Welcome
1. (1:30 pm) Welcome and introduction of new members (Dean Karpus)

Automatic Consent
2. (1:35) Automatic consent approvals
   a. Minutes from May 8, 2020
   b. Approval of the one-year extension of active Graduate Faculty status for Sociology Emeritus Professors Pamela Oliver and Myra Ferree (Parmesh Ramanathan)
   c. Approval of the extension through September 30, 2020 of active Graduate Faculty status for Curriculum and Instruction Emeritus Professor Julia Eklund Koza (Parmesh Ramanathan)
   d. Approval of the one-year extension of active Graduate Faculty status for Comparative Literature and Folklore Studies Emeritus Professors Mary Layoun and Max Statkiewicz (Parmesh Ramanathan)

Approvals
3. (1:40) Request to discontinue Nurse Educator Capstone Certificate effective Spring 2021 (Barb Pinekenstein)
4. (1:43) Request to discontinue Capstone Certificate in Clinical Nurse Specialist-Adult/Gerontology effective Spring 2021 (Barb Pinekenstein)

3-year Check-in Discussion
5. (1:45) Proposal to remove current question #2 on the form and replace with:
   “Please reflect on the diversity of your student population using the data provided by the Graduate School. What efforts have you made to recruit a diverse student population, and what inclusion efforts have you made to ensure the success of the diverse population of students in the program? What areas of opportunity exist for future recruitment of diverse populations? (See here for Institutional statement and working definition of diversity.” (Dean Karpus)
Program Review

6. (1:55) Master of Science in Economics Named Option “Graduate Foundations” 5-year Review (Bret Shaw)

7. (2:15) Capstone Certificate in Infant, Early Childhood, and Family Mental Health 5-year Review (Lara Collier)

8. (2:30) Linguistics MA, PhD, & Doctoral Minor 10-year Review (Chris Walker)

9. (2:50) Master of Engineering Named Option “Sustainable Systems Engineering” 5-year Review (Christopher Choi)

10. (3:10) Master of Engineering in Civil and Environmental Engineering Named Option “Environmental Engineering” 5-year Review (Christopher Choi)
University of Wisconsin-Madison
Graduate Faculty Executive Committee Meeting
1:30 pm – 3:30 pm, Webex
May 8, 2020

M I N U T E S


Members Absent: Alex Dressler, Bret Shaw, Scott Straus, Earlise Ward

Guests: Kate Ecklund, Paola Hernandez, Carolyn Kelly, Pam McGranahan, Douglas Reindl, Douglas Rosenberg, Julia Rutledge, Linda Scott, Ananth Seshadri, Enno Siemsen, Carl Sovenec, Danny Willis, Paul Wilson, Jim Wollack

Staff: Jenna Alsteen, Judy Bauman, Amy Bergholz, Eileen Callahan, AJ Meinig, Emily Reynolds, Madeline Sena, Christopher Yue

Dean William Karpus called the meeting to order.

Automatic Consent

1. The following items were approved as a matter of automatic consent:
   a. Minutes of April 10, 2020

Approvals:

2. Dean Karpus introduced Professor Douglas Rosenberg who presented a request to change Master of Arts in Art from admitting to non-admitting effective Fall 2020. This change aligns with current practice.

Motion: Moved and seconded to approve changing Master of Arts in Art from admitting to non-admitting effective Fall 2020. The motion passed unanimously.

3. Dean Karpus introduced Professor Douglas Reindl who presented a request to discontinue Named Option “Controls” in the Master of Science in Mechanical Engineering effective Fall 2021. Admissions is currently suspended, the last enrolled students will complete program in Fall 2020.

Motion: Moved and seconded to discontinue Named Option “Controls” in the Master of Science in Mechanical Engineering effective Fall 2021. The motion passed unanimously.

4. Dean Karpus introduced Julia Rutledge and Professor Jim Wollack who presented a request to approve new Named Option “Learning Analytics” in the Master of Science in Educational Psychology effective Summer 2021. The request is responsive to growing demand for the program. Julia responded to questions regarding the program name and crossover with other programs.
Motion: Moved and seconded to approve new Named Option “Learning Analytics” in the Master of Science in Educational Psychology effective Summer 2021. The motion passed unanimously.

5. Dean Karpus introduced Associate Dean Enno Siemsen who presented a request to approve new Named Option “Professional MBA” in the Master of Business Administration: General Management effective Fall 2021. The program is designed to provide a great deal of flexibility for non-traditional students.

Motion: Moved and seconded to approve new Named Option “Professional MBA” in the Master of Business Administration: General Management effective Fall 2021. The motion passed unanimously.

6. Dean Karpus introduced Professor Carl Sovinec, who presented a request to approve new Named Option “Aerospace Engineering” in the Master of Science in Engineering Mechanics effective Fall 2021. The Named Option creates a specialization in Engineering Mechanics that is responsive to industry demand.

Motion: Moved and seconded to approve new Named Option “Aerospace Engineering” in the Master of Science in Engineering Mechanics effective Fall 2021. The motion passed unanimously.

7. Dean Karpus introduced Professor Ananth Seshadri who presented a request to approve new Degree Master of Science in Financial Economics effective Fall 2021. Provides advanced training in economics and finance. The program provides a unique opportunity to integrate two programs to better prepare students for employment in the financial services field. There is a void amongst peer institutions in fulfilling this need.

Motion: Moved and seconded to approve new Degree Master of Science in Financial Economics effective Fall 2021. The motion passed unanimously.

8. Dean Karpus introduced Assistant Professor Katie Eklund who presented a request to approve new Degree Educational Specialist (EdS) in School Psychology effective Summer 2021. The program is responsive to a shortage of school psychologists amongst K-12 schools in Wisconsin. This degree will satisfy licensure requirements in Wisconsin and most other states.

Motion: Moved and seconded to approve new Degree Educational Specialist (EdS) in School Psychology effective Summer 2021. The motion passed unanimously.

9. Dean Karpus introduced Associate Dean Danny Willis and Clinical Associate Professor Pam McGranahan who presented a request to approve five new Named Options in the Doctor of Nursing Practice that have historically been offered as informal tracks, effective Fall 2020:
   - Adult/Gerontology Acute Care Nurse Practitioner
   - Adult/Gerontology Clinical Nurse Specialist
   - Adult/Gerontology Primary Care Nurse Practitioner
   - Pediatric Primary Care Nurse Practitioner
   - Psychiatric Mental Health Nurse Practitioner

These tracks currently exist informally. The change to Named Options brings specializations into alignment with the university’s use of Named Options.
Motion: Moved and seconded to approve five new Named Options in the Doctor of Nursing Practice, effective Fall 2020:

- Adult/Gerontology Acute Care Nurse Practitioner
- Adult/Gerontology Clinical Nurse Specialist
- Adult/Gerontology Primary Care Nurse Practitioner
- Pediatric Primary Care Nurse Practitioner
- Psychiatric Mental Health Nurse Practitioner

The motion passed unanimously.

10. Dean Karpus introduced Associate Dean Danny Willis and Clinical Associate Professor Pam McGranahan who presented a request to approve new Named Option “Population Health Nursing” in the Doctor of Nursing Practice effective Fall 2021. The program is designed to develop leaders in population health improvement across health care, public health and community systems.

Motion: Moved and seconded to approve new Named Option “Population Health Nursing” in the Doctor of Nursing Practice effective Fall 2021. The motion passed unanimously.

11. Dean Karpus introduced Associate Dean Danny Willis and Clinical Associate Professor Pam McGranahan who presented a request to approve new Named Option “Systems Leadership and Innovation” in the Doctor of Nursing Practice effective Fall 2021. The advanced practice nursing program is designed to support the development of nurse leaders.

Motion: Moved and seconded to approve new Named Option “Systems Leadership and Innovation” in the Doctor of Nursing Practice effective Fall 2021. The motion passed unanimously.

Program Review

12. GFEC member Professor Shannon Stahl presented the Institutional 5-Year Program Review of the Capstone Certificate in Computer Sciences. Shannon noted the strengths of the program include serving a need to prepare students for employment in the Madison, WI area, close partnership with Epic to fill their employment pipeline, strong interest/enrollment numbers, ability to take courses off campus (at Epic facility).

The review committee recommendations include incentives to attract faculty who teach off-campus courses, advertise full-time enrollment option more broadly, and consider virtual instruction options to expand program access.

Motion: Moved and seconded to accept the Institutional 5-Year Review of the Capstone Certificate in Computer Sciences. The motion passed unanimously.

13. GFEC member Associate Professor Chris Walker presented the Low Award Program Review of the Certificate and Doctoral Minor in Transdisciplinary Study of Visual Cultures. Chris noted the strengths of the program include ability for students to propose an elective course, strong academic rigor and student experience, and clear description of program requirements on the website.
The review committee recommendations include initiating a campaign to inform campus of program offerings, change the title of the certificate for the ease of marketing the program, the implementation of assessment tools beyond GPA, clearer articulation of the advisor roles, better communication with faculty affiliates, better tracking of students using institutional processes of data collection e.g. SIS and better descriptions of curriculum on website.

Motion: Moved and seconded to accept the Low Award Program Review of the Certificate and Doctoral Minor in Transdisciplinary Study of Visual Cultures. The motion passed unanimously with two abstentions.

Approval

14. Dean Karpus introduced Professor Paola Hernandez who presented a request to change the name of Certificate and Doctoral Minor in Transdisciplinary Study of Visual Cultures to Visual Cultures effective Fall 2020. The name change will clear up confusion and help market the program.

Motion: Moved and seconded to approve changing the name of Certificate and Doctoral Minor in Transdisciplinary Study of Visual Cultures to Visual Cultures effective Fall 2020. The motion passed unanimously.

Adjournment:

Meeting adjourned by Dean William Karpus.
14 May 2020

Myra M. Ferree, Ph.D.
Alex H. Cook Professor Emerita
Department of Sociology
College of Letters and Science
University of Wisconsin-Madison
Sent Electronically

Dear Professor Ferree,

University of Wisconsin-Madison Faculty Policies and Procedures (FP&P) 3.05D provides that members of the graduate faculty are automatically permitted to retain graduate faculty status for one year after their retirement or resignation. Moreover, annual extensions of graduate faculty status for a retired or resigned faculty may be granted by the Graduate School dean on the affirmative recommendation of a departmental executive committee and with the approval of the Graduate Faculty Executive Committee.

Having received the endorsement of the Department of Sociology Executive Committee, I grant a provisional one-year extension of graduate faculty status, effective immediately, which will be subject to approval of the Graduate Faculty Executive Committee at its next meeting in September 2020.

Thank you for all your efforts to advance excellence in graduate education on our campus and for your unwavering support of graduate students.

Sincerely,

William J. Karps
Dean of the Graduate School
Professor of Pathology and Laboratory Medicine

Cc: Eric Wilcots, Interim Dean, College of Letters and Science
    Christine Schwartz, Professor and Chair, Department of Sociology
    Parmesh Ramanathan, Associate Dean, Graduate School
    Jenna Alsteen, Assistant Dean, Graduate School
    Heather Daniels, Secretary of the Faculty
14 May 2020

Pamela E. Oliver, Ph.D.
Professor Emerita
Department of Sociology
College of Letters and Science
University of Wisconsin-Madison

Dear Professor Oliver,

University of Wisconsin-Madison Faculty Policies and Procedures (FP&P) 3.05D provides that members of the graduate faculty are automatically permitted to retain graduate faculty status for one year after their retirement or resignation. Moreover, annual extensions of graduate faculty status for a retired or resigned faculty may be granted by the Graduate School dean on the affirmative recommendation of a departmental executive committee and with the approval of the Graduate Faculty Executive Committee.

Having received the endorsement of the Department of Sociology Executive Committee, I grant a provisional one-year extension of graduate faculty status, effective immediately, which will be subject to approval of the Graduate Faculty Executive Committee at its next meeting in September 2020.

Thank you for all your efforts to advance excellence in graduate education on our campus and for your unwavering support of graduate students.

Sincerely,

William J. Karpus
Dean of the Graduate School
Professor of Pathology and Laboratory Medicine

Cc: Eric Wilcots, Interim Dean, College of Letters and Science
Christine Schwartz, Professor and Chair, Department of Sociology
Parmesh Ramanathan, Associate Dean, Graduate School
Jenna Alsteen, Assistant Dean, Graduate School
Heather Daniels, Secretary of the Faculty
To: Interim Dean Eric Wilcots, College of Letters & Science  
From: Christine Schwartz, Chair, Department of Sociology  
Date: May 12, 2020  

Re: Extension of graduate faculty status for Pamela Oliver and Myra Ferree

Myra Ferree and Pam Oliver both retired from the Department of Sociology in 2019 (Myra in January 2019 and Pam in May 2019). As permitted by FPP 3.05.D, they both maintained graduate faculty status for the year following their retirement. However, given that COVID-19 is increasing time to degree for the Sociology students, allowing Pam and Myra to advise students and chair committees for an extra year would be quite helpful. The Department of Sociology’s Executive Committee voted on 4/29/20 to extend Pam Oliver’s and Myra Ferree’s graduate faculty status by one year (19-0-0, yes-no-abstain), pending the approval of the Dean and the GFEC.

I endorse the extension of the graduate faculty status of these emeritus faculty members.

5/12/2020

Eric Wilcots, Interim Dean
18 May 2020

Julia Eklund Koza, Ph.D.
Professor Emerita
Department of Curriculum and Instruction
School of Education
University of Wisconsin-Madison

Sent Electronically

Dear Professor Koza,

University of Wisconsin-Madison Faculty Policies and Procedures (FP&P) 3.05D provides that members of the graduate faculty are automatically permitted to retain graduate faculty status for one year after their retirement or resignation. Moreover, annual extensions of graduate faculty status for a retired or resigned faculty may be granted by the Graduate School dean on the affirmative recommendation of a departmental executive committee and with the approval of the Graduate Faculty Executive Committee.

Having received the endorsement of the Department of Curriculum and Instruction, I grant a provisional extension of graduate faculty status, effective immediately, which shall run through September 30, 2020. This will be subject to approval of the Graduate Faculty Executive Committee at its next meeting in September 2020.

Thank you for all your efforts to advance excellence in graduate education on our campus and for your unwavering support of graduate students.

Sincerely,

[Signature]

William J. Karpus
Dean of the Graduate School
Professor of Pathology and Laboratory Medicine

Cc: Diana Hess, Dean, School of Education
    John Rudolph, Professor and Chair, Department of Curriculum and Instruction
    Bernadette Baker, Graduate Programs Chair, Department of Curriculum and Instruction
    Parmesh Ramanathan, Associate Dean, Graduate School
    Jenna Alsteen, Assistant Dean, Graduate School
    Heather Daniels, Secretary of the Faculty
From: Parmesh RAMANATHAN
Sent: Monday, May 18, 2020 8:53 AM
To: WILLIAM J KARPUS; JENNA ALSTEEN
Subject: FW: Request for Extension of Graduate Faculty Status

Bill,

One more extension request.

--
Parmesh Ramanathan  
Associate Dean, Graduate School  
University of Wisconsin—Madison  
Room 217, Bascom Hall  
500 Lincoln Drive, Madison WI 53717  
+1 (608) 263-0557, parmesh.ramanathan@wisc.edu

Vilas Distinguished Achievement Professor Electrical and Computer Engineering University of Wisconsin—Madison  
4615 Engineering Hall  
1415 Engineering Drive, Madison, WI 53706  
+1 (608) 263-0557; parmesh.ramanathan@wisc.edu

http://www.ece.wisc.edu/~parmesh

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On 5/18/20, 8:41 AM, "John Rudolph" <john.rudolph@wisc.edu> wrote:

Dear Dean Karpus,

I am writing to request that Professor Emeritus Julia Eklund Koza be given an extension of her graduate faculty status until September 30, 2020. The extension will give her advisee, Robert Schoville, sufficient time to complete and defend his dissertation without seeking a co-advisor at the eleventh hour. Robert is close to finishing his dissertation; he is living in Turkey and has experienced a number of unforeseen setbacks in recent months stemming from the pandemic and from a number of family health emergencies. Professor Bernadette Baker, the Graduate Programs Chair for C&I, has been apprised of the situation and approves of this plan.

Sincerely,

John Rudolph

John L. Rudolph, Ph.D.  
Professor and Chair  
Department of Curriculum and Instruction  
University of Wisconsin-Madison
13 July 2020

Ernesto Livorni, Ph.D.
Professor and Chair
Department of French and Italian
College of Letters and Science
University of Wisconsin-Madison

Sent Electronically

Dear Professor Livorni,

University of Wisconsin-Madison Faculty Policies and Procedures (FP&P) 3.05D provides that members of the graduate faculty are automatically permitted to retain graduate faculty status for one year after their retirement or resignation. Moreover, annual extensions of graduate faculty status for a retired or resigned faculty may be granted by the Graduate School dean on the affirmative recommendation of a departmental executive committee and with the approval of the Graduate Faculty Executive Committee.

Having received your endorsement as current French and Italian and former Comparative Literature department chair, I grant a provisional extension of graduate faculty status, effective immediately through May 2021, for emeritus faculty members Mary Layoun and Max Statkiewicz. This will be subject to formal approval of the Graduate Faculty Executive Committee at its next meeting on September 11, 2020.

Thank you for all your efforts to advance excellence in graduate education on our campus and for your unwavering support of graduate students.

Sincerely,

William J. Karpus
Dean of the Graduate School
Professor of Pathology and Laboratory Medicine

Cc: Eric Wilcots, Dean, College of Letters and Science
Susan Zaeske, Associate Dean, College of Letters and Science
Parmesh Ramanathan, Associate Dean, Graduate School
Jenna Alsteen, Assistant Dean, Graduate School
Kipp Cox, Academic Services Director, Graduate School
Heather Daniels, Secretary of the Faculty
Program Change Request

Date Submitted: 04/23/20 11:45 am

Viewing: UNCS726: Nurse Educator Capstone Certificate

Last approved: 10/26/18 12:15 pm
Last edit: 06/02/20 10:11 am
Changes proposed by: kbleier

Catalog Pages Using this Program

Nurse Educator, Capstone Certificate

Name of the school or college academic planner who you consulted with on this proposal.

Name

Dan Willis - NUR

Proposal Abstract/Summary:

The School of Nursing (SoN), with the support of APIR and SoN governance is requesting to discontinue the Nurse Educator Capstone Certificate. The three courses related to this capstone certificate will continue to be taught in the SoN for current DNP students and/or students in the Nurse Educator grad/prof certificate.

If approved, what term should the proposed change be effective?

Spring 2021 (1214)

Select yes if this proposal is only to add, remove, or rearrange curricular requirements, and will change less than 50% of the curriculum.

No

Basic Information

Program State: Discontinued

Type of Program: Capstone Certificate (Special only)

Who is the audience?

Special

Home Department: School of Nursing (NURSING)

School/College: School of Nursing

The program will be governed by the home department/academic unit as specified. Will an additional coordinating or oversight committee be established for the
Is this in the Graduate School? Yes
SIS Code: UNSC726
SIS Description: Nurse Educator CAP
Transcript Title: Nurse Educator Capstone Certificate

--

Suspension and Discontinuation

What is the last term that a student could declare this program? Fall 2019 (1202)
What is the last term that students may be enrolled in or complete the program? Summer 2020 (1206)

What is the timeline and advance communication plan? There are currently no students enrolled in this capstone certificate, nor are there any applicants for the 2020-2021 academic year. Once the discontinuation is approved, we will update our website and external communications (flyers, etc).
Explain the precipitating circumstances or rationale for the proposal. There have been no students enrolled in this capstone certificate program since its inception and the School of Nursing does not see a need for this program in the future. Degree-seeking students in the Doctor of Nursing Practice (DNP) and nursing PhD program have completed the grad/prof nurse educator certificate, but no students have enrolled in the capstone.
What is the potential impact on enrolled students? There are no currently enrolled students in this capstone certificate.
What is the potential impact on faculty and staff? The courses affiliated with this capstone certificate will continue being taught as electives for our current DNP students and/or grad/prof certificate students. There will be no impact to faculty.
Explain and provide evidence of efforts made to confer with and to notify faculty and staff. School of Nursing governance, which includes faculty, staff, and students has approved the discontinuation of this capstone certificate.
Explain and provide evidence of efforts made to confer with and to notify current students. School of Nursing governance, which includes faculty, staff, and students has approved the discontinuation of this capstone certificate. There are no current students in the capstone certificate program with whom we could confer.
Explain and provide evidence of efforts made to confer with and to notify alumni and other stakeholders. The continued existence of the grad/prof certificate satisfies the interests of alumni and other stakeholders.
Teach-out plan - How will program quality be maintained during the suspended period or the teach-out period for discontinued programs? The courses affiliated with this capstone certificate will continue being taught as electives for our current DNP students and grad/prof certificate students.
Teach-out plan: A) For currently enrolled students, how will required courses, curricular elements, advising and other student services be provided? Not applicable.
Teach-out plan: B) For prospective students in the admissions pipeline, how are any commitments being met or needs to notify them that their program of interest will not applicable.
Teach-out plan: C) For stopped out students, what provisions are made for their re-entry? What program(s) will they be re-entered into? Not applicable.
Teach-out plan: D) Provide any other information relevant to teach-out planning.

Roles by Responsibility: List one person for each role in the drop down list. Use the green + to create additional boxes.

<table>
<thead>
<tr>
<th>Role Type</th>
<th>Name (Last, First)</th>
<th>Email</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department Chair</td>
<td>Scott, Linda</td>
<td><a href="mailto:ldscott@wisc.edu">ldscott@wisc.edu</a></td>
<td>608/263-9725</td>
</tr>
</tbody>
</table>
Are all program reviews in the home academic unit up to date? Yes
Are all assessment plans in the home academic unit up to date? Yes
Are all assessment reports in the home academic unit up to date? Yes
Mode of Delivery: Distance Education (100% online)

Provide information on how any lab courses required for the degree will be handled.

Will this program be part of a consortial or collaborative arrangement with another college or university? No
Will instruction take place at a location geographically separate from UW-Madison? No
Will this program have outside accreditation? No
Will graduates of this program seek licensure or certification after graduation? No

Faculty and Staff Resources

List the departments that have a vested interest in this proposal.

