students, one teacher and one teaching assistant. The learning is driven by students' curiosity and focused through a project-based interdisciplinary approach with students. Woodlands provides students with the tools and skills, and students' work is reflected in a personal portfolio and demonstrated as students lead the parent conferences while the educator facilitates the session.

Faculty and Staff

The Woodlands School-State Street faculty will continue to provide the cornerstone of Woodlands' success. The school currently has twenty-two full-time faculty, including classroom teachers, specialty teachers, and special education teachers who are certified by the Wisconsin Department of Public Instruction and direct the learning. The tenure of the faculty with the school currently ranges from 1 to 31 years. To assist in providing more individualized student attention, teaching assistants are used.

Governance and Leadership

Woodlands School-State Street is governed by a Board of Trustees. The Board currently has 13 Trustees. The Executive Director and Principal(s) are ex-officio members of the Board. The Board is responsible for ensuring the school's compliance with applicable laws and the charter contract. The Board currently has four standing committees: Executive, Finance, Governance, and Workforce Development. Additional committees or task forces are created according to specific needs.

Woodlands has long recognized the importance of parental involvement in the education process. Families are encouraged to provide a minimum of 15 hours of volunteer service during

the school year. Volunteer opportunities include events such as unit plays, classroom projects, field trips, lunch days, building maintenance, and fund-raising events. Any member of the family such as a grandparent, aunt, uncle, partner or other extended family member may contribute toward the family's volunteer hours. Woodlands School has an active Parent Teacher Organization (PTO). At least one parent shall serve on the Board at all times, and parents are invited to serve on standing and ad-hoc Board committees.

Financial Condition and Compliance

Woodlands School-State Street is in compliance with its audits, and Woodlands School, Inc., has received an unqualified audit each year. Woodlands School-State Street did not meet its projected enrollment during the first several years of the contract, which forced the organization to take out a loan to support its financial shortfalls. During the last year of the contract, the enrollment goal was exceeded, and an aggressive loan rrepayment plan has been executed. Additionally, the position of a fund developer for the organization has been created to identify, cultivate and manage prospective donors. Overall, the school remains financially sound.

Legal and Contractual Requirements

Woodlands School-State Street campus has been in compliance with all contract provisions and state and federal regulations for the past three years and submits accountability reports, as required by the contract.

Academic Performance

Results on the Wisconsin Forward Exam, as detailed on the Woodlands School-State Street data dashboard attached to this document, indicate academic performance at Woodlands East generally trails the Milwaukee Public Schools (MPS) and the state in English Language Arts (ELA) and mathematics. However, when reviewing only African-American students, academic performance in ELA at Woodlands exceeds MPS students' performance.

When the academic performance of Woodlands School-State Street is compared to neighborhood and demographically-comparable MPS schools, Woodlands performance in both ELA and mathematics sometimes exceeds and sometimes falls short of the performance in the comparable schools.

Measures of student growth are generally improving in both reading and mathematics on the Measures of Academic Progress (MAP) assessments.

Woodlands School-State Street received overall accountability scores of 56.8 and 55.6 on the Wisconsin Department of Public Instruction's (DPI) School Report Cards in 2015-16 and 2016-17, respectively. Both scores fall within the "Meets Few Expectations" overall accountability range. These scores are based on student achievement, student growth, and on-track and postsecondary readiness (with the latter including attendance rate and 3rd grade reading achievement in both years).

The UWM Office of Charter Schools recommends that growth should continue to be the focus of the Woodlands School-State Street campus academic efforts. The use of the MAP assessments from the Northwest Evaluation Association is critical to making the maximum amount of progress. Woodlands should use data analysis to determine specifically which students are not making appropriate gains and the reasons the gains are not being made.

REQUEST FOR CHARTER RENEWAL FOR 3 YEARS

Summary

Academic performance at Woodlands School-State Street is generally comparable with that of neighborhood and demographically-comparable MPS schools, with 21.2% of its students performing at the proficient or advanced level in ELA and 6.1% of its students performing at the proficient or advanced level in mathematics on the Wisconsin Forward Exam in 2016-17. Student daily attendance was 94.0% in 2015-16, and over eighty percent of the students return to the school year after year. Woodlands has high levels of satisfaction ratings by students and faculty. According to the UWM Office of Charter Schools, Woodlands has also complied with all state and federal regulations and is in full compliance with its UWM charter agreement.