Curriculum and Requirements

If you are proposing a change to the curriculum, what percentage of the curriculum is changing? No change

Guide Admissions/How to Get In tab

ADMISSIONS
Applicant minimal requirements:
Master's degree from an accredited nursing program or currently enrolled in a DNP or Ph.D. in nursing program
RN license
MS GPA of 3.0

Students are admitted to begin in the spring term only, with an application deadline of November 1 and admission notification in December. A holistic review of all applicants occurs. Regardless of experience level, ideal candidates possess a desire to expand their knowledge and understanding of the science of nursing education. The program seeks those who are committed to providing evidence-based nursing education and who understand the demands of the program. Adult Career and Special Student Services (ACSSS) is the office for all University Special students. However, the School of Nursing makes the final admission decision upon review of all applicant materials.

Application steps
A complete application includes the following information:
An online application for admission as a University Special student, selecting UNCS Capstone Certificate and the program: Nurse Educator. This application is received and processed by ACSSS with final decision held for approval from the specific capstone certificate coordinator.
Submit required materials to the School of Nursing at the address below. To include in one envelope:
Application Form (download from the Nurse Educator certificate website)
Nurse Educator Transcript Instruction Sheet (download from the program page)
Postgraduate Education Statement (1,000 words or less)
Are international students permitted to enroll in this program? No

Those who are not familiar with using the html editor fields may upload a document with information about the curriculum for use by those who will format and edit the content that will appear in the Guide.

Guide Requirements tab

Must have a minimum GPA of 2.000
Certificate requires 9 credits

Course List

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Courses</td>
<td></td>
</tr>
<tr>
<td>NURSING 785</td>
<td>Foundations of Curriculum Development and Evaluation in Nursing Education</td>
</tr>
<tr>
<td>NURSING 786</td>
<td>Foundations of Teaching and Learning in Nursing</td>
</tr>
<tr>
<td>NURSING 787</td>
<td>Nursing Education Practicum</td>
</tr>
</tbody>
</table>

Total credits required: 9

Semesters to completion: 3

Guide Graduate Policies tab

Program Learning Outcomes and Assessment

List the program learning outcomes.

<table>
<thead>
<tr>
<th>Outcomes – enter one learning outcome per box. Use the green + to create additional boxes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>
Demonstrate knowledge of curriculum development, actively participate and lead curriculum and course design. Analyze and revise curriculum based on program evaluation, implement curricular revisions using change theories and strategies, collaborate with community and clinical partners. Design, implement and evaluate program assessment plans.

Promote one’s socialization to the educator role, maintain professional memberships and activity in professional organizations. Demonstrate lifelong learning, participate in professional development, manage teaching, scholarship/service demands. Use feedback. Practice according to legal and ethical standards, mentor faculty colleagues, engage in self-reflection to improve teaching practices.

a) Function as change agent, enhance nursing visibility, participate in interdisciplinary efforts, develop leadership, advocate for nursing/education in politics. b) Exhibit inquiry, use evidence-based resources, research, share teaching expertise, demonstrate integrity. c) Identify nursing/education influencers; make trend-based decisions; integrate values of respect, collegiality, caring.

Summarize the assessment plan.

Approved Assessment Plan:

**Commitments**

All required courses are approved through the school/college level.

Yes

Courses are offered on a regular basis to allow timely completion.

Yes

Courses have enrollment capacity.

Yes

Courses in the curriculum are numbered 300 or higher.

Yes

Courses in which a student elects the pass/fail option will not count toward completion of requirements.

Yes

Special topics courses are only used if all topics count for the certificate.

Yes

All requirements must be met; exceptions that amount to waiving requirements are not permitted.

Yes

Course substitutions to the curriculum should be kept to a minimum; if substitutions are being made on a regular basis, the curriculum should be re-examined. When course substitutions are made, the substituted course should be formally added to the curriculum through governance for inclusion in the curriculum the following academic year.

Yes

Substitutions are not permitted for any course unless the substitution would be provided for every student with the same substitution request.

Yes

All of the Capstone certificate credits must be earned “in residence” (which includes on campus and distance-delivered courses) at UW-Madison while enrolled in the Cap program. Because a Capstone certificate is comprised of just a few courses, it is not appropriate for students who already have completed the same or similar coursework or another institution.

Yes

Students must earn a minimum grade of C on all attempted Capstone certificate coursework.

Yes

The program faculty/staff will ensure the program is encoded into DARS and will work with the Registrar’s Office DARS liaison to keep approved revisions to the curriculum.

Yes

All students will be declared into the appropriate plan code in SIS via either an admission process or e-declaration. If the student does not have the plan code on their SIS the student is not considered to be in the program.

Yes

The program faculty/staff will ensure the program website, Advance Your Career materials if applicable, and other presentations are consistent with the Guide information program.
Degree-seeking students may not be concurrently enrolled in a Capstone certificate program.

Students enrolled in Capstone certificate programs are NOT eligible for teaching assistant (TA), research assistant (RA), project assistant (PA) nor graduate fellowship support. They must disclose this program policy to Capstone certificate students in the recommendation of admission letter, program website, program handbook, and program orientation.

To be eligible for admission to a Capstone program, a student must hold an earned bachelor’s degree or equivalent credential from an accredited college or university.

## Supporting Information

List name and department of those who are in support of this proposal.

If those supporting the proposal provided a letter or email of support upload here. A letter is NOT required. Upload any other explanatory information about support from other UW-Madison units.

Additional Information:

## Approvals

**Department Approval** - This proposal has been approved by the faculty at the department/academic unit level. The program faculty confirm that the unit has the capacity and resources (financial, instructional, and administrative) to meet the responsibilities associated with offering the program, including offering the necessary courses, advising students, maintaining accurate information about the program in the Guide and elsewhere, conducting student learning assessment and program review, and otherwise attend to all responsibilities related to offering this program.

Enter any notes about approval here:

Entered by: Katie Bleier  
Date entered: 5/8/2020

**School/College Approval** - This proposal has been approved at the school/college level and it is submitted with the Dean's support. The Dean and program faculty confirm that the unit has the capacity and resources (financial, physical, instructional, and administrative) to meet the responsibilities associated with offering the program, including offering the necessary courses, advising students, maintaining accurate information about the program in the Guide and elsewhere, conducting student learning assessment and program review, and otherwise attend to all responsibilities related to offering this program.

Enter any notes about approval here:

Entered by and date: Katie Bleier  
Date entered: 5/8/2020

**GFEC Approval** - This proposal has been approved by the Graduate Faculty Executive Committee and the Dean of the Graduate School.

Enter any notes about the approval here:

Entered by:  
Date entered:

**UAPC Approval** - This proposal has been approved by the University Academic Planning Council and the Provost.

Enter any notes about approval here:

Entered by:  
Date entered:

## For Administrative Use

Admin Notes:

Guide URL:

Effective date:  
Career: Special Student
<table>
<thead>
<tr>
<th><strong>SIS Program Code:</strong></th>
<th>UNCS</th>
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</thead>
<tbody>
<tr>
<td><strong>SIS Short Description:</strong></td>
<td>Nurse Ed</td>
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<td><strong>Other plan codes associated with this program:</strong></td>
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<tr>
<td><strong>Degree:</strong></td>
<td>CRT</td>
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<td><strong>Field of Study:</strong></td>
<td>Social Science</td>
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<td><strong>Program Length:</strong></td>
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<td><strong>National Student Clearing House Classification:</strong></td>
<td>Post Baccalaureate certificate</td>
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<td><strong>Plan Group:</strong></td>
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<td>Capstone</td>
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<td><strong>Enrollment Category:</strong></td>
<td>Capstone Special</td>
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<td><strong>Special Plan Type:</strong></td>
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<td>Postbaccalaureate certificate</td>
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| **Reviewer Comments:** | **Karen Mittelstadt (mittelstadt) (04/23/20 2:38 pm):** Rollback: APIR Rollback: Please enter Department and School/College approval text. For help, see this KB doc: <https://kb.wisc.edu/lumen/85079>
Program Change Request

Date Submitted: 05/08/20 11:55 am

Viewing: UCNS727 : Capstone Certificate in Clinical Nurse Specialist - Adult/Gerontology

Last approved: 09/18/18 11:24 am
Last edit: 07/20/20 3:17 pm
Changes proposed by: kbleier

Catalog Pages Using this Program

Clinical Nurse Specialist – Adult/Gerontology, Capstone Certificate

Proposal Abstract/Summary:
The School of Nursing (SoN), with the support of APIR and SoN governance is requesting to discontinue the Clinical Nurse Specialist - Adult/Gerontology Capstone Certificate. Since its inception, the CNS Capstone Certificate has had no students enroll.

If approved, what term should the proposed change be effective?

Spring 2021 (1214)

Select yes if this proposal is only to add, remove, or rearrange curricular requirements, and will change less than 50% of the curriculum.

No

Basic Information

Program State: Discontinued
Type of Program: Capstone Certificate (Special only)
Who is the audience?

Special

Home Department: School of Nursing (NURSING) NURSING
School/College: School of Nursing

The program will be governed by the home department/academic unit as specified. Will an additional coordinating or oversight committee be established for the program?
No

Is this in the Graduate School? Yes

SIS Code: UNCS727

SIS Description: Clinical Nurse Specialist CAP

Transcript Title: Capstone Certificate in Clinical Nurse Specialist - Adult/Gerontology

### Suspension and Discontinuation

What is the last term that a student could declare this program? Fall 2019 (1202)

What is the last term that students may be enrolled in or complete the program? Summer 2020 (1206)

What is the timeline and advance communication plan?

There are currently no students enrolled in this capstone certificate, nor are there any applicants for the 2020-2021 academic year. Once the discontinuation is approved, we will update our website and external communications (flyers, etc).

Explain the precipitating circumstances or rationale for the proposal.

There have been no students enrolled in this capstone certificate program since its inception and the School of Nursing does not see a need for this program in the future. Degree-seeking students in the Doctor of Nursing Practice (DNP) and nursing PhD program have completed the grad/prof nurse educator certificate, but no students have enrolled in the capstone.

What is the potential impact on enrolled students?

There are no currently enrolled students in this capstone certificate.

What is the potential impact on faculty and staff?

The courses affiliated with this capstone certificate will continue being taught as electives for our current DNP students and/or grad/prof certificate students. There will be no impact to faculty.

Explain and provide evidence of efforts made to confer with and to notify faculty and staff.

Explain and provide evidence of efforts made to confer with and to notify current students.

School of Nursing governance, which includes faculty, staff, and students has approved the discontinuation of this capstone certificate. There are no current students in the capstone certificate program with whom we could confer.

Explain and provide evidence of efforts made to confer with and to notify alumni and other stakeholders.

Teach-out plan - How will program quality be maintained during the suspended period or the teach-out period for discontinued programs?

The courses affiliated with this capstone certificate will continue being taught as electives for our current DNP students and grad/prof certificate students.

Teach-out plan: A) For currently enrolled students, how will required courses, curricular elements, advising and other student services be provided?

not applicable

Teach-out plan: B) For prospective students in the admissions pipeline, how are any commitments being met or needs to notify them that their program of interest will not be available?

There are currently no students in the application pipeline. We will work to update our website/paper materials upon approval.

Teach-out plan: C) For stopped out students, what provisions are made for their re-entry? What program(s) will they be re-entered into?

not applicable

Teach-out plan: D) Provide any other information relevant to teach-out planning.

Roles by Responsibility: List one person for each role in the drop down list. Use the green + to create additional boxes.

<table>
<thead>
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<th>Role Type</th>
<th>Name (Last, First)</th>
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<tr>
<td>Department Chair</td>
<td>Scott, Linda</td>
<td><a href="mailto:ldscott@wisc.edu">ldscott@wisc.edu</a></td>
<td>608/263-9725</td>
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<tr>
<td>Faculty Director</td>
<td>Mcgranahan, Pamela</td>
<td><a href="mailto:pmcgranahan@wisc.edu">pmcgranahan@wisc.edu</a></td>
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</table>
Are all program reviews in the home academic unit up to date? Yes
Are all assessment plans in the home academic unit up to date? Yes
Are all assessment reports in the home academic unit up to date? Yes
Mode of Delivery: Face-to-Face (majority face-to-face courses)
Will this program be part of a consortial or collaborative arrangement with another college or university? No
Will instruction take place at a location geographically separate from UW-Madison? No
Will this program have outside accreditation? No
Will graduates of this program seek licensure or certification after graduation? No

Faculty and Staff Resources

Confirm that the program advisor(s) or coordinator(s) have been consulted and reviewed this proposal. Yes

Curriculum and Requirements

If you are proposing a change to the curriculum, what percentage of the curriculum is changing? No change

Guide Admissions/How to Get In tab

Applicant requirements
Master’s degree from an accredited nursing program
Current RN licensure in Wisconsin (or eligibility)
Completion of prerequisite courses (3 credits each) in physiology, physical assessment, and pharmacology with a grade of B or better. Physiology and physical assessment must be within 5 years and pharmacology must be within 3 years.

Admission
A complete application includes the following:
An online application for admission as a University Special student, selecting UNCS Capstone Certificate and the program: Clinical Nurse Specialist–Adult/Gerontology. This received and processed by ACSSS with final decision held for approval from the specific capstone certificate coordinator.
Additional steps as required by the School of Nursing.

Enrollment
Admitted students receive a formal letter of admission to UW–Madison from Adult Career and Special Student Services along with general enrollment information. Additional steps provided on the ACSSS enrollment page.
The School of Nursing will send an email to admitted students with specific information pertaining to enrollment in and completion of the capstone program.

Are international students permitted to enroll in this program? No
Those who are not familiar with using the html editor fields may upload a document with information about the curriculum for use by those who will format and edit the content that will appear in the Guide.

https://next-guide.wisc.edu/courseleaf/approve/?role=GRAD SCH Dept. Approver
Total credits required:

Semesters to completion:

Guide Graduate Policies tab

Program Learning Outcomes and Assessment

List the program learning outcomes.

<table>
<thead>
<tr>
<th></th>
<th>Outcomes – enter one learning outcome per box. Use the green + to create additional boxes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Integrate nursing science with knowledge from the biophysical, psychosocial, analytical, and organizational sciences as the basis for advanced nursing practice in the CNS role.</td>
</tr>
<tr>
<td>2</td>
<td>Demonstrate advanced nursing knowledge of assessment and disease management in the adult-gerontological patient populations, including the use of pharmacologic and nonpharmacologic interventions to promote and maintain health.</td>
</tr>
<tr>
<td>3</td>
<td>Demonstrate advanced levels of clinical judgment, systems thinking, and professional accountability in designing, delivering, and evaluating evidence-based care to support positive patient outcomes and systems of care.</td>
</tr>
<tr>
<td>4</td>
<td>Strategically practice and demonstrate effectiveness within the three spheres of influence that comprise CNS practice: clients, nurses and nursing practice, and organizational systems of care.</td>
</tr>
<tr>
<td>5</td>
<td>Guide, mentor, and support other nurses to achieve excellence in clinical nursing practice.</td>
</tr>
</tbody>
</table>

Summarize the assessment plan.

Approved Assessment Plan:

Commitments

All required courses are approved through the school/college level.

Yes

Courses are offered on a regular basis to allow timely completion.

Yes

Courses have enrollment capacity.

Yes

Courses in the curriculum are numbered 300 or higher.

Yes

Courses in which a student elects the pass/fail option will not count toward completion of requirements.

Yes

Special topics courses are only used if all topics count for the certificate.

Yes

All requirements must be met; exceptions that amount to waiving requirements are not permitted.
Course substitutions to the curriculum should be kept to a minimum; if substitutions are being made on a regular basis, the curriculum should be re-examined. When course substitutions are made, the substituted course should be formally added to the curriculum through governance for inclusion in the curriculum the following academic year.

Substitutions are not permitted for any course unless the substitution would be provided for every student with the same substitution request.

All of the Capstone certificate credits must be earned “in residence” (which includes on campus and distance-delivered courses) at UW-Madison while enrolled in the Capstone program. Because a Capstone certificate is comprised of just a few courses, it is not appropriate for students who already have completed the same or similar coursework at another institution.

Students must earn a minimum grade of C on all attempted Capstone certificate coursework.

The program faculty/staff will ensure the program is encoded into DARS and will work with the Registrar’s Office DARS liaison to keep approved revisions to the curriculum.

All students will be declared into the appropriate plan code in SIS via either an admission process or e-declaration. If the student does not have the plan code on their SIS the student is not considered to be in the program.

The program faculty/staff will ensure the program website, Advance Your Career materials if applicable, and other presentations are consistent with the Guide information program.

Degree-seeking students may not be concurrently enrolled in a Capstone certificate program.

Students enrolled in Capstone certificate programs are NOT eligible for teaching assistant (TA), research assistant (RA), project assistant (PA) nor graduate fellowship support. They must disclose this program policy to Capstone certificate students in the recommendation of admission letter, program website, program handbook, and program orientation.

To be eligible for admission to a Capstone program, a student must hold an earned bachelor’s degree or equivalent credential from an accredited college or university.

---

**Supporting Information**

List name and department of those who are in support of this proposal.

If those supporting the proposal provided a letter or email of support upload here. A letter is NOT required. Upload any other explanatory information about support from other UW-Madison units.

Additional Information:

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**Approvals**

Department Approval - This proposal has been approved by the faculty at the department/academic unit level. The program faculty confirm that the unit has the capacity and resources (financial, physical, instructional, and administrative) to meet the responsibilities associated with offering the program, including offering the necessary courses, advising students, maintaining accurate information about the program in the Guide and elsewhere, conducting student learning assessment and program review, and otherwise attend to all responsibilities related to offering this program.

School/College Approval - This proposal has been approved at the school/college level and it is submitted with the Dean’s support. The Dean and program faculty confirm that the unit has the capacity (financial, physical, instructional, and administrative) to meet the responsibilities associated with offering the program, including offering the necessary courses, advising students, maintaining accurate information about the program in the Guide and elsewhere, conducting student learning assessment and program review, and otherwise attend to all responsibilities related to offering this program.

Enter any notes about approval here:

Entered by: Katie Bleier
Date entered: 5/08/2020

Discontinuation of the Capstone Certificate in Clinical Nurse Specialist - Adult/Gerontology was approved by the School of Nursing’s Academic Planning Council on May 8, 2020.

School/College Approval - This proposal has been approved at the school/college level and it is submitted with the Dean’s support. The Dean and program faculty confirm that the unit has the capacity (financial, physical, instructional, and administrative) to meet the responsibilities associated with offering the program, including offering the necessary courses, advising students, maintaining accurate information about the program in the Guide and elsewhere, conducting student learning assessment and program review, and otherwise attend to all responsibilities related to offering this program.

Enter any notes about approval here:

Entered by: Katie Bleier
Date entered: 5/08/2020

Discontinuation of the Capstone Certificate in Clinical Nurse Specialist - Adult/Gerontology was approved by the School of Nursing’s Academic Planning Council on May 8, 2020.
**GFEC Approval** - This proposal has been approved by the Graduate Faculty Executive Committee and the Dean of the Graduate School.

Enter any notes about the approval here:

Entered by:  
Date entered:

**UAPC Approval** - This proposal has been approved by the University Academic Planning Council and the Provost.

Enter any notes about approval here:

Entered by:  
Date entered:

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### For Administrative Use

Admin Notes:  
Guide URL:  
Effective date:  

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Reviewer Comments:
Three-Year Check-In for New Programs

The creation and maintenance of graduate programs and certificates represents significant resource commitments by faculty and staff. Given these investments, in 2014 the Graduate Faculty Executive Committee (GFEC) established a “check in” process for newly approved programs and certificates prior to their first formal university review (which occurs in the fifth year.) Through this “check-in,” the GFEC hopes program faculty and staff will assess the implementation of their new program and determine what mechanisms may be needed for sustained student success.

Progress reports will be included on GFEC agendas, and program representatives may be asked to attend GFEC if additional information is requested. In the interest of brevity, please keep responses to 300 words or less.

Program Name

Term of First Enrollments

Check-In Completed By

Date Completed

Academic Quality and Student Success

1. Provide an update on any changes to the program’s curriculum and learning outcomes. Include a description of the program’s typical course modalities (face-to-face, online, asynchronous discussion, team or individual assignments) and if courses have evolved based on faculty or student feedback.

2. Briefly explain the program’s learning outcomes assessment plan and discuss how you are or how you plan to evaluate student learning. Summarize any data collected to date showing evidence of student learning.

3. The GFEC is interested to learn how departments balance faculty and staff teaching loads and responsibilities between new and existing programs. Discuss how the department or program is achieving balance, and what challenges supporting multiple programs may

Commented [JA1]: Proposal is to change to: Please reflect on the diversity of your student population using the data provided by the Graduate School. What efforts have you made to recruit a diverse student population, and what inclusion efforts have you made to ensure the success of the diverse population of students in the program? What areas of opportunity exist for future recruitment of diverse populations? (See here for institutional statement and working definition of diversity.)
have created for teaching, student services, advising or funding. Also of interest is information on what if any assets are shared between programs, or additional benefits that have been realized.

4. Please describe how your program has ongoing and broad faculty commitment, including governance, to ensure its continued success. If applicable, reflections from faculty and staff can be included here or as an appendix. Also consider if implementation of this program is supporting the Department and/or School/College’s current strategic goals.

**Operations and Administration**

5. Explain how the program has either brought in NEW and ADDITIONAL students (required for non-pooled programs), and/or how overall enrollment in your related programs has remained steady. If unanticipated overlap with existing programs has resulted, discuss steps to mitigate the overlap.

"Non-pooled programs should provide a brief narrative explanation along with the updated budget template populated with data from the past 3 years. This updated budget template will also be reviewed by the Program Revenue Budget Committee.

6. Funding Considerations

   a. For traditional/pooled programs – How is the program successfully funding its students?

   b. For non-pooled programs – Refer to the updated budget template in addressing if the program has sufficient enrollment for sustainability. Discuss the current market outlook compared to the original marketing study and plans to grow or change the program to become sustainable.

7. If the program admits international students, describe how program processes address length of stay visa issues, online course restrictions, and needing ESL services.

8. Are there any issues impacting the program’s long-term sustainability? If so, what support would you like to help you succeed?
17 February 2020

TO: Ananth Seshadri, Professor and Chair, Department of Economics
FROM: Eric Wilcots, Interim Dean, L&S
RE: L&S APC Completion of Academic Program Review: MS-Economics, “Graduate Foundations”
CC: Jenna Alsteen, Assistant Dean, Graduate School
 Greg Downey, Associate Dean for Social Science, L&S
 Elaine M. Klein, Associate Dean for Academic Planning, L&S
 Jocelyn Milner, Vice Provost and Director, Academic Planning and Institutional Research
 James Montgomery, Associate Dean for Fiscal Initiatives, L&S
 Jennifer Noyes, Associate Dean for Operations and Staff, L&S
 Parmesh Ramanathan, Associate Dean, Graduate School

On February 4, 2020, the L&S Academic Planning Council discussed the materials submitted for the mandated five-year review of the named option, “Graduate Foundations,” offered under the MS-Economics program. As you know, such reviews are conducted for new programs five years after they enroll students in order to evaluate whether the program goals are being met and to address any issues best addressed early in the program’s existence. Associate Dean Greg Downey led discussion of the materials you provided for the self-study and the review committee’s report. (You may recall that you did not provide any corrections in facts discussed in the report.)

Council members were impressed by the success of this carefully managed program, which has seen an increase in applications and steady enrollments that have exceeded expectations. The department reaches out to admitted students with mentoring and advice to help them prepare for arrival. This effort, and the orientation, likely contributes to a positive transition into the program (and for most students, to study at a U.S. university) as well as to retention in the program. The curriculum appears to balance well a limited set of required coursework with a modest amount of flexibility via electives, and students complete it at a remarkable rate (94.2%) and in a timely way. Students go on to further academic study (consistent with the original intent of the program) or into industry. Students interested in moving into careers are able to use the services of the Economics Career Development Office, meeting with career advisors and networking with employers.
APC members noted that a variety of direct and indirect measures are used to assess student achievement of learning outcomes, and were pleased to learn that these efforts appear to provide useful information for program improvement, including refinements to the curriculum and to procedures to align students’ areas of research interest with faculty expertise.

The review committee offered a number of suggestions, in the spirit of helping this successful and healthy program grow and improve. We trust that you and your colleagues will consider those suggestions and will adopt those that make the best sense. Of course, you will be in communication with Associate Deans Downey and Montgomery about any changes that might affect resources constraints in other units (for example, if Economics were to make arrangements for the Writing Center to provide non-credit support for these students).

I am happy to report that the L&S APC unanimously approved a motion to consider the L&S portion of this review complete, and to allow this very successful program to continue to be offered. The next phase of review will involve discussion by the Graduate Faculty Executive Committee, which may offer advice from its perspective.
Review Committee Report for the MS-Graduate Foundations Program in Economics
Professor Michael W. Wagner, School of Journalism and Mass Communication (Chair)
Professor A-Xing Zhu, Geography
Professor Bret Shaw, Life Science Communication (GFEC Representative)

Summary of the Activities of the Review Committee
The review committee held an initial meeting to discuss the Self-Study document submitted on behalf of the MS-Graduate Foundations Program in the Department of Economics. We contacted Professor Ananth Seshadri, Faculty Program Director and Chair of the department to schedule meetings with him, Tchai Veu (the MS Program Coordinator), and Kim Grocholski (the department’s Graduate Advisor). After individual meetings with Professor Seshadri, Veu, and Grocholski, the committee advertised a focus group meeting with graduate students. Two students attended the initial meeting. The committee endeavored to hold an additional meeting, hoping especially for more Chinese students to attend (Chinese students make up over 80 percent of the students in the program; none were able to attend the first meeting). Six Chinese students (three in their first year and three in their second year) attended the second meeting. Four other students engaged in a brief email exchange with the Chair of the Review Committee, Professor Mike Wagner. Prof. Wagner also engaged in phone interviews with several faculty in the Department of Economics; most notably Jack Porter and Chris Taber, who regularly teach in the program. After each meeting, the committee members shared notes with each other. Wagner collected the notes and began drafting a document that all committee members contributed to with original writing and editing.

Materials Received (Some initially and some by later request from the Review Committee)

- L&S Dean’s Charge
- Department of Economics Self-Study of the MS-Graduate Foundations Program
- Department of Economics Three-Year GFEC Check-In Report
- Originating Documents of the MS-Graduate Foundations Program
- Several Course Syllabi, both Core and Elective Courses
- Department Surveys of Students in the Program in 2017, 2018, 2019
- Fall and Spring Enrollment Numbers 2013-2018

It is clear that the department uses assessment data to improve the program. The department gathers a variety of data relating to student experiences in the program and engages in assessments in the various courses students take to directly explore whether and how students are meeting the learning outcomes for the program.

The program appears to play a substantive and meaningful role in the department. Senior faculty teach in the program. Second-year students mentor first-year students. Ph.D. students informally mentor some of the students in the program. The department holds informal social gatherings for the group and engages in planned programmatic activity, such as meetings to help students interested in industry careers navigate the job market. The program is directly related to the mission of the department.
The faculty we spoke with are highly supportive of the program. The administrative staff we spoke with are similarly supportive. The program’s success is a point of pride for many in the department. Alumni occasionally engage with MS students, especially those with an industry interest, as well.

**Program Strengths**

**Graduate Student Achievement in the Program**

The major purpose of the program is to train students for Ph.D. work in economics. In general, the program appears to be succeeding at a high level with respect to this central purpose. Students who have completed the program have a far greater likelihood to report that have been accepted into a program to study for a Ph.D. than the typical economics graduate school aspirant. Students who are more inclined for professional careers in industry also found this program beneficial. It also appears to be the case that students pursuing the industry route are generally finding opportunities there after graduation as well.

The Review Committee was provided year-end surveys of 2nd year students in 2017, 2018, and 2019. The surveys showed that about half of the program’s students end up going on to a Ph.D. program in economics. A cursory review of publicly available admissions statistics from top Ph.D. programs in economics reveals the admission rate to be around 10 percent. While not controlling for other potentially relevant factors, this suggests that students who finish the MS-Graduate Foundations Program are five times more likely to be admitted into a Ph.D. program than the average applicant. By this key metric, the MS-Graduate Foundations Program is a success. Stipulating that, though, over the last three years, Figure 1 illustrates that the overall percentage of students who had been accepted into a Ph.D. program is declining while the percentage of students who had already accepted industry offers has been rising.

**Figure 1: Post-Graduation Plans for MS-Graduate Foundations Cohort**

![Figure 1](image)

*Source: Surveys of MS-Graduate Foundations 2nd year Students*

However, this decline does not suggest that the program is less successful over time. Comparing the percentage of students who want to pursue a Ph.D. to those who were accepted into a Ph.D. program at the time of the survey has been relatively steady over the same time period. This reflects Professor Seshadri’s impression that an increasing number of students are coming into the program interested in industry work as compared to pursuing a Ph.D. Other faculty did not
necessarily share that impression, though they have less contact with the whole cohort of students than Professor Seshadri does.

The remaining students, not captured in the figure, are either still applying to Ph.D. programs or continuing to seek industry employment. It does not appear as though the department has another mechanism to track their success beyond the year-end graduation survey.

**Program Growth**

After a year to get started, the program has enjoyed healthy numbers. The program grew from 2013 to 2016 and has held fairly steady in overall size since then. Faculty and staff agree that the program ought not to get much larger given the current state of resources required to administer the program effectively. In other words, the department appears satisfied with the growth of the program to date and believe they are in a healthy position for the foreseeable future.

**Figure 2: Program Enrollment, 2013-2018**

![Program Enrollment, 2013-2018](image)

*Source: Department of Economics*

**Graduate Student Perceptions of the Program**

The review committee held two formal focus group sessions with graduate students in the MS-Graduate Foundations Program and offered to have private conversations with any additional interested students. The committee also reviewed the top-line results of surveys that the Department of Economics administered to students in the program in 2017, 2018, and 2019.

Both 1st and 2nd year MS-Graduate Foundations students had many positive things to say about the program. Every 2nd year student with whom we spoke said that they would, knowing what they know now, enter the MS Graduate Foundations Program again. Areas of satisfaction included the econometrics training, the fact that the department generally has distinguished full professors teaching in the program (as compared to other MA and MS programs that tend to have adjunct professors, lecturers or junior faculty teach the junior graduate students), the ability to
produce a research paper suitable to use as a graduate school writing sample in the 2nd year, networking opportunities, and a sense that help, if needed, was accessible to them.

Students answering open-ended questions in the yearly surveys conducted by the department repeatedly praised the Program Director, the Program Coordinator, faculty, networking opportunities with faculty and alumni, econometrics training and the curricular design.

Focus Group participants articulated their appreciation of the intense rigor of the three-seminar econometrics sequence. They also expressed that Program Coordinator Tchai Veu was available to answer their questions about the program. Students also agreed that Professor Seshadri made efforts to engage with students, especially via informal networking events held a few times a year.

The surveys of the 2nd year students in the program, see Figure 3, revealed near universal contact with the Program Coordinator, Tchai Veu, as well as regular contact with faculty outside of class. Despite the size of the program, Professor Seshadri personally met with roughly two-thirds of the 2nd year students at least once and about 40 percent of students two or more times.

**Figure 3: Percentage of 2nd Year Cohorts That Met At Least Once With Various MS-Graduate Foundation Program Personnel**

![Bar chart showing percentage of 2nd Year Cohorts that met at least once with various MS-Graduate Foundation Program Personnel over 2017, 2018, and 2019.]

*Source: Surveys of MS-Graduate Foundations 2nd year Students*
*Career Advisor not asked about in 2017.*

General areas in which Focus Group participants expressed a desire for something different than they are getting in the program included aspirations to be research assistants, a more structured mentoring relationship between 1st and 2nd year students, large class and cohort sizes, and – for Chinese students – more routinized opportunities to practice English. Student surveys raised similar issues, though many students took care to reiterate their satisfaction with the program.

Some 1st year students in our focus groups expressed frustration about a lack of clarity with respect to how they would be mentored by 2nd year students. This surprised some 2nd year students, who remarked that once a student was assigned a mentor, the expectation was that the 1st year student would reach out to the mentor with any questions or problems. 2nd year students noted that the instruction they receive is to contact their mentees on email and wait to see if the
mentees need to engage with the mentors. Some 2nd year students said that they took it upon themselves to contact their mentees and meet with them proactively, but noted that this was not typical behavior.

Some 1st year students felt that the regimented nature of the 1st semester seminar requirements should be relaxed in favor of a more a la cart program. 2nd year students generally felt that there was enough curricular choice in the 2nd year of the program and expressed a gratefulness to have had the thorough econometrics and theoretical training in the first year, before Ph.D. graduate applications would be due in the fall of the 2nd year.

One 2nd year student suggested the program was too focused on microeconomic and should have a more even balance between microeconomics and macroeconomics.

*Faculty Perspectives on the Program*

Faculty we spoke with who teach in the program expressed pride in the program’s quality and success.

In its present form, the MS-Graduate Foundations Program is highly dependent upon the department chair, Professor Ananth Seshadri. Professor Seshadri was virtually universally praised for the success of the program, the effort he puts into the program, the program’s trajectory and the benefits the program brings to the entire department. Even so, the program does not have a clearly outlined governance process. Faculty who teach in the program noted that the administration of the program is informal, with Professor Seshadri seeking out input from involved faculty on an as-needed basis. This governance strategy appears to be appreciated by the faculty who regularly teach students in the program.

*Departmental Assessment of the Program*

The program faculty have taken up different learning outcomes in different years for assessment purposes (see the self-study provided by the department). The vast majority of students have been deemed to be meeting the program’s learning outcomes. The assessment plan involves examining course evaluations and talking with relevant faculty about the students’ major research project performance. The assessments also led the program faculty to conclude that some students need more math preparation (something echoed by some students in the program) but they have not gotten beyond the discussion stage with respect to most of the remedies for that issue.

*Overall Assessment*

In general, the MS-Graduate Foundations program is a healthy one. A high percentage of students are moving on to a Ph.D. program, as intended, and another subset of students are moving directly into industry work. Enrollment is strong, the students generally are enjoying their experience, the faculty who participate have bought in and the department has hired additional staff to help accommodate the strain the program might have otherwise placed on the original staff. Students have access to faculty and staff when they need it. They also have a student mentor, though they do not always know how to operationalize that relationship.
It may by the case that more students are entering the program with an eye on the program’s secondary purpose of preparing students for industry positions, but it is too soon to tell whether the slight uptick in industry-bound students in 2019 is a blip or a trend. Moreover, despite the program’s size, students are finishing in a timely manner (Median years to degree=1.72, the maximum is 3.01).

The students report some cliques, largely on the basis of country of origin, but generally describe their cohorts as satisfied with the program and delighted with the quality of the faculty teaching in the program.

There is not a clear governance structure in the program. It is largely dependent upon the program’s director, who is also department chair. There are several faculty who play an effective “kitchen cabinet” role for the program director, but it is not clear what would happen to the program if Prof. Seshadri elected to stop directing the program, left the university, etc.

Specific Recommendations for the Future
The MS-Graduate Foundations Program is a successful, healthy program. Of course, even successful and healthy programs can grow and improve. To that end, the Review Committee has a small number of recommendations for the Department of Economics to consider. We recommend:

- The Department of Economics formally create a small committee of faculty and staff to administer the program. We recommend that this committee have a process for selecting a faculty director of the program and include at least two other faculty members to help create institutional memory beyond the program director.
- The program should explicitly direct ESL students to the Writing Center
- Seminar Professors consider using lecture capture to post videos of their lectures online, which particularly should help ESL students have more opportunities to engage with the lecture material.
- Program faculty should develop the remedial math 0-credit option they have discussed (see the department’s self-study) as a way to help bring struggling students up to speed early on in their matriculation.
- 2nd year student mentors should be directed to explicitly email their 1st year mentees before the end of the first week of classes in the fall semester in order to set up an initial meeting sometime during the first month of the semester. The program should find ways or resources to encourage more contacts between first-year students and second-year students.
- The program should keep in touch with alumni via web-based surveys to track their progress in their Ph.D. programs/industry positions.
February 20, 2020

John Karl Scholz, Ph.D. William Karpus, Ph.D.
Provost and Vice Chancellor for Academic Affairs Dean of the Graduate School
Sent electronically

Re: Five-Year Review of Infant, Early Childhood, and Family Mental Health Capstone Certificate Program

Dear Provost Scholz and Dean Karpus:

On behalf of the School of Medicine and Public Health, I endorse the five-year review of the Infant, Early Childhood, and Family Mental Health Capstone Certificate Program. After discussion at the February 19, 2020 meeting of the SMPH Academic Planning Council, APC members unanimously approved the report of the review committee and the response of program leadership to the review committee’s report. Those reports are attached.

The Infant, Early Childhood, and Family Mental Health Capstone Certificate Program is a one-year (August-June) face-to-face program for practicing professionals from the disciplines of mental health, health, social services and education who work with families in the prenatal and postpartum periods and with children ages birth through five years. Students attend two or three days of classes per month and have small group and individual opportunities to integrate program content into their professional work.

Strengths include the program’s strong leadership and student services; high-quality teaching by nationally recognized experts and state specialists; curriculum informed by theory and current research; pioneering approach that incorporates mindfulness into the curriculum, which benefits both students and their client families; positive influence on students’ careers, resulting in new jobs, retention of current positions, pursuit of graduate degrees and/or mitigation of burnout in a high-stress occupation; student-centered focus and response to feedback; pursuit of scholarships for students who demonstrate financial need; development of students’ professional networks; opportunities for continued professional development after program completion; and growing number of students from underrepresented populations.

The review committee identified areas for improvement. The APC notes that the program has been responsive.

1. Completion rate has been lower than expected. In response, the program has reorganized aspects of the curriculum, increased mentor check-ins, and added optional small groups. Program co-directors also work individually with students to facilitate completion of the certificate.

2. Program cost for students. Since the program’s inception, its leaders have pursued scholarships, grants and cost-sharing opportunities with other entities, and it continues to do so.
3. Succession planning. In response, the program has named a new co-director and is planning to hire an additional co-director.
4. Diversity and inclusion. The program reports that racial and ethnic diversity has increased each year. This year, over one-third of students self-identify as other than white, and five of the 22 students are bilingual. The program benefits from satisfied alumni who spread the word within their professional networks.

While the committee provided recommendations about the content of the program, the APC believes that decisions about program content are best left to the program’s leadership and constituents.

Both the SMPH Academic Planning Council and I concur with the review committee’s recommendation to continue the program. We recommend that the next review occur in ten years.

Thank you for your consideration. If you require additional information, please do not hesitate to contact my office.

Sincerely,

Robert N. Golden, M.D.
Robert Turell Professor in Medical Leadership
Dean, School of Medicine and Public Health
Vice Chancellor for Medical Affairs
University of Wisconsin-Madison

Copies to:
Roseanne Clark, IMH Capstone Certificate
Linda Tuchman-Ginsberg, IMH Capstone Certificate
Sarah Strong, IMH Capstone Certificate
Carrie Brinkmeier, School of Medicine and Public Health
James Keck, School of Medicine and Public Health
Andrea Poehling, School of Medicine and Public Health
Parmesh Ramanathan, Graduate School
Jenna Alsteen, Graduate School
Jocelyn Milner, Academic Planning and Institutional Research
Karen Mittelstadt, Academic Planning and Institutional Research

Attachments:
1) Program response
2) Review committee report
November 11, 2019

To: Dr. James Keck
   Associate Dean for Basic Sciences, School of Medicine and Public Health

Re: Response to Review Committee Report for the UW Infant, Early Childhood and Family Mental Health Capstone Certificate Program

Thank you to Drs. Navsaria, Bakshi and Collier for serving on this review committee and thoughtfully reviewing and reflecting on the written Five-Year Self-Study, supporting materials and the feedback provided by the Program directors, staff and students. We have reviewed the report and appreciate the time committed to identifying program strengths and areas for improvement. Below is our response to the report.

First we want to acknowledge the closing considerations supporting the continuation of this Capstone Certificate Program based on the Program’s strengths as well as our approach to critically analyzing program data to identify areas for improvement and thoughtfully implementing changes to address concerns.

**Program Strengths:**

We are pleased that the review committee identified aspects of our Program that are aligned with the mission and values of the program, consistent with our priorities and provide the foundation for the program. This includes our attention to high quality teaching based on high academic and research-based standards while also recognizing the status of our students as adult learners with full professional and personal lives. Parent-infant and early childhood mental health is a small, and often under-recognized, area of study and practice in health and mental health, and yet it is a significantly important field of study with rich research and resources to support professional practices across disciplines. As noted in the review report, work in this field can evoke strong personal responses. The Program was designed with this in mind, especially by including the small Reflective Mentoring Groups. Building reflective capacity and having space for reflection is essential to the work with infants/very young children and their families. Over time we have become even more comfortable supporting students in delving deeply into complex topics such as the impact of trauma, recognition of implicit bias, cultural humility, racism and gender identity. It is rewarding to us that students have appreciated their experiences with the program, have noted the value of the strong self-reflection components and have found the program influential in their career development, and in some cases “life changing”. Their feedback has been essential to our continuing to review and refine program offerings.
Program Improvement:

As noted in the report, the Program Directors had previously identified program components for improvement and have begun to address the areas identified in the report. Below are comments on each area identified by the review committee:

1) **Completion rates have been lower than expected.** The summary of actions in the report accurately reflects the site-review discussion of potential reasons for the completion rates and actions taken for last year’s class and currently underway for this year’s class. At this time, the completion rate for the class of 2018-2019 is 87% and expected to be 91% as of graduation in December 2019, the next time UW-Madison confers Capstone Certificates. We have demonstrated that we have remedied this concern through ongoing support and communication with students over the past two years and are committed to sustaining these supportive practices through the other programmatic changes described in the report (e.g., curriculum and assignment adjustments).

2) **Difficulty finding families for observational (and other applied) assignments.** Information about access to families for assignments is shared and reviewed with potential students during the admission interview. For those in administrative roles, we have brainstormed individual options for gaining access to young children and their parents. All students need to identify a voluntary family for an Infant/Family Observation assignment outside of their work place while other assignments such as the Assessment and Intervention assignments may be carried out in their work place. This year, we have more intentionally addressed this program requirement earlier in the year to give students more advance notice. We actively assist students by recruiting families and developing referral networks. For example, we are helping students who are in supervisory roles in their work identify how they may partner with their staff to identify a child/family with whom to practice the major Assessment assignment for Fall Semester. This approach provides the opportunity to practice and apply their learning as well as to consider how to impart their learning about the child/family to the staff they supervise, furthering the opportunity for integrating those practices into their agencies and programs.

3) **Coordination with aspects of the university.** The primary area under discussion on this item pertains to the new student entry and exit surveys conducted by the Division of Continuing Studies. As outlined in the report, the Faculty Director and Co-Directors have initiated ongoing meetings with the Continuing Studies evaluation team to provide input into the parts of the survey that may be individualized for the program and to modify the timeline and develop processes for sending email notices to students to encourage completion of the surveys. This new, collaborative process is better aligned with the timelines for this Capstone Certificate Program. For the Spring Semester 2019 Exit survey, the return rate was 65% reflecting a positive outcome for the current survey process as reported by Continuing Studies staff.

4) **Finances.** As noted in the report, students rely on scholarships that we have been successful in raising since the inception of this Program, first for the Continuing Studies Certificate Program and now for the Capstone Certificate Program. The availability of FAFSA funds has been an asset to the budget; last year 3 students took advantage of the availability of FAFSA funds, offsetting the need for scholarships. Enrollment for Fall Semester is at 23, with 22 Wisconsin residents and
We admitted a number of applicants who were eager to enroll, but unable because they lacked supporting funds beyond the partial scholarships we were able to offer. For example, one highly motivated applicant recently moved to Wisconsin from Illinois for a position in Milwaukee. She had funding from her employer to partially support her tuition, but decided it is best to work for the year to establish Wisconsin residency and defer enrollment until next year. The budget has been adjusted to the amount of income available for the Program (e.g., funding 5 not 6 Reflective Mentors). Plans are underway to diversity our budget including sharing costs (e.g., travel) for a speaker with the Department of Psychiatry who will address Grand Rounds as well as teach in the Capstone Certificate Program. We are also seeking new funds from the University Lecture Fund. We imagine integrating our annual continuing education outreach event with a national speaker with this funding source, maximizing these additional revenues. The establishment of a Center- Innovations in Parent-Infant/Early Childhood Mental Health is underway, following initial discussions with the Department of Psychiatry administrator. As noted, this Center will serve as a strong foundation for raising funds for scholarships and other financial support related to the Center’s and Capstone Certificate Program’s missions. The Center and related activities will strengthen ongoing relationships with other University Programs/Departments. While taking action to establish the Center, we will follow up on leads with several private foundations that have strong interests in funding Infant and Early Childhood Mental Health training thereby providing an additional source of funding for scholarships, national speaker fees and partial salary support for program directors of the Capstone Certificate Program.