While the school has not had consistent academic gains over the last few years, the UWM Office of Charter School's Evaluation Committee has concluded that Woodlands School-State Street campus is working hard toward its mission of creating the character of the community through diverse education. The school's focus on character education has had a positive impact on fostering a safe educational environment.

Recommendations for Improvement

Based on the review and analysis of the Woodlands School-State Street renewal application and observations during the renewal site visit, the Evaluation Committee requires the following:

Woodlands School-State Street must develop and submit an action plan to the director of the Office of Charter Schools by June 1, 2018. The plan must clearly outline the school's improvement efforts to increase student achievement and specifically address the following areas of concern noted during the renewal process:

- Organizational structure
- Allocation of administrative responsibilities
- Implementation of replication strategies
- Identify any changes to curriculum based on unique needs of school
- Full development of world language curriculum
- Modification of discipline plan including restorative process

 Professional development plan for teachers around replication strategies and other instructional strategies

The Evaluation Committee also made the following recommendations:

- Monthly meetings focused on development and implementation of the action plan
- Annual report detailing progress of action plan
- Site visit conducted by Evaluation Committee at contract mid-point (December 2019)

Woodlands School-State Street must ensure all of the above recommendations are addressed in its required Action Plan submitted to the UWM Office of Charter Schools by June 1, 2018.

RECOMMENDATION

The three-year contract recommendation from the UWM Office of Charter Schools Evaluation Committee indicates its concerns with the academic performance of Woodlands School-State Street, coupled with considerable confidence that the leadership can make appropriate adjustments to increase student achievement by replicating with fidelity the guiding principles, which have been foundational for the academic success at the Woodlands School-Bluemound campus. Due to the newly established Performance Framework used to evaluate the UWM charter schools, the Evaluation Committee agreed upon the three-year renewal recommendation, along with the submission of an action plan addressing the areas of concern identified. Additionally, the Office is confident in the objectivity and transparency of the Performance Framework with its explicit standards and targets, which will enhance the level of monitoring Woodlands School-State Street over the contract term.

Based on the findings and recommendations of the Evaluation Committee, the director of the Office of Charter Schools, Provost Johannes Britz, and Chancellor Mark Mone recommend the renewal of the charter for Woodlands School, Inc., be approved by the Regents for a three-year contract renewal beginning on July 1, 2018, and ending on June 30, 2021. During that time period, Woodlands School-State Street shall implement all activities and strategies identified in the required action plan upon approval by the director of the UWM Office of Charter Schools and continue to comply with all legal and contractual requirements. The full contract is available at the web link below: https://panthers-newslim.com

my.sharepoint.com/:b:/g/personal/dborders_uwm_edu/ERAiDobXM0FLpVo_Vk62oV0Bayec8L Opms0UKCyxsQdCwA?e=Q58eh7

Woodlands East Data Dashboard

Figure 1: Enrollment and Demographics

	2013-14	2014-15	2015-16	2016-17
Total Enrollment	100	156	214	247
% English Language Learner	0.0%	0.0%	0.9%	0.8%
% Economically Disadvantaged	45.0%	46.2%	57.0%	58.3%
% Special Education	5.0%	5.1%	4.2%	6.9%
% African American	50.0%	55.8%	56.1%	59.9%
% Hispanic	17.0%	17.3%	15.9%	10.9%
% White	25.0%	17.3%	17.3%	10.9%

Woodlands East continues to grow by one grade per year, hence, the enrollment is also increasing each year. Woodlands East serves an increasingly economically disadvantaged and minority population.

Figure 2: Student Attendance



A school's attendance rate is a marker of school success that is related to academic performance. The student attendance at Woodlands East remains near 94%. For comparable grades, the statewide attendance rate is around 95%, while the MPS attendance rate is around 92%.