5) **Succession planning.** The comments in the report accurately reflect our status and awareness of the matter of succession planning and actions already underway to address this. Promoting Sarah Strong to Co-Director in Fall 2018 has been the first step in preparing new leadership for the Capstone Certificate Program. With Dr. Tuchman-Ginsberg reducing her time, Ms. Strong has taken on many of her responsibilities and developed new leadership capacity based on her leadership skills/style, clinical and teaching experience, and areas of interest. This year, four of the five Reflective Mentors and Instructors are mid-career professionals who are graduates of this Certificate Program, committed to the field of parent-infant/early childhood mental health and bring their experiences and many talents to the Program. These new Mentors replaced senior level staff who have retired or needed to take a leave in the past 3 years due to family or other work demands. Additionally, we are recruiting for a second Co-director for FY 2020-21 who will work alongside the Faculty director and Ms. Strong in program development and teaching. This person will also be a mid-career clinician and a graduate of this program with significant supervisory and administrative experience.

6) **Diversity and inclusion.** Recruitment and inclusion of a diverse class of students who represent the client base for parent-infant/early childhood mental health services is one of our priorities, and an area of much effort and growth in recent years. We are committed to continuing our outreach and recruitment to contribute to alleviating this significant workforce need in the field. While it was noted in the report that men are under-represented in our program, we are aware that they are also under-represented in the professions served by this Capstone Certificate Program. We have had 1 male in the class for 3 of the last 5 years. Furthermore, at least one fourth to one third of our class in the last 3-4 years have been students from under-represented groups (e.g., African American, Native American, Latinx, Asian (i.e., Korean, Hmong and Thai), LGBTQ, people, people with disabilities, people who have lived in poverty or who have
experienced trauma). We do not intentionally collect this information from our students and will aim to better capture our experience in the future. We are mindful of doing this in a way that is respectful of students preferences in representing themselves. Our first step is to inquire about and access the demographic data relevant to diversity and inclusivity that UW collects upon admission.

7) **Clinical focus.** The feedback noting that career advising appeared focused on mental health clinicians is somewhat unclear to us. Multiple sources of feedback have consistently suggested that the non-clinical professionals (about half to two-thirds of our interdisciplinary students are non-clinical health, education and social services professionals who work in various programs and agencies serving the young children and their families) have made good to excellent use of their learning in the Capstone Certificate Program. They have noted how their Capstone Program experiences have enhanced their professional practices and helped them become more aware of career advancement possibilities (e.g., improve practices in their current work place, change positions, return to graduate school). We are aware that the interdisciplinary curriculum content of this program often asks students to stretch in their comfort in embracing relational practices (i.e., parent-child) rather than the individual child-focused interventions/treatments more commonly practiced. We address scope of practice for each discipline and underscore the improved outcomes for children and families when their work is relational. The parent-child relational work is also what draws many students to this Capstone program. Throughout each monthly class, we offer at least one or two small group breakout sessions allowing students to choose the sessions that are most relevant and deepening for their professional discipline and work role. For example, on the topic of diagnosis, we have separate groups for mental health clinicians who are in positions to make diagnoses. For the other students, the small group sessions focus on helping them understand and apply diagnostic information within their scope of practice. This includes understanding the process and content of the diagnostic nosology, learning how their observations and data may contribute to a diagnosis, exploring how to read and understand a diagnostic report and learning guidance and resources for making mental health referrals. For those in supervisory positions, these groups help them appreciate the work of their staff and gain important knowledge for supervising the work of their staff. We will carefully analyze the data that came to us this week from Continuing Studies for greater insights into the comments noted in the Five Year Self-Study Review Summary, especially related to those students who may be in administrative positions. There are other options in the state for those who are seeking less intensive experiences. (See the other learning opportunities described the response to #8 below.)

8) **Ongoing learning.** Program directors are aware of alumni’s interest in having opportunities for deeper and ongoing learning. We are active in statewide policy and professional development arenas to address this matter within UW Madison and the community. For example, our other training initiatives- Child-Parent Psychotherapy, Newborn Behavioral Observation and the Brief Early Relational Assessment, described in the Five Year Self-Study report and intended for inclusion in the Center, provide additional ongoing learning opportunities for graduates of this Capstone Certificate Program. Additionally, students have opportunities for ongoing learning and connection with others in the field through attendance at the Annual Wisconsin Infant/Early Childhood Mental Health Conference planned by the Wisconsin Alliance for Infant Mental Health( WI-AIMH) the professional organization in this field in our state. We are involved actively in the planning committee for this conference. WI-AIMH is also developing regional chapters
with periodic meetings throughout the year to address ongoing professional development in the field. The Program directors partner with WI-AIMH to support both of these initiatives to help build capacity in Wisconsin. Drs. Clark and Tuchman-Ginsberg are members of the Wisconsin Infant/Toddler Policy Committee which is currently focusing on creating a system for preparing Mental Health Professionals to provide Infant/Early Childhood and Parent Mental Health Consultation to early childhood programs and professionals throughout clinics, service systems and agencies in Wisconsin.

Prepared and submitted by:
Roseanne Clark, PhD, Professor and Faculty Director
Linda Tuchman-Ginsberg, PhD, Program Co-Director
Sarah Strong, LCSW, Program Co-Director
November 11, 2019
3 September 2019

To:  Dr. James Keck  
Associate Dean for Basic Sciences, School of Medicine and Public Health

From:  Review Committee for the Infant, Early Childhood, and Family Mental Health Capstone Certificate program

The following report summarizes our five-year review of the Infant, Early Childhood, and Family Mental Health Capstone Certificate program.

Summary of activities and materials reviewed:
Our committee (Vaishali Bakshi, Lara Collier and Dipesh Navsaria, with support from Andrea Poehling) met in July 2019 to review the program’s self-study and to produce a list of groups to meet with during our subsequent site visit. In this first meeting, our committee briefly summarized our overall impressions of the program based on the self-study, listing strengths and weaknesses and selecting various areas to be probed further during our visit.

Our site visit took place on 30 July 2019. We met with the program’s director, Dr. Roseanne Clark; Co-Directors Linda Tuchman-Ginsberg and Sarah Strong; faculty leaders (reflective practice mentors, clinical consultants and instructional staff); 2019 graduates; and alumni from prior years. There were no current students, as students begin the program in September and end the following June.

The overall conclusion from our review and site visit is that Infant, Early Childhood, and Family Mental Health Capstone Certificate Program is an excellent program, with outstanding leadership, faculty, and students that are enthusiastic about and value the education they receive. A full critique of the program is provided below, including a number of recommendations from our review committee that we feel could improve an already strong program.

Program strengths:
Our committee was impressed with several aspects of the program. The faculty and students who participated in the site visit were very strong advocates and were clearly satisfied with most aspects of the program.

• Clear enthusiasm and care for high-quality teaching. The program leadership was knowledgeable, enthusiastic, and eager to share information about what they have accomplished with the creation, implementation, and evolution of this program. They readily answered questions honestly and clearly, and were forthcoming with additional information when it was requested.

The program views itself as having academic, research-based, high standards while allowing for personal connection for students. They actively solicit and accept feedback. For example, mentors ask students how the feedback the mentors provide is received, but also ask students periodically “how am I helping, and how am I getting in the way?”.  

• Students felt the program had been influential in their careers and, in some cases, life-changing. Students we spoke with (very recent graduates from 2019 and alumni from years past) had positive experiences overall. They spoke of how this capstone opened doors in their career path, offered routes to integrate what they were learning into their careers, and of how
good the program faculty and visiting speakers were, noting how special it was to learn about particular assessment tools from the very people who created them. They also appreciated the opportunity to network with others (even outside of their own discipline).

They spoke of the strong self-reflection component of the program as a “gift” — even when there was some initial skepticism about it, they found themselves embracing it and in some cases stated that they could no longer imagine practicing without it.

• Student-centered focus and response to feedback. Students reported that there was a strong attitude of response to their feedback. The climate is very positive with a safe environment, repair of ruptures when breaches of social trust occurred, and accommodations being made when necessary. Instructors were flexible and recognized various challenges students may have faced to completing assignments. The program also anticipated and warned students of potential triggers, particularly around the section of the course in which trauma was discussed extensively. Both mentors and trainees stated that they found this support group style of discussing challenging cases to extremely helpful. Alumni indicated that this experience was so positive and transformative that they find themselves missing it after program completion, and are thinking of ways to reconnect with each other to continue the unique discussions they shared while in the program.

• Evaluation. The program does research on evaluation of their curriculum, especially on mindfulness and contemplative practice.

**Program weaknesses and review committee recommendations:**

Through our committee’s review of the self-study and our site visit, we have identified a number of areas that the Infant, Early Childhood, and Family Mental Health Capstone Certificate Program should consider to improve its program. For several of these weaknesses, it is clear that the program leadership had independently identified them as issues, and have already taken actions to mitigate them, as also discussed below.

1) Completion rates have been lower than expected. During the site visit, we spent some time discussing the program’s completion rates by cohort, which average 84% across 5 years, with a range of 81% to 87%, based on recently updated data provided to us at the visit. However, since the certificate is conferred in August, there is a mismatch between the program’s internal data and the official campus data as reported by AIPR. At this time, they expect to have a 91% completion rate for the 2018–19 cohort by the end of August 2019.

The program has analyzed this issue and identified several barriers to students completing assignments:

• Finding families to observe (see below)
• Conflict with other time commitments such as regular jobs, family obligations, etc.
• Lack of experience with report-writing
• Adaptation to the paradigm shift of focusing on relational health and not just an individual child

Following on this analysis, the following changes were implemented while maintaining the integrity of the program:

• Newborn observations were moved to the second semester
• Screening tool teaching was moved earlier in the program to afford more time to complete
• Mentors check in more frequently
• Offer optional small groups so students can get more frequent support
• Cut down on other readings

Additionally, there were other considerations noted over the last two cohorts that do not apply at the present time, but did affect some prior cohorts:

• A time-limited grant opportunity allowed students to complete an intensive 18-month program called the Child-Parent Psychotherapy Program (CPP) concurrently with this certificate program, as opposed to after completion of the capstone. This increase in workload may have negatively affected completion rates.

• A requirement of the program was creating a poster for a conference that was held in June. The conference changed to October, so the program decided to require a slide presentation instead of the poster. This allowed the students to focus more on the project itself and less on the poster, while also requiring the students to complete a final project (slides instead of poster).

2) Difficulty finding families for observational assignments. While some students work in direct clinical settings, others have an administrative background and are not able to find willing families to observe as easily.

3) Coordination with aspects of the university. The exit survey was initially conducted by the Division of Continuing Studies and occurred without the program leadership’s knowledge. This was sent to students before they had completed the program. This has now been changed, but made it challenging to obtain necessary data.

4) Finances. Many students would be unable to participate at all without scholarships. Fewer than one student per year completely self-funds. Many of the scholarships come from various employers and agencies, and is not consistent or stable from year to year. However, last year was the first time capstone students were eligible for FAFSA funds.

The program leadership spoke of their desire to create a center (Innovations in Parent-Childhood Mental Health) that would act as an umbrella for this program as well as other professional development programs, research, consultation, and outreach. They felt this would make it easier to fundraise.

The program’s budget requires that they have about 28 students in order to be able to fund being able to bring in national speakers. Some parts of the program do provide continuing education units for students, and also charge outsiders fees to attend talks by national speakers, so there are some other (small) sources of revenue.

5) Succession planning. This program has very strong founding directors who are well-known and respected in this field. This raises a concern that the program may be too dependent on them. Leadership agreed with this and discussed how many of their existing faculty mentors are mid-career and they are working with them to prepare them for leadership. Also, adding a second co-director also helped diversify reliance on leadership.

6) Diversity and inclusion. While the program appears to work very hard to ensure they are diverse and inclusive in the populations that they teach about and study, the program itself faces challenges in recruitment and teaching materials. A significant contributor to this issue is that the overall field of early childhood has very few men or people of color relative to the general population, making recruiting challenging. Only about one male student a year enrolls.
7) Clinician focus. Students did feel at times that the program’s career advising appeared focused on clinicians rather than on those in non-clinical areas. Alumni echoed this and noted that they felt that perhaps a less-intensive/less-costly variant of the program for those in administrative roles may be valuable.

8) Ongoing learning. Students and alumni reported that they were pleased with the structure and content of the program but that they felt there were limited opportunities to not only dive deeper into material — and that they did not know how to continue this learning trajectory. They felt they would benefit greatly from alumni events or other structured, organized follow-up.

Closing considerations:

From our review of the supplied materials and our visit, this program appears to be meeting the goals and objectives stated in the original program proposal, with any changes being as a result of thoughtful critical analysis of the program’s data — including student feedback — in order to improve. They appear to be meeting standards of quality based on their original proposal and a commitment to providing a high-quality learning environment. Opportunities for improvement are being sought after, considered, and implemented as discussed above.

This is a program that fits in well with the broad interdisciplinary structure of a large public university like the University of Wisconsin–Madison. As is clear from the student enrollment as well as the faculty from within and outside the university, Infant, Early Childhood, and Family Mental Health is a topic that spans multiple disciplines and offers opportunity that ties in with a variety of campus department, schools, colleges, and beyond, including the UW System and other institutions. There appear to be no negative impacts to other programs, and other entities could benefit from stronger connections with this program.

Finally, this program appears to be utilizing resources well in order to provide high-quality education. If anything, their plans to consider the development of a center in order to bring related endeavors under a single umbrella and facilitate fundraising will serve to offer more resources to further improve this program.

In summary, our committee recommends that the program continues and that the next program review occurs in ten years.

Sincerely,

Vaishali Bakshi, Ph.D., Associate Professor, Department of Psychiatry
Lara Collier, Ph.D., Associate Professor, School of Pharmacy (Graduate Faculty Executive Committee representative)
Dipesh Navsaria, MPH, MSLIS, MD, Associate Professor, Department of Pediatrics (committee chair)
Review Committee Report for Linguistics, B.A./B.S., M.A., Ph.D., Doctoral Minor

Date submitted: January 31, 2020

Review Committee Members: Martha Alibali, John Mackay, Junko Mori (chair), Chris Walker (GFEC member), Jerry Zhu

A. Summary of the activities of the review committee and materials reviewed

This committee consisting of five members was formed in September 2019 to evaluate the academic programs in Linguistics that are administered by the recently formed Language Sciences Program (LSP). The members met L&S Deans Susan Zaeske and Elaine Klein on October 24th to go over the essentials of the charge for this committee and to clarify the scope of our task. We were reminded of the fact that our charge is to review the academic programs in Linguistics rather than their administrative home, LSP, which is in its second year of existence. We kept this in mind throughout the process of our review, but since the success of the programs can only be ensured by the stability and viability of the administrative home, our report from time to time refers to the (mostly positive) aspects of the newly established program.

The committee held our initial meeting on November 5 to discuss our observations of the self-study and appendices provided by LSP and to develop our plan for further information gathering. Subsequently, with the assistance of the LSP director, Professor Eric Raimy, we arranged a series of meetings with faculty, staff, and undergraduate and graduate students:

On November 22nd
- Professor Eric Raimy (LSP Director);
- Dr. Rebecca Shields (academic advisor, Lecturer of Linguistics 101, and an alumni of this graduate program);
- Undergraduate student group, consisting of five students at different stages of study;
- Graduate student group, consisting of four students at the course work, who have been admitted to the program during the last three years.

On December 6th
- 9 faculty members from different home departments (4 LSP, 1 English, 2 Spanish, 2 Psychology), individually or as a group of two to three;
- Exit interview with Professor Eric Raimy.

All the meetings were attended by multiple members of the review committee, including the chair, to confirm our understanding of what was said by different parties.

The committee met once more on December 10th, to discuss what we learned from the series of meetings and to develop a list of points to be made in our report. What follows is therefore our evaluation of the self-study, as well as the accounts provided by the informants during these meetings.
B. An evaluation of the strengths and weaknesses of the program

1) Overview

The review committee noted many strengths of the current program, as well as some important challenges. On the whole, the committee viewed the program as heading in the right direction, with many positive developments. Meetings with the faculty indicate that they share this positive evaluation. All the faculty and staff with whom we met viewed the new structure of the LSP as a strongly positive change for the program overall. Many faculty members expressed excitement about increased opportunities to work with colleagues in other departments and to explore new research directions.

Both undergraduate and graduate students expressed strong enthusiasm about the program. Undergraduate students noted that the program supported and contributed to their interest in and desire for studying linguistics, with the introductory linguistics course playing an important role. Both undergraduate and graduate students expressed appreciation for the faculty members who are cutting-edge researchers in the field, and at the same time are accessible, approachable, and encouraging to students. Both undergraduate and graduate students expressed a strong sense of community, and they noted the important roles of the welcoming space and the regular departmental events (especially the weekly forum called “Linguistics Fridays”). Students also recognized and expressed appreciation that department leadership was responsive to their concerns and needs. Students especially appreciated two areas in which department leadership demonstrated this responsiveness, namely, the recent increase in the number of capstone course options and the recent effort to once again offer course work in Semantics.

In the context of these many strengths, the review committee also noted some substantial and ongoing challenges. The current configuration of LSP is still relatively new, and some further adjustments in organization and administration are likely to be necessary. One key challenge has to do with the limited number of LSP faculty (i.e., those whose tenure home is LSP) and the fact that all of them are relatively senior full professors. At present, it is not clear how the program will transition to a younger program/department that is well positioned for the future. If the current cluster hire searches yield new hires whose tenure homes are in LSP, these individuals will play a key role in shaping this transition. However, the cluster positions may not be sufficient to insure a smooth transition.

A related issue is that several of the affiliated faculty (whose tenure lines are not in LSP) are critical to making the current program work effectively. However, these individuals also shoulder many responsibilities in their home departments and other affiliated programs. Thus, another key challenge will be establishing arrangements with affiliate faculty that are sustainable and mutually beneficial.

With respect to course offerings, one important challenge that was repeatedly noted, both in discussions with faculty and in discussions with students, was the need for regular course offerings in Semantics. This will be addressed in the near term by the upcoming change of workload for Dr. Shields; however, this is a temporary solution, and long-term solution is needed. Another challenge regarding course offerings lies in coordinating courses offered by
LSP faculty and those offered by faculty in other departments. It would be helpful to students to keep an updated list of all relevant courses; however, this will require a concerted and regular effort on the part of staff, as changes in offerings are frequent and many different departments are involved. We suggest that this administrative role not fall to Dr. Shields, as she already manages many other aspects of the program, and it is important not to overburden her position.

Finally, it is worth noting that the chair’s assessment was that the undergraduate program is working well but that the graduate program needs some focused attention. Our focus group discussions with students gave us the opposite impression, with graduate students expressing a high level of satisfaction with the program, and undergraduates raising concerns regarding course offerings and availability of seats in existing courses (sometimes related to issues with prerequisites). At the same time, the committee noted several long-term goals for the graduate program, specifically with respect to the desirability of reasonable growth in size (and the attendant need for increased funding) and increased diversity in the program. These goals and the associated challenges may be highly salient to department leadership, but less salient for the current graduate students.

2) Undergraduate Program

We discerned a number of strengths with the undergraduate program from our meetings with undergraduate students and faculty. Despite all the challenges posed by the recent structural transition from the Department of Linguistics to the Language Sciences Program, the undergraduate program has continued to attract a healthy number of undergraduate majors. The major lends itself well to students pursuing double majors; many of the students are pursuing another major alongside linguistics, with English, other language majors such as Spanish, communication sciences and disorders, and computer science well represented, among others. Students can declare the major without prerequisite, and they can complete the required 30 credits for the major in timely fashion. There are a large number of elective courses that count for the major; this setup provides students with a fair amount of flexibility in planning their courses of study.

Students also reported a warm sense of community in the department. Contributing factors to this feeling include the lounge space available to them at 1151 Van Hise, as well as the student organization. Overall, undergraduate students reported that the faculty are open and knowledgeable. Dr. Rebecca Shields in particular was cited as a highly effective and popular instructor for Linguistics 101, which attracts students into the major.

At the same time, some challenges were raised during our meeting with undergraduates. The absence of Semantics was noted as a particular gap in the current regular course offerings. Students also noted that the 101 Introduction to Linguistics courses tends to fill up quickly with students not majoring in the field, which can prevent intended majors from getting into the course during their first semester. This issue has been somewhat alleviated by the recent addition of an additional TA, but the course still fills up rather quickly. Some students have faced challenges fitting the capstone course into their sequence of courses, since it was previously offered only once per year, but it will now be offered every semester with a rotating topic. Students also noted that although the list of elective courses in other courses seems extensive,
many of those courses have prerequisites outside linguistics, designed for majors in those other departments, which linguistics majors will likely not have satisfied. This means that there are not as many available electives in practice as on paper.

We asked the undergraduates about any additional courses they might like to see that were not currently on offer. They mentioned a desire for more options in computer science (CS) geared towards non-CS majors, including both introductory topics and natural language processing. There was also some interest in more classes in which they can gain research experience. There is an honors option in the program, but only one among the current 51 declared majors is pursuing it. It may take too much time for the many students who are double majors. One student who had studied abroad, meanwhile, also mentioned that it would be helpful to have clearer mapping between the courses in the program in Madison and courses abroad. Students also mentioned that while the program had good support for students who were thinking of applying for graduate school, there was not as much advising available concerning options outside of academia.

We also asked the students about the planned named options discussed in the self-study report prepared by LSP. Some were interested, but not all. They raised questions about the potential effect of named options on the challenges they face in identifying and coordinating elective courses.

3) Graduate Program

The graduate program has been undergoing a strategic restructuring over the last 5 years in terms of administration, faculty and curriculum. The restructuring accomplished under the concept of “language sciences” has created a broader community of faculty and graduate students from other departments such as English, Spanish and Psychology, and appreciation for this restructuring was expressed in all the meetings. Graduate students noted that access to diverse faculty introduced them to theoretical and methodological approaches they might not have otherwise explored. Faculty also noted the fact that their courses attract graduate students from diverse departments and programs, enhancing interdisciplinary dialogue. The committee recognizes many strengths resulting from these changes.

The current graduate students generally gave very positive reviews of the program, in particular, in the areas of mentorship and departmental climate. They expressed that they receive excellent mentoring and preparation for academic and non-academic careers, with realistic expectations. In their “Linguistics Fridays,” students are encouraged and supported to write/present papers, as well as to invite in “guest speakers” to help them make connections with diverse experts in the field. They felt supported and motivated in their studies and expressed feeling a sense of safety and encouragement in the department. The faculty and their commitment to student success were highlighted by the graduate students who believe their voices are elevated by mentors and advisors through co-written papers and through support to develop term papers (including practice presentations) into conference papers. Communication between graduate students and faculty seemed strong. Students expressed that when there is a perceived gap, all they have to do is mention it and it will be addressed. They expressed overwhelming confidence in this process.
Affiliated faculty also spoke to the impact of “Linguistics Fridays,” reporting that students and faculty seem happier in sharing their interests in teaching, learning and research than in the past, when the previous structure allegedly remained “proudly narrow.” Climate was also improved by the restarting of the student organization with graduate and undergraduate participation, as well as other departmental strategies such as the new lounge available to students for study, meetings, mock presentations, etc., and in which the department puts snacks for students during exam periods to encourage group study.

Prior to 2013 the program received approximately 80 applicants and offered admission to the top 50% without funding. Since 2014, under the new structure, the program switched to making only two to three offers per year—a smaller number of students they can fund, mentor and graduate. They began matching candidates with funding and with mentors and prospective advisors, with an aim of 5-6 years to degree completion. The last candidate before this era is currently completing the degree. With the implementation of this new strategy, the attrition rate is expected to get better over time. To account for the three recent cases of departure, one person left after figuring out that he wanted to do something different, one person left after the Masters degree because their spouse left the country, and one pre-2013 person came back in and left again.

Currently the program has four graduate students who were admitted under the new scheme. All these graduate students are funded. One student has a 5-year guarantee, while the others without multi-year guarantees have also been funded by a variety of TA- or PA-ships. Students expressed that this small program size gives them the necessary one-on-one access to faculty—they can generally walk on the floor of the department and expect to get the help they need. The downside of the size of the program, of course, is the availability of number and types of courses. However, students feel that the courses offered through different departments are helpful and that key strengths lie in the diversity of languages offered at UW-Madison (over 50 languages taught) and in the cutting-edge research and innovative approaches of the LSP faculty.

The committee recognizes that the decision to admit fewer students whom the program can support both academically and financially as a smart move. It is hoped that this shift will improve the completion rate and time to degree.

LSP is moving towards creating a 5-year funding guarantee at the time of admission as a part of its strategic redesign. This will be accomplished by making creative use of partnerships and combining Fellowships, TA-ships, PA-ships, FLAS fellowships, etc. In that regard, LSP has recently signed an agreement with the English Department that will guarantee three TA positions per year for the next three years. The current funding arrangements will ensure the admission of three new students per year, but probably not beyond. Given the available resources, the current job market, and the size of other comparable programs, this appears to be a reasonable size.

There are various ongoing efforts to recruit students from underrepresented populations – notably, efforts in Native American communities, with plans to build a pipeline with the tribal colleges. (In fact, the program successfully recruited a Native American student in the recent past, although the person left the program in order to pursue a different career.) These efforts, however, are directly tied to individual faculty research and interests. Generally, there is not a
clear strategy for recruiting members of underrepresented groups. However, given the major transformation that LSP has undergone in the recent years, it is understandable that they had to prioritize the solidification of new structures before expanding their efforts in this area.

Indeed, one of the main weaknesses identified is graduate student funding and how this is tied to recruitment. This is the challenge of competing with programs such as Chicago, NYU and Berkeley in recruiting strong candidates, as these are established programs that regularly offer strong funding packages. The current funding does not allow LSP to be competitive in this regard. In fact, much of the strategic redesign was based on lack of funding and inability to recruit and retain strong candidates through to degree completion. As mentioned above, the future plan is to admit only three new students per year, amounting to 15 students in the program over five years. This is considered doable with the current funding arrangements (combining fellowships, TA-ships, PA-ships, FLAS fellowships, etc.), but probably not fully sustainable, given many of these funding sources are based on relationships and partnerships for TAs in other departments. LSP also struggles with a structural deficit in the program budget from a 10-year budget embargo.

Though the curriculum appears well rounded, a few weaknesses were identified. The lack of Semantics was identified as a weakness by graduate students as well as by other groups. LSP has received approval to adjust Dr. Rebecca Shields’ appointment, which will enable her to teach Semantics in the future. This is, however, a “band-aid” measure and not a long-term solution. The committee recognizes the need for a faculty member able to teach in this area. Faculty also reported that linguists with data science and computational linguistics experience are highly valuable, but LSP does not have anyone teaching these areas. Further, there is lack of clarity regarding the availability of seminar courses that satisfy the nine credit requirements for grad students and the selection of seminars for specific students’ needs. Graduate students report that there are not enough seminars with enough diverse topics. Currently accredited seminars are dependent on approval of faculty advisors. In theory, any seminar by LSP faculty could count towards the fulfillment of the requirements, but it can be challenging to identify suitable seminars for each student’s research interest. The overlapping of material was also raised as a concern. The advisor-student relationship and oversight should prevent students taking random seminars, but the committee recommends the development of clear guidelines as to what different categories of required courses are supposed to accomplish. In this process, it is essential to survey courses and seminars offered in other departments and units that partially overlap with different concerns and to better synchronize them. For recruiting and advertising purposes, the creation of some templates that students can follow may be necessary.

Finally, we also noted that currently, all students have identified LSP faculty as advisors, and wondered if it would be possible to have non-LSP faculty as primary advisors for students down the line, for various structural reasons. Finally, students admitted under the current set are still at the course work stage. As such, how the program is going to work at the prelims and dissertation stages has not yet been tested.
4) Governance/infrastructure

As mentioned earlier, the focus of the current review is on the academic programs and not on LSP per se. However, we could not help but notice how the restructuring that resulted in the creation of LSP has brought about a number of positive developments to the academic programs in linguistics. The affiliated faculty from diverse home departments whom we interviewed all expressed their excitement with this new, open, transdisciplinary structure and its potential for devising further innovations in developing new courses and extracurricular activities or modifying degree requirements. They are committed to the success of LSP and regularly participate in monthly standing executive meetings, electronic communication/voting, and/or the “Linguistics Fridays”.

Having said that, we also detected some vulnerability in the current structure, as well. Currently, of the twenty faculty members listed on the LSP website, only four faculty and one academic staff have their lines in LSP. Because LSP members whose tenure home is elsewhere have their teaching obligations associated with the home department programs, there are not enough faculty to offer core Linguistics courses on a regular basis. As noted earlier, the inability to consistently offer Semantics is a major limitation. Further, one of the four LSP-proper faculty, Professor Rand Valentine, is retiring at the end of the current academic year, and all other LSP-proper faculty are relatively senior full professors. We understand the ongoing searches for the cluster hire initiative successfully proposed by LSP affiliates could land one or two new assistant professor(s) in LSP, but that does not seem enough. In order to sustain the academic programs, LSP needs to come up with a robust hiring plan, weighing both its traditional strengths and emerging trends.

Second, and relatedly, as much as we were impressed by the commitment to and enthusiasm regarding the success of LSP expressed by the non-LSP-proper affiliate faculty, we fear that their energy may not last forever if there is no concrete reward or incentive beyond intellectual stimulation. These faculty members with transdisciplinary mindsets and goodwill are often tapped, not only by their home departments, but also by various other units on campus. Despite their interests, the amount of actual teaching and mentoring that these members can provide to Linguistics majors is somewhat limited because of their other obligations. For instance, it appears unlikely that non-LSP-proper faculty will serve as primary graduate advisors in the near future. It is also unlikely that team teaching will become common, given the lack of university support, and this is also an obstacle to having non-LSP-proper faculty engaged in the program.

Finally, Professor Eric Raimy, who has held the chair/director position since 2013 and has led the restructuring discussion and implementation, plans to step down from the director position after the 2020-2021 academic year. We applaud his remarkable leadership, and we hope the program can identify an individual who can lead the collective efforts by keeping this momentum going.
C. Recommendations for future directions

In summary, the committee found that the recent restructuring has brought about a number of positive developments in the undergraduate and graduate academic programs, and we are hopeful that further changes will be explored under the current governance/administrative structure. Based on the findings discussed above, the committee would like to make the following recommendations:

1. [Curriculum] We strongly urge the program and the university to work together to establish resources in order to ensure that a Semantics course is regularly offered. Not offering Semantics constantly handicaps the curriculum, puts students in the program at a significant disadvantage compared to peer institutes when they go on the job market or apply for graduate school, and in turn weakens the attractiveness of the program.

2. [Curriculum] We highly recommend natural language processing as a future direction for the program to enhance student pragmatic data mining skill training. We expect a large job market demand for students with these skills. Possible approaches include new hires with computational skill sets, or building connections to computational departments on campus.

3. [Curriculum] We recommend that the program make sure elective courses are available to undergraduate students who want to take them. The program should establish a mechanism to coordinate with course-offering departments and update students frequently on what electives are offered and what the prerequisites are, in order to address enrollment issues.

4. [Curriculum] We recommend more study before establishing named options for the undergraduate major. In particular, more thorough market research would be helpful, including analyses of job market trends, student needs, and feasibility vis-à-vis course coordination.

5. [Student funding] We recommend exploring further collaboration with other departments to establish MOUs similar to the one established between English and LSP in an attempt to solidify funding sources for graduate students.

6. [Graduate student recruitment] We recommend that the program develop a more concrete and robust plan to increase diversity in the graduate program.

7. [Staff funding/structure] We recommend that more resources be allocated to assist the program advisor. The current program advisor, Dr. Rebecca Shields, is extremely effective, but further administrative assistance in the management of the logistical challenges—course scheduling coordination, data gathering, etc.—should be considered in responding to the recommendations discussed above (especially Items 3 and 4).

8. [Hiring] Given that a number of current LSP faculty are going to retire in the near future, we recommend that the program work to articulate what it wants to be known for in five to ten years, in order to identify its hiring priorities.
June 24, 2020

TO:  Karl Scholz, Provost  
William Karpus, Dean, Graduate School

FROM:  David A. Noyce, Executive Associate Dean


The College of Engineering Academic Planning Council (APC) has recommended for approval the attached review and self-study of the Master of Engineering named option in Sustainable Systems Engineering.

The Sustainable Systems Engineering named option is directed at working engineers and focuses on the application of sustainability principles to engineering practices, particularly sustainability techniques, frameworks and technologies and to gain skills in developing creative and cross-disciplinary solutions to modern environmental problems. The students and the alumni of the program indicated they were satisfied with the program overall and indicated it has provided them with the necessary education and credentials to advance in their career.

Although the review committee noted the enthusiasm and dedication of the program director and the instructors for educating students on sustainable energy systems, the committee also notes that both the program director and instructors are over-committed. This has limited the ability to better administer the program and has impacted marketing efforts, resulting in lower than expected enrollments.

To address these limitations and determine ways to improve the financial position of the program, the review committee suggests that the program develop a strategic plan to address the following:

- assess the demand for the program
- include the word “energy” in the named option title
- hire a program director solely dedicated to the program
- create a program executive committee, similar to the Master of Engineering Online Environmental Engineering program
- identify ways to better engage the wide diversity of UW-Madison expertise in energy sustainability topics

The review committee also suggests the program conduct another review in five years.

On behalf of the College of Engineering, I accept the APC’s recommendation to approve this program review.

Attachments:  Review Committee Report  
Department Self-Study

College of Engineering  
UNIVERSITY OF WISCONSIN–MADISON  
Office of the Dean  2610 Engineering Hall  1415 Engineering Drive  Madison, WI 53706
cc: Jocelyn Milner, APIR
Karen Mittelstadt, APIR
Parmesh Ramanathan, Associate Dean, Graduate School
Jenna Alsteen, Graduate School
Chris Brace, Assistant Dean for Graduate Affairs, College of Engineering
William Likos, Chair, Dept. of Civil and Environmental Engineering
Greg Harrington, Chair, Program Review Committee
Review Committee Report for
Master of Engineering in Engineering
Named Option: Sustainable Systems Engineering

Date submitted: June 4, 2020

Review Committee Members:

• Christopher Choi, Dept of Biological Systems Engineering
• Greg Harrington, Dept of Civil and Environmental Engineering (chair)
• Cathy Middlecamp, Nelson Institute for Environmental Studies
• Barry Van Veen, Dept of Electrical and Computer Engineering

A. Summary of review committee activities and materials reviewed

The committee based this report on information gleaned from the following sources:

• The program’s self-study report, dated October 13, 2019.
• Interviews with the Associate Dean for Engineering Professional Development, the Program Director, and three members of the instructional team.
• Interviews with three alumni of the program and one student currently enrolled in the program.
• Program information published at www.wisc.edu
  o https://epd.wisc.edu/online-degrees/sustainable-systems-engineering/
  o https://energy.wisc.edu/education/for-students/academic-programs/master-engineering-sustainable-systems-engineering
  o https://pdc.wisc.edu/degrees/sustainable-systems-engineering/
  o https://guide.wisc.edu/graduate/engineering-college-wide/engineering-meng/engineering-sustainable-systems-engineering-meng/
• Data available from the Office of Academic Planning and Institutional Research (APIR)

B. Evaluation of the strengths and weaknesses of the program

In the committee’s opinion, the program provided a detailed and comprehensive self-study report that fairly represented the program’s strengths, weaknesses, challenges, and opportunities. We commend the program for taking what we consider a comprehensive and introspective look at itself and for making an assessment that includes an accurate presentation of the program’s limitations. Our report summarizes what we believe are the items most worthy of emphasizing.
Strengths

- A broad program that focuses on sustainable energy systems, including both the supply side (e.g., solar, wind, geothermal, microgrids) and the demand side (e.g., efficient buildings). Students and alumni were particularly complimentary of the supply side aspects.
- A program team that is passionate about efforts to improve the sustainability of existing energy systems and believes that UW-Madison should lead in this endeavor. They are enthusiastic about being part of an educational program dedicated to the sustainable energy systems and are committed to delivering a quality education that can be a source of pride for both the students and UW-Madison.
- Potential for access to many experts now working at UW-Madison, and also the potential to develop a more robust program, should revenue streams grow and permit it.
- UW-Madison’s commitment to maintaining a high level of synchronous online education, which places the university ahead of other institutions working in the subject area.
- Positive student and alumni satisfaction with the program overall. Some stated it has given them the credential needed to change their career path in their desired direction. The educational program is perceived as one that achieves its mission and learning outcomes.

Limitations

- Unsustainable enrollment levels, as noted in the self-study. The program has struggled to maintain a sustainable enrollment and, hence, a sustainable revenue stream. In part, this was due to an early uncertainty in the market for the degree program, but there now appears to be better recognition of a market for sustainable energy systems.
- An overcommitted program director, as noted by the self-study and all members of the administrative and instructional team – including the program director. This has been manifested in lack of capacity to:
  - Develop and maintain a strong marketing and recruiting program.
  - Meet certain administrative responsibilities (e.g., timelines for academic program reviews).
  - Develop a sense of program “ownership” among all members of the instructional team (e.g., moving beyond their sense of owning their classes and into a sense of collective ownership of the entire program and also an understanding of how the program meets its learning objectives from a larger picture perspective).
  - Develop collaborations with other campus units, such as the Nelson Institute for Environmental Studies.
• An overcommitted instructional team. All instructional staff are working overload to support this program as a result of their passion for sustainability. The business model needs to change to provide appropriate levels of support.
• A lack of needed infrastructure. For example, a search for the program on UW-Madison’s site revealed multiple landing spots (listed on the previous page) with conflicting information, some of which is out of date.
• Policies that restrict potential growth. For example, on-campus students can take a few courses, but not all of them, and do not contribute revenue to the program. This is a potentially large and unused resource.

General Remarks
• Students and alumni indicated overall satisfaction with the program. There were a few remarks concerning ways to improve courses, advising, admissions, graduation process, and other administrative functions. It should be noted that these remarks seemed to be a matter of personal preference and experience (several of the aspects described as limitations by some were named as strengths by others).
• In addition to its potential as a revenue generator, the program has the potential to enhance UW-Madison’s position in national sustainability ranking systems. An example is the Sustainability Tracking, Assessment, and Rating System (STARS).

C. Advice to the program, dean, and/or provost for improving the program

The program has reduced its expenses to an extent that it can maintain a positive net revenue. Students and alumni are generally satisfied with the program, and it could be further strengthened, given the university’s interest in achieving and maintaining a broad expertise in the subject. However, several substantive limitations must be addressed.

Given the program’s current financial stability, now seems a good time to develop a strategic plan for the long term. The Associate Dean for Engineering Professional Development indicated a desire to develop such a plan, and we believe he should be given the opportunity to do so. In developing this strategic plan, we suggest that the Associate Dean consider these measures:

• Determining whether there is sufficient demand to warrant expanding the program to achieve its originally envisioned enrollments and revenues.
• Changing the name of the degree program to include the word “energy”.
• Hiring a program director who is committed solely to administering and teaching in the program. The program should support the salary and benefits paid to the program director and the program team.
• Creating a program executive committee by applying a model similar to the ME Online Environmental Engineering program.
• Determining the best ways to engage the wide diversity of UW-Madison expertise in energy sustainability topics and also generate the revenue flow that would be needed to achieve that engagement.

D. Recommendations for future directions

We believe the strategic planning effort described in the previous section should be used to identify future directions for the program.

E. Specifications for any necessary follow-up action

We recommend that the program conduct another internal assessment of its progress in 5 years, rather than waiting a full 10 years until the next campus review.
A. Response to previous program review recommendations

In August of 2016, via an EPD internal review, the SSE program was recommended to evolve to a curriculum that emphasized (and marketed to) more sustainable energy and demand-side energy considerations. At the time of this internal review, enrollment for the program had been significantly lower than originally envisioned through all years of operation [Table 1].

Table 1. New Student Enrollment – Projected versus Actual

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[1] 2012 SSE GFEC Program Proposal “Request for Approval of a New Option in the Existing Master of Engineering Degree Major”

As a result of this lower than anticipated enrollment, program revenue had fallen well short of expectations, while program expenses were at a level to support the much larger, projected enrollments. In the Executive Summary of this internal review, the following comments, in part, were made:

- The SSE program has struggled since inception to achieve the enrollment levels necessary to maintain financial viability.
- Low enrollment has led to low revenue which has led to program down-sizing and simplification.
- Increasing credits/student/year has successfully increased revenue; expenses have been reduced in spite of a 10% university assessment; however, the program net continues to be negative.
- The program has been conceptually difficult to market, as the very nature of sustainability is broad, diffuse, and open to interpretation.
• Two key faculty (Pat Eagan and Mark Finster) retirements will result in the loss of the three foundational sustainability courses in the next 1-2 years (1/3 of total program credits).
• Prospective, existing, and past students have a strong energy interest in energy.
• Employment prospects for engineers in energy efficiency and renewable energy are strong.
• UW-Madison has centers of strength in energy efficiency, renewable energy, and energy policy.
• Program efficiencies can be achieved by shifting some program personnel.

As part of this in-department program review, the following recommendations (bold text) were made (with program response to review recommendations provided in italics).

1. **Pursue approval for a program name change to Sustainable Energy Systems Engineering**

   *We, ultimately, did not pursue approval for a program name change after discussion with GFEC. Instead, we worked to add elective/replacement courses to the program that could also be delivered to a broader set of students and thus be more efficiently delivered. However, we did begin to market the program to emphasize (1) design and implementation of sustainable/renewable energy systems and demand side energy efficiency areas and (2) the transition from a fixed, structured, lock-step curriculum to a flexible curriculum that included additional elective offerings that are delivered, in part, by other online graduate programs in Engineering, including:*
   - Technical Project Management (MEM)
   - Engineering Economic Analysis and Management (MEM)
   - CEE 723 Energy Principles of Environmental Engineering

   *Furthermore, with Professor James Tinjum taking over in the capacity of SSE Program Director in the Spring of 2017 with the departure of the Interim SSE Program Director (Matt Griswold), the program is now able to offer Wind Energy 3D (Develop, Design, Deliver) as an online renewable energy design course within the SSE curriculum. Previously offered as GLE 401/CEE 639, the online version of Wind Energy 3D was first offered in the summer of 2018 as a Special Topics class within EPD (690) and is in the approval process to convert to a long-term, permanent course number.*

2. **Address the pending retirements of core SSE faculty that teach courses in Sustainability Science, including:**

   - EPD 660 Core Competencies of Sustainability, Professor Pat Eagan (3 credits)
We were fortunate to successfully recruit Dr. Najoua Jouini to take over instruction of this course on an alternating fall basis (even-year falls) and thus retain this core sustainability science course within the curriculum.

- **EPD 661 Industrial Ecology: Sustainability Tools in Context, Professor Pat Eagan (3 credits)**
  - We are in the process of retiring EPD 661 because of (1) lack of qualified and available faculty to teach and (2) limited need for the course given the shift to a more energy-centric curriculum.

- **OTM 770 Sustainable Approaches to System Improvement, Professor Mark Finster (4 credits)**
  - For OTM 770, we were also fortunate to successfully recruit Dr. Najoua Jouini to take over instruction of this course on an alternating fall basis (odd-year falls) and thus retain this core sustainability science course within the curriculum. As OTM 770 is a course within the Business School curriculum, we had to secure a Business School faculty vote to approve the course being taught by a non-Business School instructor.

Furthermore, we are able to maintain 10 credits of coursework in the sustainability science area with the development of a new online course in CEE titled “Sustainability Tools” that will be taught by Professor Andrea Hicks. CEE639 will first be taught as a Special Topics class in the summer of 2020.

3. Begin development of energy-focused courses, including:

- **PubAff 809: Introduction to Energy Analysis and Policy (Professor Greg Nemet)**
  - We were not able to induce Dr. Nemet to offer this course as an online section (even with full support from Learning Technologies) because he teaches the course as a very “hands-on, interactive, in-class discussion-based course”

- **EPD xxx: Building Energy Efficiency (Lee DeBaillie), also potentially leveraged with co-development of a non-credit short course of the same name/content**
  - With Lee DeBaillie later transferring to the College of Engineering to be the Program Director of the Accelerated Masters program, the development and instruction of this course transitioned to Dr. Joy Altwies. The class is first being offered as a Special Topics course this fall (Fall 2019) but is in the process of being converted to and approved as a long-term, permanent course with an appropriately numbered course assignment.