Figure 3: Wisconsin Department of Public Instruction (DPI) School Report Card Results

Year	Overall Score	Overall Rating		
2013-14	Alternate Rating	Satisfactory Progress		
2015-16	56.8	Meets Few Expectations		
2016-17	55.6	Meets Few Expectations		

Figure 4: 2016-17 School Report Card Detail

1



Although Woodlands East lagged behind the state average in achievement for Reading and Math on the School Report Card (the same pattern is seen in the MPS district report card for 2016-17), its Reading growth was comparable to the K-8 State Average. Because Woodlands East is a newer school, it does not yet have results in the Closing Achievement Gaps section of the School Report Card.

1			
Overall Accountability Rating	Score		
Significantly Exceeds Expectations	83-100 *****		
Exceeds Expectations	73-82.9 ****		
Meets Expectations	63-72.9 ***		
Meets Few Expectations	53-62.9 **		
Fails to Meet Expectations	0-52.9		



Figure 5: Percent of Students Meeting/Exceeding Fall to Spring MAP Growth Norms

In 2016-17, Woodlands East had roughly 50% of students meeting or exceeding their Fall to Spring growth targets on the MAP assessments in Reading and more than 50% of students meeting or exceeding their Fall to Spring growth targets on the MAP assessments in Math. Both of these numbers were higher than they were in 2015-16, indicating that student growth is improving at Woodlands East. Nationally, 50% of students meet or exceed their Fall to Spring growth targets, hence, Woodlands East is now exceeding the national norm in Math.

Figures 6.1: 2016-17 Forward Exam Results: Woodlands East Compared to Four Similar MPS Schools and Minority and Economically Disadvantaged Percentages of Students



Figure 6.2: 2016-17 Forward Exam Results: Woodlands East Compared to Four Similar MPS Schools and Minority and Economically Disadvantaged Percentages of Students

	Woodlands East	Fratney	Highland Community	Milwaukee Spanish	Story
				Immersion	
% Minority	89.1%	85.9%	63.3%	87.8%	98.0%
% Econ Dis	58.3%	76.2%	44.1%	64.8%	95.7%

Woodlands East Forward Exam achievement in both ELA and Math was comparable to Fratney and better than Story. However, it was not as high as Highland Community and Milwaukee Spanish Immersion.

Figure 7: 2015-16 and 2016-17 Forward Exam Results: Woodlands East Compared to All MPS and Statewide Students in the Same Grades Woodlands East Served Each Year (Grades 3-4 in 2015-16 and Grades 3-5 in 2016-17)



The percent of students scoring Proficient and Advanced at Woodlands East increased in both ELA and Math between 2015-16 and 2016-17, more so in ELA than in Math. Both MPS and the State had decreases in the Percent Proficient and Advanced in Math between 2015-16 and 2016-17.

UW-Milwaukee Approval of Charter School Contract Rocketship Education Wisconsin, Inc.

EDUCATION COMMITTEE

Resolution I.1.h.:

That, upon recommendation of the Chancellor of the University of Wisconsin-Milwaukee and the President of the University of Wisconsin System, the Board of Regents approves the charter school contract with Rocketship Education Wisconsin, Inc., to maintain two charter schools known as Rocketship Southside Community Prep and Rocketship North Side School, for a period of five years, from July 1, 2018 until June 30, 2023.

UNIVERSITY OF WISCONSIN-MILWAUKEE OFFICE OF CHARTER SCHOOLS ROCKETSHIP EDUCATION WISCONSIN, INC.

BACKGROUND

Legislative Background

In 1997, the Wisconsin Legislature authorized the University of Wisconsin-Milwaukee (UWM) to grant charters in the City of Milwaukee under s. 118.40 (2r), Wis. Stats. In the 2013 session of the Wisconsin Legislature, UWM's chartering authority was expanded from the geographic boundaries of the City of Milwaukee only, to a new boundary area defined as "only Milwaukee county and adjacent counties." Then under 2015 Wisconsin Act 55, the university was permitted statewide chartering authority effective July 15, 2015. With the expanded authority, the mission of the Office of Charter Schools (Office) remains to focus on authorizing charter schools in Milwaukee specifically and in other Wisconsin urban areas in which students have limited access to a variety of high-quality educational options. This mission is what guides the Application and Review Committee when making recommendations for charter applications submitted to the Office.