- **EPD xxx: Sustainable Systems Engineering, by combining EPD 660&661 sustainability courses into a single overview course**
With EPD 660 now being taught by Dr. Najoua Jouini and EPD 661 being replaced by a new online offering (CEE639, Sustainability Tools, by Professor Andrea Hicks), this course development was not necessary.

- **Fundamentals of Thermal Science (Overview of heat transfer and thermodynamics for energy analysis)**
  - Thermal and Energy Geotechnics is being developed as a new course in Geological Engineering (with anticipated co-delivery to SSE students). The anticipated first offering is Fall of 2021.

- **There are numerous other ideas – some are good short-term solutions and others more applicable to a long-term mature program.**
  - Distributed Sustainable Energy Resource (DSER) System Design was developed and first delivered as a Special Topics class in the Spring of 2019 (which was also made available to on-campus students in GLE and those pursuing the Energy Sustainability Undergraduate Certificate). The course is being prepared for submission, review, and approval as a permanent course in time for the next anticipated offering in the Spring of 2021.

4. Begin marketing of the new program courses

   - A new ‘one-page’ marketing brochure with the flexible curriculum plan was developed in 2018, in parallel to changes to the website. Furthermore, we now intensively market the program offering through Web Information Sessions every Spring and Fall in addition to special sessions in various continuing professional development courses.

5. Pursue graduate school approvals needed to change/add courses

   - As described above, permanent course designations for a variety of courses that were recently developed and/or offered as Special Topics courses are flowing through the approval system.

6. Transition Lee DeBaillie from Program Director to course instructor, student advisor, and subject matter expert. Phase-in Matt Griswold as Program Director.

   - As previously discussed, Lee DeBaillie (formerly 50% appointment to SSE) is now the director of the Accelerated Masters program in the College of Engineering and Matt Griswold, who took over the PD role in the interim, resigned his position in early 2017.

   - Professor James Tinjum took on the Program Director responsibilities for Matt Griswold in February of 2017. Dr. Tinjum also took on the student academic advisor role, teaches the required Capstone Design class, teaches the Wind Energy
and DSER design courses, and also advises SSE students that take Independent Study.

7. Allow for spring and fall admittance if possible. Flexible admission is offered by some competitors and is sometimes a request from program inquirers.
   - SSE now recruits to and allows spring and fall admittance.
   - In addition, applicants are reviewed on an ad hoc basis (previously was conducted by committee meetings) and usually are decided on within 7 days of receipt of a complete admission package.

The SSE program is designed to be a part-time online master’s degree program focused on serving working engineers. The program is 100% online with no residency requirements. The program was originally proposed as a flexible curriculum requiring completion of 27 total credits. Of these credits, 14 were required from 5 fixed courses and 13 were flexible from a set of approved electives. In concept, three informal specialization tracks in facilities, energy and infrastructure provided guidance for the selection of electives. The original proposal lists 43 potential elective credits over 16 courses. The total program credits required to graduate has increased to 30, and the required and available elective course credits each now number 15 for students starting fall 2016. Table 2 presents a summary of the above recommended and in process changes for the SSE curriculum.

The last annual review for the program (Spring 2019) was submitted to the Master of Engineering Oversight Committee on 05/15/19 and is largely reflective of the continued implementation of the above recommendations. The Spring of 2018 annual review is also linked for review and consideration.
<table>
<thead>
<tr>
<th>Core Curriculum as of January 2017</th>
<th>Evolving Flexible Curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Geosci411, Energy Resources, 3 cr</strong></td>
<td><strong>Sustainability/Science Course Recommendations (9 cr minimum)</strong></td>
</tr>
<tr>
<td><strong>EPD690, Special Topics, 1-3 cr</strong></td>
<td>• EPD660, Core Competencies of Sustainability, 3 cr</td>
</tr>
<tr>
<td><strong>BSE367, Renewable Energy Systems, 3 cr</strong></td>
<td>• BSE367, Renewable Energy Systems, 3 cr</td>
</tr>
<tr>
<td><strong>EPD669, Sustainable Systems Capstone, 3 cr</strong></td>
<td>• OTM770, Sustainable Approaches to System Improvement, 4 cr</td>
</tr>
<tr>
<td><strong>EPD730, Sustainable Facilities, 3 cr</strong></td>
<td>• Geosci411, Energy Resources, 3 cr</td>
</tr>
<tr>
<td><strong>EPD700, Connected Learning Essentials, 1 cr</strong></td>
<td>• CEE 629, Sustainability Tools, 3 cr</td>
</tr>
<tr>
<td><strong>EPD702, Professional Presentations, 1 cr</strong></td>
<td><strong>Engineering/Design Course Recommendations (12 credits minimum)</strong></td>
</tr>
<tr>
<td><strong>EP602, Sustainable Energy Seminar, 1-3 cr</strong></td>
<td>• ECE355 Electromechanical Energy Conversion, 3 cr</td>
</tr>
<tr>
<td><strong>EPD708, Creating Breakthrough Innovations, 1 cr</strong></td>
<td>• EPD416, Statistics for Engineering Applications, 3 cr</td>
</tr>
<tr>
<td><strong>EPD785, Effective Negotiation Strategies, 1 cr</strong></td>
<td>• EPD669, Sustainable Systems Engineering Capstone, 3 cr (required)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elective Options, including (but not limited to)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• EP602, Sustainable Energy Challenges Seminar, 1 cr</td>
<td><strong>Sustainability/Science Course Recommendations (9 cr minimum)</strong></td>
</tr>
<tr>
<td>• EPD612, Technical Project Management, 3 cr</td>
<td>• EPD690, Special Topics (in process for permanent course designations)</td>
</tr>
<tr>
<td>• EPD611, Engineering Economics and Management, 3 cr</td>
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</tr>
<tr>
<td>• EPD701, Writing for Professionals, 1 cr</td>
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<tr>
<td>• EPD 02, Professional Presentations, 1 cr</td>
<td></td>
</tr>
<tr>
<td>• EPD713, Key Legal Concepts for Professionals, 1 cr</td>
<td></td>
</tr>
<tr>
<td>• EPD785, Effective Negotiations, 1 cr</td>
<td>• EPD699, Independent Study, 3 cr</td>
</tr>
<tr>
<td></td>
<td>• EPD730, Sustainable Facilities, 3 cr</td>
</tr>
<tr>
<td></td>
<td>• CEE 723 Energy Principles of Environmental Engineering</td>
</tr>
</tbody>
</table>
B. Overview of the Program

The Master of Engineering named option, Sustainable Systems Engineering (SSE), was officially approved in spring 2012 and was established within the Master of Engineering, Engineering major. SSE is an online non-pooled program designed to instruct non-traditional engineering students in the application of sustainability principles to engineering practices. The SSE inaugural class started in fall 2012. The SSE program is currently administered under the Office of Engineering Professional Development (EPD) within the College of Engineering at the University of Wisconsin-Madison.

The mission of the SSE degree is to instruct non-traditional engineering students in the application of sustainability principles to engineering practices. In particular, to gain knowledge about sustainability techniques, frameworks and technologies and to gain skills in developing creative and cross-disciplinary solutions to modern environmental problems.

The SSE program was approved in spring 2012 by the University Academic Planning Council. The admission requirements for the SSE option were created to meet or exceed the requirements for a Master of Engineering degree and the Graduate School. Total required credits for graduation have been increased to 30 to meet enhanced graduate school requirements.

The strategic objective of the program is to train engineers to develop more robust solutions to human problems. In particular, to readily cross discipline boundaries, to recognize systems-based interrelations, to account for the needs and perspectives of all potential stakeholders, and to develop creative linkages between disparate bodies of knowledge. In The Guide, the SSE program is described as

*The named option Sustainable Systems Engineering is an online master’s degree program designed to prepare students to understand and apply the policy, science, engineering, and economics of tomorrow’s sustainable energy and resource transformation. Through objective, reliable, and cost-effective engineering methods, students will create sustainable solutions for society’s grand challenges.*

There are few true online sustainable engineering master’s programs in the U.S. Some programs are close relatives, such as “green technology” or “sustainable energy” programs. There are only a handful of programs that offer fully online sustainable engineering degrees. To exist in this area is, to some degree, to stand out. With that said, the main attributes that differentiate the present program from the competition include small classes, synchronous
classes, and engaged faculty and staff. Outlined below are some of the programs that are considered potential competitors and possibly institutional peers to the SSE program.

Villanova University, College of Engineering
- Master of Science Sustainable Engineering
- Offers online, on-campus, full and part-time, certificate
- Synchronous with on-campus courses, recordings available online
- Six areas of emphasis, large course selection, flexible completion schedule
  - Alternative and Renewable Energy
  - Water Resources Sustainability
  - Environmental Sustainability
  - Sustainable Infrastructure and Built Environment
  - Sustainable Materials
  - International Development
- 30 credits total: (4) 3-credit required core courses, (4) 3-credit courses from one of six tracks, (1) 6-credit thesis
- No explicit completion time
- $1,310/credit + small fees
- [http://www1.villanova.edu/villanova/engineering/grad/masters/sustainable.html](http://www1.villanova.edu/villanova/engineering/grad/masters/sustainable.html)
- [http://vusustainableengineering.com/](http://vusustainableengineering.com/)

Arizona State University
- Master of Science in Engineering, Sustainable Engineering
- 100% online, thesis and non-thesis options
- 30 credit hours – (4) 3-credit required courses, (3) 3-credit electives, 6-credits thesis/project/capstone
- Three elective specialization tracks
  - Infrastructure Systems
  - Energy Systems
  - Earth Systems
- Courses appear to be asynchronous
- $978/credit

University of Southern California, Viterbi School of Engineering
- Master of Science in Green Technologies
- 100% online, certificates available
- Synchronous with on-campus courses, recordings available online, proctored exams
• 27 credits - (2) courses in three topical areas +(3) electives
• Three areas of specialization:
  o Green Systems and the Environment
  o Energy Technology and Efficiency
  o Sustainability and Society
• 27 credits total
• No explicit completion time
• $1,845/credit + small fees
• https://gapp.usc.edu/green-technologies

University of Maryland, School of Engineering
• Master of Engineering Sustainable Energy Engineering
• 100% online, certificate available
• Synchronous with on-campus courses, recordings available online, proctored exams
• Mediasite lecture capture technology
• 30 credits over 10 courses, 5 required core course and 5 electives
• 12 credit certificate
• 2-5 year completion time
• $1,098/credit + small fees
• http://www.oaee.umd.edu/programs/sustainable-energy

Northeastern University, College of Engineering
• Master of Science Energy Systems
• 100% online, on-campus
• Strong emphasis on financial concepts
• 35.5 credit hours via (6) required core courses and (4) electives
• Online delivery method - unknown
• 2+ years completion time
• $1,471/credit + small fees
• http://www.coe.neu.edu/degrees/ms-es

C. Program Assessment and Evaluation

SSE program decisions are approved through the EPD Curriculum Committee. SSE also falls under the College of Engineering Master of Engineering Oversight Committee. The program has adopted the Master of Engineering learning goals developed by the College of Engineering.
• acquire a strong background in engineering principles and a thorough knowledge of the latest technologies in the field
• demonstrate practical engineering knowledge and career enhancing competencies through workplace related projects
• demonstrate an ability to formulate, analyze, and solve advanced engineering problems
• recognize and apply principles of ethical and professional conduct

The original design of the SSE program was comparable with competitors. In particular, core courses were required, and a large swath of elective courses were to be organized around several specialization tracks: Energy Systems, Infrastructure and Facilities. Low enrollment, and resulting low-revenue generation, reduced the number of elective courses in development and we thus do not maintain clear specialization tracks (e.g., wind energy is a technical track in the Penn State online degree program). As of fall 2019, the program does not have specialization tracks. However, we have ‘binned’ sets of courses [see Table 2] into (1) Sustainability Science, (2) Engineering Design, and (3) Professional Development, Technical or Management Electives. The broad array of electives in competing programs appears to be maintained through college-wide efforts to live stream or record a host of on-campus engineering courses. Resources are not expended on “separate” online courses, and a large list of electives adds the flexibility desired in a sustainability program.

The SSE option was designed for mid-career engineers who desire to build technical and leadership skills to:

• Lead sustainability initiatives through their organization
• Apply sustainability concepts and practices to engineering design
• Engage stakeholders in sustainability issues
• Apply engineering tools to perform needs assessments, environmental modeling, life-cycle cost and benefits design and analyses, optimization, and impact statements on affected populations

These attributes are evaluated in the Sustainable Systems Engineering Capstone course, in which students are required to take after they have taken a minimum of 15 credits in the program.
D. Recruiting, Admissions, and Enrollment

After an initial burst of development, available elective credits plateaued and then started to decline, reflecting the lower-than-expected enrollment and revenue [Table 3]. Available elective credits continued to decline as under-enrolled courses were removed from the program. Furthermore, the three specializations are no longer used, as there are too few elective courses to create three discernable topical groups.

By its own nature, a sustainability program is difficult to market. Sustainability is broad, lacks an accepted universal definition, is relative to context and stakeholders, and is often a coat rack of political agendas. Years ago, it appeared that a new engineering discipline like “sustainable engineering” might arise, but recent trends suggest that sustainability concepts are being integrated directly into the traditional engineering disciplines. Furthermore, while there are few clear sustainability engineering programs, there has been an explosion of sustainability degree programs in general – further muddying the waters. From 2008 to 2012 the number of sustainability degree programs increased from 13 to 141.

A significant portion of the prospective students are showing the desire for a self-service model where they are able to find all that they need to apply without ever engaging with the student services team. Many prefer to learn of all program attributes through the website, then apply without contacting the student services team. These students are typically known as “stealth applicants.” The EPD model is to provide the service that each individual student needs and wants. There is targeted assistance with the application and enrollment process for the students, but they can easily complete the process on their own as well. To better inform stealth applicants, it is recommended that website copy be continually updated to highlight program changes.

Each student has an interview with a graduate coordinator as part of the application process. This allows EPD to assess the student’s capabilities and fit with the program. Information gained through these interviews provide valuable insights into a student’s likelihood to succeed within the program not usually made clear through application materials.

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1 Interdisciplinary Environmental and Sustainability Education: Results from the 2012 Census of U.W. Four Year Colleges and Universities, The Council of Environmental Deans and Directors of the National Council for Science and the Environment, September 2012
<table>
<thead>
<tr>
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<tr>
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</table>
As of October of 2019, the SSE has 34 total graduates. The distributions of SSE applicants, admits, new enrollment, semester-specific enrollment, and degrees awarded by semester is shown in Table 3 (previous page). Total students in the program (note that students are not always ‘active’ every semester) in recent years has been in the mid 20’s, far short of the anticipated student numbers as shown in Table 1. This resulted in annual financial losses from program inception through the FY2017; however, expenses have been drastically cut through a variety of measures and the program has been net positive for fiscal years 2018 and 2019 (see Table 4) and continues to project as net positive for the near-term future.

Table 4. 3-year Program Revenue and Expenses

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Students</th>
<th>Revenue</th>
<th>Expenses</th>
<th>Net</th>
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<td>FY17 Year5 -</td>
<td>27</td>
<td>$225,884</td>
<td>$235,192</td>
<td>($9,308)</td>
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<tr>
<td>Actual</td>
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<tr>
<td>FY18 Year6 -</td>
<td>27</td>
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<td>$139,114</td>
<td>$39,107</td>
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<td>Actual</td>
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<tr>
<td>FY19 Year7 -</td>
<td>24</td>
<td>$217,485</td>
<td>$159,828</td>
<td>$57,657</td>
</tr>
<tr>
<td>Actual</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

E. Advising and Student Support

In FY2017, the program was supported by a 50% Program Director, 20% FTE in student services, 54.5% FTE in learning design and technology support, 37% FTE in administration and 42% FTE in marketing. In the current FY2020, the program is supported by a 20% Program Director, 15% FTE in student services, 10% FTE in learning design and technology support, 10% FTE in administration and 10% FTE in marketing.

Students are supported throughout their journey from inquiry to application to matriculated student. The student services team works with students on their specific needs and career aspirations and how the degree will support their goals. Once in the program, student services and the program director (who is also their advisor) will aid in plan of studies and any special requirements needed. Their diligent work with each individual is another key differentiator of the program, but one that is difficult to describe through marketing/advertising messages.

Students provide feedback with each course and have an open channel to the graduate coordinator, program director, and instructor in the event of a grievance. The first step for
any grievance is with the professor. If the situation cannot be resolved it would be escalated to the program director and then action taken depending on the situation. The escalation path would go from the program director to the director of EPD online degrees and ultimately to the EPD department chair. Depending on the nature of the grievance it may go through the escalation within the academic department.

F. Program Community and Climate

The teaching approach follows an engaged model including synchronous learning sessions and consistent collaboration with fellow students and the faculty member while still taking advantage of the flexibility online instruction provides. Assignments are typically project based but there are some courses that will use case studies and traditional style homework. Weekly discussion topics and homework align with the material in that particular week’s lecture with the focus on applying the information being taught in the course.

Courses are taught online with one live web conference scheduled per week. Typically, readings and homework are assigned weekly, along with required class discussion forum participation and quizzes. Projects are used extensively, and students can apply their learning to workplace situations. Online engagement is emphasized, allowing for interaction and networking with both faculty and student peers. Exams are, largely, not utilized. Roughly 60% of the course credits are taught by tenured faculty.

G. Degree Completion and Time to Degree

Starting in the Fall of 2018, the SSE program began the transition to a more flexible curriculum [see Table 2]. The benefits are as follows:

- Improved course enrollment with more course options available each term
- Flexible electives fit the interdisciplinary nature of the program well, allowing individuals to tailor electives to meet individual needs
- Greater pool of course availability for students
- Degree completion time is anticipated to be reduced when students have the option to take more than one course per term, if desired
- All fall and spring terms are a recommended minimum of 4 credits, thus satisfying financial aid requirements

While there is considerable flexibility, there is not as much as when the program was launched. Due to student numbers and financial constraints, many courses are offered on a two-year basis. As such, students that are generally in the program for upwards of three
years only have one, possibly two, opportunities to take a significant number of the courses within the curriculum. This is where advising comes into play where the Program Director and/or Student Services takes an active role in advising and planning a degree completion plan, generally within the first semester of the student’s enrollment. Of the 30 total credits required for graduation, only 3 are required (Sustainable Systems Engineering Capstone). Students work on a plan of study to meet their individual needs. Students enter Fall or Spring. The program, on average, takes three years for degree completion.

H. Career Services and Post-Graduation Outcomes

Over half of existing SSE students are employed in the energy industry—generation, transmission, energy efficiency, or consulting thereof. A number of students are also employed on the facilities side of the industry, often with corporate or district goals of energy sustainability. It has been the single clearest trend in student background. Not surprisingly, students are interested in energy courses—many of the SSE curriculum on the design/engineering side are thus energy-related courses.

From an employment perspective, there has not been a clear sustainability discipline emerging for engineers. Although there is certainly benefit in engineers possessing this knowledge in any employment context, there have been few solid sustainable engineering positions opening-up in the market. In contrast, a major component of sustainable efforts—the energy efficiency and renewable energy field—has been expanding rapidly. In the United States, energy efficiency spending by utilities is expected to double from 2010 to 2025\(^2\), revenue from energy service companies is expected to nearly triple from 2011 to 2020\(^3\), and two-thirds of world-wide spending on new electric generation capacity is expected to be renewable-based and total $8.1 trillion from 2016-2040\(^4\).

Furthermore, UW-Madison has some concentrated areas of energy (renewable and efficiency) expertise.

- EPD maintains much of the building energy efficiency expertise at UW-Madison
- The Grainger Institute for Engineering has a strategic plan to enhance research in the area of Sustainable Energy.
- Undergraduate Certificate in Engineering for Energy Sustainability

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\(^4\) 2015 New Energy Outlook, Bloomberg New Energy Finance
• Nelson Institute Graduate Certificate in Energy Analysis and Policy
• Wisconsin Energy Institute
• Wisconsin Public Utilities Institute

Due to these trends and student employment opportunities and career goals, we intend to keep the SSE degree heavily invested in the energy and energy efficiency arena.

I. Overall Analysis of the Self-Study and the State of the Program:

The current status of the SSE program can be summarized as follows:
• The SSE program has struggled since inception to achieve forecasted enrollment.
• Low enrollment has led to low revenue, which has led to program down-sizing and simplification.
• Increasing credits/student/year has successfully increased revenue; expenses have been significantly reduced in spite of a 10% university assessment.
• Due to student numbers and financial constraints, many courses are offered on a two-year basis. As such, students that are generally in the program for upwards of three years only have one, possibly two, opportunities to take a significant number of the courses within the curriculum.
• The program has been conceptually difficult to market, as the very nature of sustainability is broad, diffuse, and open to interpretation.
• Two key faculty retirements has resulted in the transitioning of the three foundational sustainability courses (1/3 of total program credits).
• Prospective and existing students and program alumni have a strong interest in energy and sustainability.
• Employment prospects for engineers in energy efficiency and renewable energy are strong.
• UW-Madison has centers of strength in energy efficiency, renewable energy and energy policy.

Recommendations:
• Continue to market the SSE program as a sustainable energy systems-focused program.
  o Continue to develop and deliver an energy-focused marketing campaign
  o As the program was in a state of flux for several years, the EPD marketing team has experienced near 100% turnover, and marketing budgets have been limited, overall strategic marketing efforts have been minimized. To increase applicant interest and program enrollment, a comprehensive marketing plan should be developed and implemented.
• Transition Program Director to an individual that has a sufficient, dedicated percentage to market and grow the program, including the directive, tools, resources, and goals to do so.
• Leverage professional development renewable energy and sustainable systems courses for recruiting.

The current tuition of $1,300 per credit hour is on the high-end charged by competitors, particularly the ever-expanding universe of universities and programs that offer some form of ‘sustainability’ focused online degree. Although, anecdotally, we have not had students voicing consistent complaints about tuition levels or going to a competitor based on price (we do lose students to competing programs due to curriculum availability), a market study should be conducted to see if a $1,100 per credit hour price point is appropriate for the SSE program.

Additional Considerations for Graduate Students

J. Funding

As SSE is an online masters-only degree, we do not have PhD students and we do not offer RA or TA funding. Furthermore, we do not have scholarships available for SSE students.

K. Professional Development and Breadth

As SSE is an online masters-only degree, we do not generally provide opportunities or funding for students to attend and present at professional meetings. We, also, do not offer teaching experience development as students are not offered TA positions.
May 21, 2020

TO: Karl Scholz, Provost  
    William Karpus, Dean, Graduate School

FROM: David A. Noyce, Executive Associate Dean

RE: Review of the Master of Engineering in Civil & Environmental Engineering—Environmental Engineering Named Option

At its April 15, 2020 meeting, the College of Engineering Academic Planning Council (APC) unanimously recommended for approval the attached review and self-study of the Master of Engineering in Civil & Environmental Engineering—Environmental Engineering Named Option.

The review committee found the program is meeting the prescribed student learning objectives, has attracted a diverse student group, and the enrolled students rate the program as meeting or exceeding expectations.

The review committee did provide a few recommendations:

- Track students’ career outcomes as well as track those students that discontinue the program.
- Review the number of transfer credits allowed; consider reducing the number to increase revenue but still allow enough flexibility to attract students.
- May need to add staff if enrollment increases in order to retain quality of service.
- Develop a specific Graduate Student Handbook for the Master of Engineering online programs, separate from the department’s graduate student handbook.

The College APC also suggested that the program identify the minimum enrollment number needed to continue the program and develop a plan to sunset the program if necessary.

On behalf of the College of Engineering, I accept the APC’s recommendation to approve this program review.

Attachments: Review Committee Report  
Department Self-Study

cc: Jocelyn Milner, APIR  
    Karen Mittelstadt, APIR  
    Parmesh Ramanathan, Associate Dean, Graduate School  
    Jenna Alsteen, Graduate School  
    Chris Brace, Assistant Dean for Graduate Affairs, College of Engineering  
    William Likos, Chair, Dept. of Civil and Environmental Engineering  
    Vicki Bier, Chair, Program Review Committee
Report for the 5-Year Review of the Masters of Engineering in Environmental Engineering

March 17, 2020

Review Committee Members

- Vicki Bier, Professor, Industrial and Systems Engineering (Chair)
- Christopher Choi, Professor, Biological Systems Engineering (Graduate Faculty Executive Committee Representative)
- Brian Pfleger, Professor, Biological and Chemical Engineering Chemistry
- Anita Thompson, Professor, Biological Systems Engineering

Review Process

The committee was formed on November 22, 2019, and directed to “analyze program quality and student learning, affirm ways that the program is working well, and implement improvements.” These charges also directed the committee to “focus on evaluating the quality and function of the academic programs,” with special emphasis placed on evaluating “the academic programs and the student experience.” The committee began by reviewing the 5-Year Self-Study Report concerning the Master of Engineering in Civil & Environmental Engineering—Environmental Engineering Named Option, in addition to the Annual Assessment Report. The committee gathered additional information by taking the following steps:

- Performing one-on-one interviews with three faculty members who teach extensively in the program;
- Meeting as a committee with the Chair of Civil & Environmental Engineering (Prof. William Likos) and the Program Director (Jane Carlson);
- Meeting as a committee with the program’s Student Services Coordinator (Cheryl Loschko);
- Conducting telephone interviews with three graduate students currently enrolled in the program; and
- Reviewing program statistics collected and published online by the Graduate School.
The Student Services Coordinator, who is a staff member in the College of Engineering, assists graduate students with matters that include advising, procedures and goals, and degree progression. The three graduate students who were interviewed included a foreign-born woman currently working in the U.S., a U.S.-born man who was an alumnus of Civil & Environmental Engineering, and a U.S.-born woman who had graduated from another program. In this way, the committee gathered both foreign and domestic viewpoints concerning gender and ethnic diversity. The students were selected by the program director. However, during the interviews, they were asked to provide a broad perspective, one representative of all students.

After reviewing the Self-Study and Graduate-School data, the committee generated a detailed list of questions and topics designed to guide discussions with the administrators, the coordinator, the faculty, and the students. The one-on-one interviews with faculty members were conducted for 20-40 minutes each, in February and March, depending on the availability of each faculty member. On December 12, 2019, the committee met with the Chair for 30 minutes and the Program Director for 60 minutes, and on February 21, 2020, with the Student Services Coordinator for 20 minutes. During February and March, the members of the committee held discussions and with the students (by telephone/Skype), for 15-40 minutes each.

Data

The Civil and Environmental Engineering Department offers an M.E. program in Environmental Engineering (online). The program is relatively new (initially proposed in 2013 with its first students enrolled in fall 2015).

Size

The M.E. program in Environmental Engineering is relatively small, having an enrollment of 25 students in both fall 2018 and fall 2019. The program’s director estimates that a minimum of 10 students will ensure a positive cash flow, and that additional advising assistance would likely be needed if enrollment were to exceed 30 students.

Time to Completion (M.E.). Most students in the program also work full-time. They typically take one or two classes per semester and therefore require about three years to complete the program, which comprises 30 credits. Occasionally, a student will withdraw for a semester or two for personal reasons or will progress more rapidly if not working full-time.

Career Outcomes. The amount of data needed to assess outcomes rigorously has not yet accumulated. It can be said that many students continue in their current jobs, some with promotions to roles of greater responsibility; some students also use the program as a
springboard to other, presumably better jobs. Some students also go on to pass the Fundamentals of Engineering Exam and/or become licensed Professional Engineers.

**Graduate Program Ranking.** The Online Master of Engineering in Environmental Engineering was recently ranked highly (#13 out of 30 online programs in civil/environmental engineering) ([https://www.bestmastersdegrees.com/top/online-masters-civil-environmental-engineering](https://www.bestmastersdegrees.com/top/online-masters-civil-environmental-engineering)).

**Staffing and Administration.** The Chair of Civil & Environmental Engineering (currently Prof. William Likos) provides general oversight for the program. However, day-to-day operations (including student recruiting and admission) are managed by the program director. The Student Services Coordinator provides academic advising to graduate students in the program, and helps with occasional questions as they arise (e.g., how to re-enroll after a student has left the program for some period of time).

**Interviews**

The one-on-one meetings with members of the faculty and the discussions with administrators, staff, and students provided first-hand accounts regarding the program and thus provided insight beyond that gained from the data and information gleaned from the Self-Study. The tenor of all the interviews was positive. None of the interviewees identified any major flaw. When encouraged to elaborate, they did provide the following comments and suggestions:

**Comments by Faculty, Administrators, and Staff**

· Teaching in the program does not reduce a faculty member’s availability and prevent them from helping to meet other needs of the department, such as service responsibilities, or reduce offerings of regular classroom courses.

· Discretionary funds have been useful, enabling faculty members to purchase on-line teaching-related equipment (including computers).

· The program has a reasonably diverse student body, with a good gender balance in particular, relative to other M.E. programs of the same kind.

· The students have the opportunity to get to know each other and work together online through collaborative presentations, forums, etc.

· Most students make reasonable progress towards their degrees. A few had to leave the program due to circumstances beyond their control (hurricane, illness, etc).
The students seem to be able to cope with the stress of graduate school, but they sometimes struggle due to work-related conflicts.

To meet their interests, the students in the program have adequate flexibility when choosing courses, particularly with regard to the many elective courses made available.

The program’s curriculum includes an adequate mix of electives, seminars, independent study, etc.

The accelerated M.S. program offered by the department does not compete directly with the M.E. program.

The program has the right core curriculum for its starting point. However, in the long term, the program may need to broaden the scope of its core requirements to deal with problems such as contaminated soils, hazardous waste, or water resource management.

The program provides an advantage to undergraduate students on campus by exposing them to the work experiences of the M.E. students (e.g., through class discussions).

Comments by Current Students

The program met or exceeded student expectations, learning goals, and career needs. The practical content of the courses was rated favorably. Students also reported that the course offerings met their needs.

The program is challenging for those working full-time jobs, especially when their jobs involve business-related travel or important deadlines. However, the professors were good at accommodating these students.

Working together online to complete projects and meeting in person during business trips helped a great deal. In-person meetings with other students and/or faculty members provided valuable help even if those meetings occurred only once a year. Students found working with other classmates with different career paths and knowledge to be enriching.

Various online tools (such as WhatsApp, Google Drive, and Blackboard Collaborate) have proved useful.

The program (as one student indicated) could be useful when making certain changes (e.g., from the oil industry to consulting in environmental engineering).
One of the students interviewed chose the program because of UW-Madison’s reputation, and because the student could not find another online program in environmental engineering.

Faculty were available and helpful anytime the student had questions or concerns. Feedback was provided in a timely manner.

Aside from several minor criticisms, the interviewees indicated they were happy with the way the program was administered.

**Overall, the Masters of Engineering in Environmental Engineering is healthy, the quality of the students appears excellent, and student learning goals are being met. The Department should be commended for creating and expanding such a strong graduate program.**

The program’s most notable strengths and also its concerns/challenges are summarized below, followed by recommendations. For the most part, the recommendations pertain to areas of concern that the program administrators should consider addressing, rather than those that represent significant flaws that must be corrected.

**Program Strengths**

- **Program Administration.** The transition to Jane Carlson as the new Program Director seems to have gone extremely smoothly. The committee heard no concerns about her leadership, and she seems proactive in reaching out and keeping in touch with the students in the program. This policy is valuable in that it ensures intended student outcomes, achieves the program’s goals, and helps to create a positive learning experience.

- **Faculty Involvement.** The faculty members who teach core courses in the program seem to be doing an excellent job. In particular, the review committee was impressed by how many of the program’s independent-studies students have been able to function (in some instances, a single student has managed two and even three such courses). This outcome speaks to the faculty’s commitment, since supervising independent studies is typically a task conducted in addition to other teaching duties.

- **Favorable Outcomes for Students.** Although it is too soon to rigorously assess career outcomes, the students who were interviewed expressed favorable opinions regarding the program, and many professed a belief that completing the program successfully would benefit them in their careers and help them to advance professionally.

- **Flexibility in Regard to Course Selection.** Although one faculty member speculated that permitting students to take a wider range of the courses available on campus might benefit them,
most members, and also most of the students who were interviewed, expressed satisfaction with
the current graduate-level course offerings. The committee also believes that the number of
courses now being offered enables students to develop course plans that meet their interests.
Moreover, the schedule of course offerings (with many or most courses offered once per year) is
sufficiently regular that it will not force students to delay in completing the program in a timely
fashion. Besides, students can pursue independent studies, and/or transfer a number of credits
(up to 14?) from another institution (the program at Johns Hopkins was frequently mentioned).

● **TA Support.** Both students and faculty members expressed appreciation for the level of TA
support made available in the program. Most of the students interviewed deemed the level of TA
support as adequate and believed the TAs helped them learn the material and make progress in
the program. Certainly, because the TA/ student ratio is significantly higher for M.E. students
than for on-campus students, the faculty members who teach significant numbers of M.E.
students receive a higher overall level of TA support, which at least partially compensates for the
extra workload involved in teaching both on-campus and off-campus students in a single course.

● **Adequate Course Materials to Support Online Education.** The committee was provided
access to the Canvas pages for four courses offered over the last year. Each course was distinctly
different, using a variety of platforms for providing lecture materials and assignments. The
content and delivery of a sample of lectures viewed indicate that the quality is strong, consistent
with in-person delivery. In addition, the students interviewed indicated that they also had
opportunities to become acquainted with members of the faculty (especially via independent
studies), and with some of their classmates (via group projects), even though the interactions
were online.

● **Generally Positive Climate.** Online students and on-campus students will of course use
different measures to assess “classroom climate,” but both groups indicated that the faculty has
been supportive and respectful. Several students in each group reported that balancing the
responsibilities associated with full-time work with those imposed by an online graduate
program, but these students also indicated that faculty has been in general quite accommodating
in its efforts to help them resolve such conflicts of interest.

● **Reasonable Levels of Student Diversity.** Although the engineering field as a whole faces
challenges related to gender and racial/ethnic diversity, the M.E. program does not appear to be
significantly less diverse than similar programs on campus. For example, roughly 30% of the
students who have completed the program thus far were female. Similarly, the program includes
a mix of undergrad alumni who chose to continue their education at the same institution (the
University of Wisconsin-Madison), and students who completed their undergraduate studies at
other schools.
Program Concerns and Challenges

- **Graduate Student Handbook.** Currently, the department has but a single Graduate Student Handbook. This can pose problems because the requirements for the online M.E. program (and the issues associated with online programs in general) differ significantly from those imposed on most of the other students enrolled in the on-campus graduate programs. Just for example, the Student Services Coordinator recently reported that students in the online program were much more likely than on-campus students to withdraw for a semester or two and then re-enroll later. The students interviewed did not believe this to be a problem because they were usually able to get their questions answered online or via a phone call. However, developing a handbook more closely aligned with the needs of the online M.E. program (providing one-stop shopping for course requirements and clearer more specific policies and procedures pertaining to such actions as arranging for independent study or re-enrolling after a break) would significantly benefit students and reduce the staff’s administrative burden (especially if the program were to grow significantly).

- **Possible Need for Additional Staff.** The program currently has approximately two dozen students, which allows for a personal approach. If enrollment were to grow significantly (which might be financially beneficial), additional staffing and advising resources might be required to maintain this quality of service without putting undue burden on either the Program Director or the Student Services Coordinator. Moreover, the burden would fall especially on the Student Services Coordinator for the program, Cheryl Loschko, because she is also supporting a number of other graduate programs in the department that require significantly different procedures.

- **Consequences Associated with Program Flexibility.** As the members of the committee understand it, the program currently allows up to 14 of the 30 required credits to be earned at an institution other than the University of Wisconsin-Madison. While this policy appears to be consistent with the minimum expectations of the Graduate School, several committee members view it as unusually flexible and fear that it could undermine the program’s revenue-generation goals. Therefore, the committee recommends that program leadership consider the feasibility of further restricting the policy to an extent that would not significantly impair recruiting efforts and the program’s further development. Would allowing a student to transfer six credits from another program, for example, still give the student significant flexibility without jeopardizing the program’s financial sustainability?
Recommendations

● **Monitor and Assess Career Outcomes for Students.** The program should find ways to stay in touch with its alumni and monitor their career outcomes (e.g., keep track of who was promoted or changed jobs after completing the program).

● **Monitor Students who Disenroll.** It might be helpful to create a formal method for tracking students who decide not to enroll for a semester or two but still intend to complete the program at a later time.

● **Reduce the Number of Credits that Can Be Transferred from Other Institutions.** The CEE department and the M.E. program should seek to determine whether the number of outside credits permitted could be reduced without harming student recruitment and progress.

Other Observations by Committee and Interviewees

● **Course Flexibility.** Although one faculty member suggested that students might benefit from being given greater flexibility when selecting courses, such a measure might not be practical; many faculty members may not be prepared to adequately accommodate online students in their courses.

● **Compensation to Faculty.** The current approach of providing limited discretionary funding plus generous TA support seems a reasonable compromise, given the difficulties associated with providing direct compensation during the academic year.

Conclusions

The committee appreciates the effort by the faculty and staff to create this program and maintain its vibrant nature. We hope that the program continues to grow and provide positive outcomes for students.
5-Year Self-Study Report for Master of Engineering in Civil & Environmental Engineering – Environmental Engineering Named Option

Date submitted: November 18, 2019

Primary Contacts:

Jane M. Carlson, P.E., ENV SP, Adjunct Professor and Program Director, jane.carlson@wisc.edu, (608) 334-3402.

William Likos, Gary Wendt Professor and Chair, likos@wisc.edu, (608) 890-2662.

Department(s)/Academic Unit(s): Civil & Environmental Engineering (CEE) Department

School(s)/College(s): College of Engineering

A. Response to previous program review recommendations
   
   Summarize recommendations from the previous program review and how they were acted upon.

   This section is not applicable. This is the first (5-year) self-study report for the program. The program was initiated in 2015 with the first cohort of students matriculated in September 2015.

B. Overview of the Program

   Describe the mission and goals of the program and how its structure (both of the program and of its governance) support them. Consider the following questions:

   • Provide current degree/major requirements as approved.
     
     The M.Eng. named option in Environmental Engineering is a fully online degree that includes a full curriculum of courses incorporating the latest research and practices in water supply, wastewater reclamation and reuse, resource recovery, and urban storm water management. The M.Eng. degree has been developed to give the practicing environmental engineer and scientist the skills needed to meet contemporary and future challenges. For more information about the online M.Eng. degree, see the program website. Degree requirements are listed here: https://guide.wisc.edu/graduate/civil-environmental-engineering/civil-environmental-engineering-meng/civil-environmental-engineering-environmental-engineering-meng/#requirementstext The program follows the minimum degree requirements of the graduate school. The program requires 30 credits, of which 16 must be earned at UW-Madison (residence credits). There are a total of 16 credits that are required to be from program courses. Other online CEE and Engineering Professional Development (EPD) courses may be taken as electives if they have the Graduate Level Coursework attribute.

   • How does the mission of the program fit with the home department/unit, the school/college, and the mission of the university?
     
     The following is an excerpt from the February 2013 MEng EnvE program proposal, which was submitted in response to the College of Engineering’s (COE’s) Request for Proposals to Develop
New Distance-Delivered Graduate Engineering Offerings: “… BS graduates are seeing increased financial pressures to enter the workforce immediately following their baccalaureate program. Distance-delivered programs are becoming increasingly attractive to students therefore, and owing to the factors … a distance-delivered professional degree offered by a high-ranking and well-respected institution such as ours should be highly marketable, assist us in meeting our educational mission, and help foster more effective ties between the research and professional practice communities.”

Following are important goals for the MEng EnvE program as stated in the 2013 proposal: “(1) Provide the foundational academic training necessary for practicing Environmental Engineers to meet the increasingly complex and difficult environmental challenges faced by society. (2) Provide breadth and depth in Environmental Engineering knowledge and skills to students from other engineering and related science fields. (3) Along with the student’s baccalaureate degree, satisfy the educational component of the “Body of Knowledge” within the framework defined by the American Academy of Environmental Engineers. (4) Meet the needs of program graduates for licensure under the National Council of Examiners for Engineering and Surveying Model Law, and the regulations of the various states and territories. (5) Help develop future generations of Environmental Engineering leaders. (6) Assist the College of Engineering in meeting its strategic goals. (7) Foster ties between the Department of Civil & Environmental Engineering, and the college, with the professional practice community.”

The mission of the program is also consistent with the vision of the Department of Civil and Environmental Engineering, as articulated in the 2020-2025 CEE strategic plan: “To be recognized as a global academic leader in scholarship and learning by our peers and stakeholders, with recognized excellence and international leadership in the themes of mobility, water, and building, with integrated cross-cutting areas of energy, infrastructure, and the environment.” In particular, the MEng contributes directly to the department vision of achieving excellence in theme areas of water and the environment.

• What are the approved learning outcomes for each of the programs being reviewed (i.e. bachelor’s, master’s or doctoral degrees)?

The curriculum was designed to meet the Master of Science learning outcomes as described within the American Academy of Environmental Engineers Environmental Engineering Body of Knowledge (BOK) document. These outcomes are listed below.

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<th>Demonstrate a Strong Understanding of Mathematical, Scientific, and Engineering Principles in the Field.</th>
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<td>2</td>
<td>Demonstrate an Ability to Formulate, Analyze, and Solve Advanced Engineering Problems.</td>
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<td>3</td>
<td>Demonstrate Creative, Independent Problem-Solving Skills</td>
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<td>4</td>
<td>Apply the latest Scientific and Technological Advancements, Advanced Techniques, and Modern Engineering Tools to these Problems.</td>
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<tr>
<td>5</td>
<td>Recognize and Apply Principles of Ethical and Professional Conduct.</td>
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1 http://www.aaees.org/publications/eebodyofknowledge.php
What is the program’s structure? For example, is it a single program or does it have informal tracks/concentrations, formal named options or certificates? It is a named option, Environmental Engineering, under the Master of Engineering in Civil & Environmental Engineering. There are no other named options under MEng-CEE. There are no specific tracks/concentrations, although students may choose more courses in select areas such as hydraulics and hydrology, solid and hazardous waste, wastewater treatment, and so on.

Describe any substantial and structured collaborations with other programs, such as dual, double or joint degrees and benefits of these arrangements? There are no dual, double, or joint degrees offered. However, students in the MEng EnvE program may take elective online courses offered by Engineering Professional Development (EPD), and EPD students may take MEng EnvE courses, with permission of advisors and instructors. This has been beneficial in offering more options for various student interests, and also helps some students complete their master’s program on a shorter timeframe.

If the program is not the only program within the home unit, what are the other programs? If there are several programs in the same academic home, how are they related to one another and what impacts do they have on student learning? Other graduate programs in the Civil & Environmental Engineering Department include PhD, MS with thesis, and professional (accelerated) MS. MEng EnvE students may choose from several online elective courses that are offered to both on-campus and online program students, allowing formation of project teams from various backgrounds and levels of experience (since the MEng program students often have professional experience). The online MEng EnvE program provides additional electives to on-campus students, which may be of particular interest to accelerated MS students who obtain their degree in 12 months and may not be able to enroll in the on-campus courses that they prefer, e.g., if an on-campus course is only offered once every two years.

How do the program’s governance model, program committees, and membership criteria lead to active faculty engagement? How does succession planning work for leadership? The program is governed by the MEng EnvE Executive Committee appointed by the CEE Department Chair. This committee is made up of the CEE Department Chair, the CEE Graduate Program Associate Chair, CEE faculty, and a Program Director from EPD. The MEng EnvE Program Director is appointed and supervised by the Department Chair. The first Program Director, Michael Doran, worked with the Department Chair and new Program Director in advance of his retirement to provide a smooth transition to the new Program Director. It is anticipated this model will be followed in the future.

C. Program Assessment and Evaluation
Summarize the assessment plan used to evaluate the extent to which students are meeting program learning outcomes and how the program is engaged in a coherent process of continuous curricular and program improvement.

- Provide annual assessment reports.
The November 2018 annual assessment report is attached.

- What has the program learned through assessment of learning outcomes? Provide key evidence. In reviewing the detailed assessment information provided by the CivEngr 823 mentors during a direct assessment, the students were not able to clearly demonstrate their understanding and capabilities in two areas because of course content limitations:
  - design and implementation of data collection programs, and evaluation of results
  - demonstration of understanding of the need for and a commitment to lifelong learning.