Request for Approval of Rocketship Southside Community Prep and Rocketship North Side Schools

The Office of Charter Schools, along with its Application and Review Committee, undertook an extensive review process which included an in-depth analysis of the prospectus and applications submitted by Rocketship, as well as a formal interview. Two applications were submitted, one for an existing charter school operating on the south side of Milwaukee and the other for a new charter proposed to open in the fall of 2018 on the north side of Milwaukee. Both schools are included in a single charter contract. Based on the findings of the comprehensive review, the director of the Office of Charter Schools, Provost Johannes Britz, and Chancellor Mark Mone recommend Rocketship Education Wisconsin, Inc., be granted a charter to operate two public schools known as Rocketship Southside Community Prep and Rocketship North Side.

REQUESTED ACTION

Adoption of Resolution I.1.h., approving the charter school contract with Rocketship Education Wisconsin, Inc., to operate two public schools known as Rocketship Southside Community Prep and Rocketship North Side for a period of five years, from July 1, 2018 until June 30, 2023.

DISCUSSION

School Profile and Design

The Rocketship program is centered on personalized instruction targeted to each student's needs and tailored to each student's unique learning style. The program uses a blended learning approach to further its goal of personalized instruction, in which the staff strategically leverage whole-group classroom instruction and activities, small-group instruction and activities, targeted customized interventions, and the suite of online learning programs. Across all content areas, teachers differentiate instruction based on a variety of assessment data. Students may work individually or in small groups with the classroom teacher, the Individualized Learning Specialist, or other service providers to address any unique needs, gaps, or learning styles.

The rigorous Rocketship curriculum follows the Common Core State Standards, with a focus on literacy and integrated, thematic unit-based instruction across all content areas. The Rocketship program teaches literacy through reading comprehension instruction; guided reading; phonics, phonemic awareness, and fluency; and writing. In mathematics, students learn to make sense of problems and persevere in solving them, reason abstractly and quantitatively, construct viable arguments and critique the reasoning of others, and model with mathematics. Science instruction is dually focused on building content knowledge and schema. Vocabulary strategies are used to support language acquisition and provide opportunities for hands-on experiments. The goal for social studies is for students to become proficient in order to achieve civic competence. Social-emotional learning is also taught through research-based curricula, and enrichment courses in physical education and the arts are taught.

Rocketship's centralized network Achievement Team is tasked with designing an intellectual preparation process to best set teachers and students up for short- and long-term success. The Achievement Team partners with teachers and School Leaders to develop plans and materials that span from long-term curriculum maps to daily lessons. The Achievement Team maps out the actual sequence of the particular unit, determining which content teachers will teach each day to solidify student understanding. Beyond the classroom, Rocketship focuses on elevating and celebrating instruction to attract and retain strong leadership. To ensure students have access to the best teachers and leaders, the Rocketship model provides dedicated coaching, professional development, and leadership programs to help educators grow professionally and personally—regardless of their experience level.

Finally, the Rocketship program places a strong emphasis on parent and community engagement. Believing that engaged parents are essential to eliminating the achievement gap, Rocketship staff work with parents to help them become powerful advocates for their children and their communities. This includes leading community meetings, planning school-wide events, advocating for their children's needs, assisting in the teacher and leader interview process, and being active members in the community.

The Rocketship program will be replicated at both campuses.

Demographics and Student Recruitment Plan

The Rocketship North Side campus will be renamed by the founding families, which is the practice for all Rocketship schools. It will be located at 5460 N. 60^{th} St. in Milwaukee during its first year of operation and remaining in the neighborhood once securing its permanent facility. The school will open with 206 students in its first year of operation and serve students in grades K4 - 2^{nd} grade. Each year, thereafter, the school will grow and add another grade. The school will expand to 5th grade, with a maximum of approximately 500 students.

The Rocketship Southside Community Prep (RSCP) campus shall continue operations at its current facility located at 3003 W. Cleveland Ave. in Milwaukee. The student enrollment at the RSCP campus was 509 students for the 2016-17 school year, of which 94.3% were Hispanic, 2.8% African-American and 2.4% Caucasian. Additionally, 92.9% of the students qualified for free or reduced lunch. As in previous years, the school anticipates student retention will remain high at this campus.

Rocketship schools shall be open enrollment and tuition-free public charter schools and shall not discriminate or limit enrollment on the basis of race, color, religion, national origin, language spoken, intellectual or athletic ability, measures of achievement or aptitude, or status as a student with special needs. Rocketship does have a dedicated recruitment and community engagement team that is committed to developing relationships both within and outside of the school. This team has engaged parents and local community stakeholders in Milwaukee's north side to gauge and generate support for the north side campus and the process will continue.

Assessment

Each campus will use an assortment of assessments to measure students' achievement levels. These include nationally normed external assessments of both math and literacy to provide teachers with a granular breakdown of students' reading and math ability in terms of "fundamental skills" and general comprehension and additional skills. Each campus will also conduct additional standards-aligned assessments of each student to drive decisions about whether students need additional classroom support or tutoring.

Both Rocketship campuses will administer all assessments required by the Office of Charter Schools and the Wisconsin Department of Public Instruction (DPI), and other assessments, as necessary, to meet public and parent reporting requirements, including the *Measures of Academic Progress* assessment developed by the Northwest Evaluation Association (NWEA) and the Wisconsin Forward Exam.

Governance and Staffing

The Rocketship Wisconsin Board of Directors currently consists of five members who govern all Rocketship Milwaukee schools. The responsibilities of the Board include providing oversight of all financial and operational services as well as academic achievement and ultimately responsibility for the operation and activities of Rocketship schools in Wisconsin. Board members have a responsibility to solicit input from, and opinions of, the parents of students and the faculty and staff, regarding issues of significance, and to weigh the input and opinions carefully before taking action. The primary method for executing their responsibilities is the adoption of policies that offer guidance and interpretation of the charter and procedures to assist the staff in facilitating the implementation of such policies.

Rocketship Education Wisconsin will enter into a network services agreement with Rocketship Education, a California nonprofit public benefit corporation, under which Rocketship Education will provide services in connection with the operation of the school. This arrangement has already been in place since 2013 for Rocketship Education to provide services to RSCP.

Members of the Senior Leadership Team (Rocketship's national leaders) and the Board work together to ensure that all Milwaukee schools have the infrastructure and funding needed to maximize student achievement and parent engagement. Additionally, each Rocketship school will have a Parent Teacher Council, which will be involved in the operations and governance of each school.

The school will be overseen by a School Leadership Team, led by a principal who oversees the assistant principals, the business operations manager, and the office manager. To enable this School Leadership Team to remain focused on instruction and operations at the school site, Rocketship, through the management agreement, draws on centralized network support teams for many of the administrative services necessary for operating a school.

The Rocketship Education Wisconsin, Inc. Charter Contract

The contract negotiated by the Office of Charter Schools with Rocketship Education Wisconsin, Inc., meets all requirements of the UW-Milwaukee model charter school contract. Rocketship Education Wisconsin, Inc., is prepared to operate the Rocketship Southside Community Prep and the Rocketship North Side schools in accordance with all applicable state and federal requirements for charter schools. The full single contract is available at the web link below: https://panthers-

my.sharepoint.com/:b:/g/personal/nmbeier_uwm_edu/EbiVVr8Q6nJItMhi7xf8TGoB5vMAvSZ1 E7U6dxWcrxjIqA?e=9nVJdM

RECOMMENDATION

Based on the findings and recommendations of the Evaluation Committee, the director of the Office of Charter Schools, Provost Johannes Britz, and Chancellor Mark Mone recommend the approval of the charter for Rocketship Education Wisconsin, Inc., be approved by the Regents for a five-year contract beginning on July 1, 2018, and ending on June 30, 2023.