- What changes have been made as a result of assessment? Students who take CivEngr 822 learn design and implementation of data collection programs and evaluation of results. Not everyone in the program takes this course. Additional changes are still being considered for CivEngr 823 or 821 in the future to capture the remaining program students. CivEngr 929 was modified to incorporate a seminar on professional development and lifelong learning. In addition, CivEngr 821 – Biological Treatment Processes, has been modified based on input from Adjunct Professor Steven Reusser, retired from Madison Metropolitan Sewerage District, to incorporate education on secondary settling, which is integral to biological treatment, and state-of-the-art processes for nutrient removal and biosolids digestion. Professor Reusser co-taught CivEngr 821 in Spring of 2019 and will do so again in Spring of 2021 after making a few additional improvements to the course.

- What are the emerging changes in the discipline? What is being done and can be done to move forward and seize emerging/future opportunities? Engineering tools are continuing to develop. One area is in biological wastewater treatment process modeling. We have applied for a UW-Madison grant to develop an online, 1-credit course in biological process modeling. We are targeting AY 2022 for this new course. In addition, CivEngr 821 was modified as described above. CivEngr 929 seminars provide an opportunity for all program students to learn about emerging changes in the discipline. TAs are encouraged to speak on their research topics, and practitioners are often invited to discuss recent projects. We also encourage students in the program to discuss their own professional experience where it fits with the course learning objectives. Students can study emerging issues and technologies in CivEngr 699. All students in the program complete a team environmental engineering design project with a professional mentor in CivEngr 823 and have the opportunity to explore emerging trends.

- If relevant to the program, how do leaders within industry, business, government, or non-profit organizations become involved in offering advice and perspectives on the program and the curriculum? The program was developed with the aid of an external advisory committee appointed by the CEE Department Chair and made up of professionals from industry, business, academia, and government. The Program Director intends to convene a meeting of the external advisory committee in Fall 2019, during which input will be sought on the recommendations from the outcomes assessment, a proposed new course in biological process modeling, and a few other specific areas of the curriculum. Other opportunities for leaders in the industry to become involved were discussed in the previous bullet.
D. Recruiting, Admissions, and Enrollment

Analyze current practices and trends to determine if enrollment levels are consistent with plans and program resources. Discuss relevant program data in the context of the following:

- Are admissions practices and enrollment levels consistent with plans, program resources, and career outcomes?
  
  The informal program goal is matriculation of 10 – 12 new students a year and we have met that goal thus far. Figures 1 through 6, attached, show total applicants and enrollment figures. Approximately 10 total students are desirable for positive cash flow, although this number could be lower if expenses are further reduced (e.g., by not hiring TAs). The program currently has 23 total active students. The CEE Department is interested in increasing enrollment in this and other graduate level programs. Program resources are sufficient for 30 total students or more. Additional student advising assistance would likely be required if enrollment exceeds 30 students. This will be further assessed as part of the 10-year Self Study. Note that career outcomes are difficult to assess since most of the students in the program already have careers in environmental engineering or related fields.

- What effort has the department/academic unit or program made to enhance student diversity (traditionally underrepresented groups in field)? Have those diversity efforts been successful? The CEE department have made specific efforts to enhance student diversity in addition to what Campus, the College of Engineering, the Division of Continuing Studies, and the Graduate School provide. The CEE department Chair and Administrator have led diversity and inclusion initiatives through training programs for faculty and staff, required training for search and screen committee members, diversity focus in hiring, enhanced mentoring options for faculty, chair’s graduate student advisory committee, and additional social and department events. Program diversity is shown in Figures 7 through 10, attached. The Program Director attended the Fall 2019 Teaching Academy Retreat on Inclusive Teaching Practices and intends to incorporate some of those successful practices into her courses.

- If applicable, what do trends in application volume, admits, and enrolled students signal about program strength? For graduate programs, does the program directly admit students? If so, how does the program ensure student integration and success beyond the admitting advisor? Trends in program applications, admits, and enrollment are shown in the attached Figures 1 through 6. These numbers signal that the program is steady and strong. The program uses the Graduate School online application process. Once the application is complete, the Program Director conducts a telephone interview of the applicant to further assess their likelihood of success in the program. A CEE Department applicant review committee, on which the Program Director is a voting member, reviews each applicant and makes recommendations to the Graduate School. This process appears to be working well, as evidenced by the number of active program students (23) and graduates (13).

E. Advising and Student Support

Discuss the process by which students get regular advising and accurate program information. Reflect upon the following:
Undergraduate: - N/A

- Who does advising in for the program? Describe how advisors are hired/selected. How are students transitioned between advisors when personnel changes?
- Describe how students are assigned to advisors. What is the ratio of advisors to students? How often do you expect students to meet with an advisor?
- What other responsibilities do the advisors have in the unit?
- What material is available on your website or in print to support advising of undergraduates? How is that information kept up to date and accurate?
- What training and professional development is expected and/or supported for advisors? Do advisors make use of the Advisor Gateway and the Advisor Notes System? How are advisor performance reviews conducted?
- How is the impact of advising assessed? Is your advising in alignment with the Guiding Principles and Core Competencies for Academic Advising?

Post-Baccalaureate:

- How are advisors assigned and matched to students? How many advisees does each faculty member have? The Program Director is the primary academic advisor for students in the program. The Program Director and Graduate Student Services representative, Cheryl Loschko, are assigned as advisors automatically. Students may request a different advisor from the CEE Department if they have a previous (undergraduate) relationship or preference; however, this is uncommon. The ratio of advisors (Program Director) to students has been approximately 1 advisor to 20 or 25 students.

- How often are program contacts and student handbooks updated and made available online? Is the handbook inclusive of program learning goals, program requirements as well as a program-level grievance procedure? The web site is updated whenever there is a change in program contacts or courses. The Program Director distributes a program-specific Student Course Planning Guide PDF document to each new student that provides details to supplement the information available on the web site, such as brief descriptions of each course, course instructors, and when each course is offered. This document is updated approximately every two years. The Graduate Student Services coordinator is presently working to post graduation warrant application forms online. The Program Director has a longer-term goal of developing a program-specific student handbook using the template that is currently in development. Until then, students may reference the Graduate School web site for program requirements and procedures, or the CEE graduate handbook: https://www.engr.wisc.edu/app/uploads/2019/08/CEEGraduateStudentHandbook2019.pdf

- How are students transitioned between advisors when personnel changes? Students were informed of the planned change in advisor when the program director transition was underway, and both the old and new Program Directors were listed as co-advisors during the transition period.

- How often and in what manner is satisfactory progress monitored? Do students receive written annual feedback on their academic progress? Students are expected to “meet”
F. Program Community and Climate
Where applicable, evaluate exit survey and climate survey data. Describe the efforts taken to foster overall program diversity, a climate of respect and inclusion, and a sense of community by considering the following:

- Discuss efforts to welcome, orient, and retain new students. What is offered to connect students within the program, as well as with the greater campus community? The Program Director reaches out to all new students to check that they are comfortable using the Learning Management System and logging on to their first class. The Program Director works with each new student to develop an individualized course plan as previously described, and throughout their program answers questions and provides recommendations on appropriate courses and course load, depending on individual student needs and interests. The Graduate Student Services specialist for CEE, Cheryl Loschko, sends an onboarding email to all students to welcome them to UW-Madison Graduate School and provide useful information on graduate school policies and requirements. Cheryl also sends a course enrollment email every semester. Students in the program receive “Grad Connections bi-Weekly for Online Students” e-newsletters from the Graduate School. Students are encouraged to form study groups, routinely participate in discussion forums and work on team projects in their courses, and occasionally work as part of a joint on-campus/online project team.

- What efforts are there to enhance faculty/staff representation of traditionally underrepresented groups in the field? How does the unit rate its ability to attract and retain a diverse faculty/staff? The new Program Director is female. Other program faculty/staff are from the CEE Department, which makes efforts to attract and retain diverse faculty/staff. See additional information under the previous student diversity topic. This area will be reviewed in more detail in the 10-year Self Study report.
G. **Degree Completion and Time to Degree**  
Referencing relevant data and campus goals, describe efforts to help students make timely progress to degree. Include the following in your discussion:

- Use institutional data sources to examine and evaluate progress to degree metrics and comparison to peers. *Most program students are full-time working professionals. Those who are employed full-time typically take 3 to 6 credits a semester and require 2.5 to 3.5 years to complete the program. At least one current student does not work full time and is working through the program at a faster pace; she is on track to complete the program within 2 to 2.5 years.*

- What efforts have been made to improve progress to degree performance and completion rates? *Efforts are made by the Program Director and faculty to reach out to students who are obviously struggling in the program. Students are sometimes advised to take a lighter course load if needed. A few have dropped the program and then re-applied at a later date because of workload or personal reasons. The Graduate School’s proposed leave policy, which will waive the reapplication fee in some of these cases, should help our students who have dropped out to reenroll and complete the program when they are able to.*

- Do students from educationally underrepresented groups (racial/ethnic minority, low-income, first generation in college) succeed in the program at rates comparable to other students? How are equity gaps addressed? *Current enrollment includes underrepresented groups, as previously noted. However, the number of students completing the program to-date is relatively low, making it difficult to assess this area. Out of the 13 students who have completed the program, four are women and one is an international student. This area will be assessed in more detail and reported in the 10-year Self Study.*

H. **Career Services and Post-Graduation Outcomes**  
Evaluate student career outcomes, exit survey, and alumni survey data, and reflect upon how these outcomes are consistent with program goals.

- What do students do after graduation? How does the program prepare them for careers or further academic training? *As noted previously, there is not enough data from exit surveys to assess this area. This will be assessed and reported for the 10-year Self Study, using exit survey and alumni survey data. We do know from contacts with alumni that students after graduation tend to continue in their current professional positions and in roles of increasing responsibility. Students have reported passing the Fundamentals of Engineering Exam and succeeding with Professional Engineering licensure.*

- What career resources are available to students? *The Grad Connections bi-Weekly for Online Students e-newsletter provides resources. The Program Director has also provided job shadow opportunities and leads for students seeking engineering positions in Wisconsin and has served as a reference for some of the students.*

- What is the range of student career outcomes, and are these outcomes consistent with program goals? Does the program track the career progression of its graduates? *The alumni survey currently underway will provide additional data for this area, and future alumni surveys may be used to track career progression. From ongoing contacts we believe the following*
is true for our 13 alumni: six are consulting engineers in private practice, one is a Director of Public Works for a city, one is a Director of Engineering for a sanitary district, one is an environmental engineer for a water and wastewater agency, one is an environmental engineer for a county public works department, one is an environmental engineer for a major petroleum company, one is an environmental engineer for a state regulatory agency, and one works for a lighting firm.

I. Overall Analysis of the Self-Study and the State of the Program: outline key findings from the self-study, including primary program strengths and challenges, and priorities the program has identified for improvement. Overall, the program is strong. The direct assessment (see 2018 report attached), indicated all students assessed met or exceeded College of Engineering Master of Science learning objectives. Program alumni have leadership positions in the field of environmental engineering. We appear to be attracting and retaining a high percentage of women and other groups that are underrepresented in engineering. The program has healthy enrollment and generates positive cashflow. Priorities for improvement include maintaining or slightly increasing enrollment to the higher end of the goal (i.e., 12 students a year); adding the new 1-credit biological process modeling course, convening the external advisory committee to recommend at least one more 1-credit course in a contemporary area of environmental engineering, and gathering better program assessment data by encouraging participation in exit surveys and alumni surveys.

Additional Considerations for Graduate Students

J. Funding
Discuss the program’s student funding data and mechanisms, along with any goals for providing funding guarantees. Include a discussion of funding issues, such as:

- How is the program ensuring PhD students have adequate funding and taking steps to provide a multi-year funding guarantee upon admission? Are there opportunities for graduate students to secure individual extramural support? What efforts are made to ensure PhD students have funding? Not applicable; the program does not have PhD students.
- To what extent is the program making use of funding for diversity efforts? We are not aware of any available UW-Madison funding for students in the program. We have purchased a number of application fee waivers that can be used for students in need at the discretion of the Program Director.

K. Professional Development and Breadth
Discuss the professional development opportunities of graduates and consider the following:

- How does the program encourage students to participate in professional development opportunities that will enhance their skills and support their career goals? The environmental engineering “capstone” design course, CivEngr 823, addresses this topic during one of the units. Professional mentors are assigned to each student team in this course, and the mentors can also reinforce professional development opportunities. Students are also required to view and report on at least one seminar on professional development and lifelong learning as part of CivEngr 929. The Program Director has distributed information about ISI Envision, the Water Environment Federation, on-campus seminars and opportunities for local online students,
and other information and resources to the students. This area may be assessed further once exit survey data are available.

- What resources and guidance are available for exploring academic and/or non-academic careers? *The Grad Connections bi-Weekly for Online Students e-newsletter provides resources.* The Program Director and other faculty have also provided advice, leads, and information to program students regarding career options and opportunities.

- How is the program using Individual Development Plans, which are recommended for all graduate students and required for those with NIH funding? *Students in the program do not have NIH funding. Students are asked to work with the Program Director to develop an individualized course plan for themselves as described previously.*

- What opportunities and funding are available to attend and present at professional meetings? *No funding is available through the UW-Madison or the program for this purpose; however, some of the program students are funded by their employers to attend and present at professional conferences. One student worked with adjunct professors in the program to develop an abstract, presentation, and peer review response as part of an independent study effort.*

- To what degree does the program offer teaching experience and teaching-related professional development to graduate students? *The program does not provide teaching experience to the online MEng EnvE students. However, teaching assistants from the CEE Department are regularly hired by program instructors to help with courses that have more than around 8 MEng EnvE students enrolled. Some of these TAs have gained experience teaching a class or giving a portion of a lecture, in addition to helping to answer questions in the online forum, grade assignments, and interact in other ways with the online program students.*

- How does the typical graduate’s program ensure exposure to breadth training? Does the program require a doctoral minor for doctoral students or evaluate other breadth requirements? *MEng EnvE students are exposed to breadth during their graduate studies in various ways. In general, students take courses not only in their area of most interest, but also in other areas within the CEE department and in EPD. Students are also required to enroll in a seminar course (CivEngr 929), giving them exposure to a wide variety of topics through presentations by speakers of various backgrounds and expertise. All students take the “capstone” design course (CivEngr 823) and interact with mentors from the profession, and many students take a 1-credit or more course in mentored independent study (CivEngr 699). These two courses give students valuable experience in developing a project and in writing, communication, and formal presentation skills.*
Figure 1 - Applicants, Admits, and New Enrollments for Fall Terms Since Program Inception

Figure 2 - Applicants, Admits, and New Enrollments for Spring Terms Since Program Inception
Figure 3 - Applicants, Admits, and New Enrollments for Summer Terms Since Program Inception

Figure 4 – Total Enrollment in Fall Terms Since Program Inception
Figure 5 – Total Enrollment in Spring Terms Since Program Inception

Figure 6 – Total Enrollment in Summer Terms Since Program Inception
Figure 7 – Female and Male Students in Program Since Program Inception – Fall Terms

Figure 8 – Female and Male Students in Program Since Program Inception – Spring Terms
Figure 9 – Minority Students in Program Since Program Inception – Fall Terms

Figure 10 – Minority Students in Program Since Program Inception – Spring Terms
Annual Assessment Report  Master of Engineering, Civil and Environmental Engineering, Environmental Engineering Option
Worksheet  Environmental Engineering Option
October 23, 2018

This assessment report worksheet is meant to aide in documenting the systematic approach to reviewing the student learning experience for your academic program. Use this worksheet to gather, organize and pre-record content for your report prior to completing the online submission form. A simple, straightforward assessment report includes:

- **What** – What are students expected to learn?
- **Where** – Where in the curriculum are students expected to learn and apply the knowledge and skills specified as the learning goals?
- **How** – How do program faculty know (what is the evidence) that students are learning what they expect them to?
- **So What** – Faculty review the assessment activity findings to determine if students are meeting the expectations and identify ways to improve the program, if necessary.

Note: Responses are provided in red text.

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**Demographic Information**

- Please provide your name.
  Michael D. Doran

- Please provide your administrative unit.
  Civil and Environmental Engineering

- Please provide your email address.
  michael.doran@wisc.edu

- If you are not an Academic Unit Chair (or Director of Graduate Studies) – that is, you have been designated by the Chair or DGS – please provide which Academic Unit Chair or DGS has designated you.
  David Noyce, Chair of Civil and Environmental Engineering (CEE)

- Please select the academic year.
  ✓ AY 2017-18
**Assessment Activities**

1. Which program learning outcomes were assessed?
   
   A list of program learning outcomes as they appear in the Guide will be provided. Select the “+” icon to the right of a learning outcome if the assessment activity being described applies to multiple learning outcomes.

   **The following program learning outcomes were assessed:**

<p>| | |</p>
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<tbody>
<tr>
<td>1</td>
<td>Demonstrate a Strong Understanding of Mathematical, Scientific, and Engineering Principles in the Field.</td>
</tr>
<tr>
<td>2</td>
<td>Demonstrate an Ability to Formulate, Analyze, and Independently Solve Advanced Engineering Problems.</td>
</tr>
<tr>
<td>3</td>
<td>Apply the latest Scientific and Technological Advancements, Advanced Techniques, and Modern Engineering Tools to these Problems.</td>
</tr>
<tr>
<td>4</td>
<td>Recognize and Apply Principles of Ethical and Professional Conduct.</td>
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</tbody>
</table>

   These are the programmatic learning outcomes for Master of Science (MS) engineering programs as drafted by the College of Engineering. Although this program is a Master of Engineering Program, the MS learning outcomes are used for assessment, as the program was developed to meet MS learning outcomes, and since CEE has been seeking a name change for the program from MEng to MS through the Graduate School.

2. What type of assessment was conducted? (select one)
   
   Select either direct assessment or indirect assessment. You may opt to select both. You will be asked to provide information for each assessment activity conducted.

   - Direct Assessment
     
     Examples of direct assessment include: embedded questioning, capstone assignments evaluated with rubrics, standardized testing, portfolio reviews, etc.

   - Indirect Assessment
     
     Examples of indirect assessment include: use of institutional data such as the NSSE, Master’s and Doctoral Exit survey, course evaluation responses, surveying alumni or graduating students, etc.

   **A Direct Assessment was conducted.**

3. How many students were assessed?

   Enter a whole number.

   **15 students were assessed.**

4. Please provide a brief description of how the assessment was conducted. Include: who was involved in the administration of the assessment activity,
who was assessed (description of the students), and what was assessed (student work or survey analysis).

The assessment was performed with the aid of professional engineers that served as team mentors for student teams in CivEngr 823 (Environmental Engineering Design Project), Spring 2018. There were four mentors and four student teams. Each mentor completed a comprehensive rubric for assessing student performance in meeting the program learning outcomes. This was based on written documents prepared by the student teams, formal project presentations made by the student teams, and informal presentation and discussion during class time. Scores assigned to each area of the comprehensive rubric were then averaged and mapped to the four overall learning outcomes above.

5. Optional: Include any instruments/rubrics/scoring guides. 
Upload your .pdf, .xlsx, or .docx document.

6. What percentage of students assessed met the criteria for this outcome? Enter a number expressed as percent.

100% of students met or exceeded expectations.

7. Briefly describe the analysis of the results of this assessment project. Include: how the results were compiled and analyzed (faculty/staff involved in the process), how the results were disseminated to faculty/other stakeholders, what discussions occurred, what was seen in the data.

The detailed professional engineering mentor rubrics were scored in each category as 4 (exceeds expectations), 3 (meets expectations), and 2 (does not meet expectations). A total of sixty-four scores given by each mentor were thus compiled and averaged, with the average scores mapped to the four outcomes (above). The compiled averages for each of the four overall outcomes were obtained as:

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Average</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Demonstrate a Strong Understanding of Mathematical, Scientific, and Engineering Principles in the Field.</td>
<td>3.45</td>
</tr>
<tr>
<td>2</td>
<td>Demonstrate an Ability to Formulate, Analyze, and Independently Solve Advanced Engineering Problems.</td>
<td>3.46</td>
</tr>
<tr>
<td>3</td>
<td>Apply the latest Scientific and Technological Advancements, Advanced Techniques, and Modern Engineering Tools to these Problems.</td>
<td>3.59</td>
</tr>
<tr>
<td>4</td>
<td>Recognize and Apply Principles of Ethical and Professional Conduct.</td>
<td>3.00</td>
</tr>
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Professor Doran initially compiled this information. Professor Harrington provided input to the assessment methodology. Professors Noguera and
Carlson reviewed the methodology and results. Following review and discussion among the degree program executive committee, the results were finalized. Professors Carlson and Doran are Adjunct Professors, and Professors Harrington and Noguera are Professors in CEE.

These results appear to demonstrate that the program students are most proficient in applying scientific and technological advancements and modern engineering tools; and demonstrate a strong understanding of mathematical, scientific and engineering principles; and also have the ability to formulate, analyze and independently solve engineering problems. The students just met expectations in the recognition and application of ethical principles and professional conduct.

In reviewing the detailed assessment information provided by the CivEngr 823 mentors, the students were not able to clearly demonstrate their understanding and capabilities in two areas because of course content limitations:

a. design and implementation of data collection programs, and evaluation of results
b. demonstration of understanding of the need for and a commitment to lifelong learning.

8. Based on the results, are there any recommendations to improve students' achievement of the learning outcomes? If so, include expected timeline for action.

Based on the 2017-2018 assessment, it is recommended that strategies be put in place to:

a. Demonstrate skills in the design and implementation of experimental and other data collection programs, and evaluation of results. This could be accomplished by including an experimental design and evaluation task within the environmental engineering design projects in CivEngr 823 or in other core program courses.
b. Better demonstrate student understanding of the need for and a commitment to professionalism and lifelong learning. This could be accomplished by adding an appropriate student assignment within CivEngr 823 or CivEng 929 (Environmental Science and Engineering Seminar).

CivEngr 823, a required course, could be modified for AY 2019-2020 to include a project scope element that requires development of an experiment or other data collection program, and inclusion of the analysis of results into the project design. This will require careful coordination between the course instructor and the team mentors to include relevant tasks in the project.
scope descriptions. Alternatively, other core program course(s) could be modified to incorporate this component.

CivEngr 929, a required course, should be modified for Spring 2019 to include student reading of selected article(s), or viewing of selected recorded presentation(s), on the need for professionalism and lifelong learning, with preparation of a short paper on these topics by the student. This outcome could be assessed in the future by means of indirect assessments (e.g., exit surveys).

9. If you would like to upload additional documentation, you may do so here. This is not required. Typical upload documents include assessment reports the program provides to their discipline-specific accrediting agency or professional organization.