University of Wisconsin-Madison
Graduate Faculty Executive Committee
1:30 p.m. – 3:30 p.m., Room 52 Bascom Hall
December 1, 2017

AGENDA

(PDF of All Materials)

Introduction

1:30 Automatic Consent approval of the minutes from November 10, 2017 GFEC.20171201.01

Approvals

1:35 Request to approve the following changes to the Master’s programs in Agricultural and Applied Economics effective Fall 2018 from the Department of Agricultural and Applied Economics (Jeremy Foltz) GFEC.20171201.02

- Move the Named Option “Resource and Energy Demand Analysis” from the M.A. to the M.S.
- Discontinue the M.A. in Agricultural and Applied Economics
- Create a new Named Option “Agricultural and Applied Economics” in the M.S.

Approval Updates

1:50 Three-Year Progress Report Check-in of M.S. Computer Sciences Named Option “Professional Program” (Parmesh Ramanathan) GFEC.20171201.03

2:00 Three-Year Progress Report Check-in of Capstone Certificate in Computer Sciences for Professionals (Parmesh Ramanathan) GFEC.20171201.04

2:10 Three-Year Progress Report Check-in of Capstone Certificate in Infant, Early Childhood and Family Mental Health (Parmesh Ramanathan) GFEC.20171201.05

2:20 Three-Year Progress Report Check-in of Capstone Certificate in Clinical Nutrition (Parmesh Ramanathan) GFEC.20171201.06

Program Reviews and Updates

2:25 Ten-Year Program Review Update from Population Health M.S./Ph.D./Doctoral Minor (Parmesh Ramanathan) GFEC.20171201.07

2:30 Ten-Year Program Review of Agronomy M.S./Ph.D./Doctoral Minor (Nicole Perna) GFEC.20171201.08

2:50 Ten-Year Program Review of Environmental Chemistry and Technology M.S./Ph.D./Doctoral Minor (Nicole Perna) GFEC.20171201.09
3:10  Ten-Year Program Review of the Graduate/Professional Certificate in Transportation Management and Policy (John Pfotenhauer)  GFEC.20171201.10

2017-2018 Meeting Schedule
January 12, February 9, March 9, April 13, May 11, June 8
1:30 p.m. – 3:30 p.m.
52 Bascom Hall
Dean William Karpus called the meeting to order.

The minutes of October 6, 2017, were approved as a matter of automatic consent.

Approvals:

1. Dean Karpus introduced Professor and Chair of the Department of Political Science John Zumbrunnen, who presented a request to suspend admissions to the Capstone Certificate in International Politics and Practice effective Spring 2018. Courses will continue to be offered for existing students. Low program enrollment, departing faculty, and a summer-heavy curricular plan have led the department to request suspending admissions while they reevaluate its sustainability. The program will have three years to request an unsuspension or propose to discontinue.

   Motion: Moved and seconded to suspend admissions to the Capstone Certificate in International Politics and Practice effective Spring 2018. The motion was passed 13 for, 1 abstention.

2. Dean Karpus introduced Professor and Chair of the Department of Comparative Literature and Folklore Studies Ernesto Livorni, who presented a request to suspend admissions to the M.A./Ph.D. in Comparative Literature and Folklore Studies, including M.A./Ph.D. named options and doctoral minors in “Comparative Literature” and “Folklore Studies” effective Fall 2018. This is in response to their Ten-Year Institutional Review. The program will have three years to request an unsuspension or propose to discontinue.
Motion: Moved and seconded to suspend admissions to the M.A./Ph.D. in Comparative Literature and Folklore Studies, including M.A./Ph.D. named options and doctoral minors in “Comparative Literature” and “Folklore Studies” effective Fall 2018. The motion was passed 13 for, 1 abstention.

3. Dean Karpus introduced Professor and Chair of the Department of Geography Lisa Naughton, who presented a request for approval of a new Named Option “Accelerated/Non-Thesis” in the M.S. Cartography and Geographic Information Systems and two new Capstone Certificates called “GIS Fundamentals” and “Advanced GIS.” There is a growing demand for spatial information (e.g., Google Maps); Geography is meeting this need by developing these new programs. Since the current 22-credit capstone certificate is successful, they see the ability to relaunch it as a master’s degree named option at 30 credits. Simultaneously, the two new capstones for distance learners satisfy a need for students uninterested in completing a full master’s degree or interested in completing a capstone prior to applying to the master’s degree program.

Motion: Moved and seconded to approve the named option “Accelerated/Non-Thesis” in the M.S. Cartography and Geographic Information Systems. The motion was passed unanimously.

Motion: Moved and seconded to approve the capstone certificate “GIS Fundamentals” in the Department of Geography. The motion was passed unanimously.

Motion: Moved and seconded to approve the capstone certificate “Advanced GIS” in the Department of Geography. The motion was passed unanimously.

4. Dean Karpus introduced School of Education Associate Dean and Professor of the Department of Rehabilitation Psychology and Special Education David Rosenthal, who presented a request to rename the M.S. in Rehabilitation Psychology to the M.S. in Rehabilitation Counseling. This follows the guidelines of their accrediting body and licensure laws.

Motion: Moved and seconded to approve the request to rename the M.S. in Rehabilitation Psychology to the M.S. in Rehabilitation Counseling. The motion was passed unanimously.

5. Dean Karpus introduced College of Engineering Professors Wendy Crone, Xudong Wang, and Dan Negrut, who presented requests for new named options in three different College of Engineering departments.

Professor Crone presented a request to create the named option “Fundamentals of Applied Mechanics” in the M.S. Engineering Mechanics from the Department of Engineering Physics effective Summer 2018. The department sees this as an opportunity to help physics majors transition to an engineering degree. This is an accelerated one-year non-pooled program. It would not require any additional courses to be taught as there is capacity in existing courses.

Motion: Moved and seconded to approve the request to create the named option “Fundamentals of Applied Mechanics” in the M.S. Engineering Mechanics. The motion was passed with unanimously.

Professor Wang presented a request to create the named option “Nanomaterials and Nanoengineering” in the M.S. Materials Science and Engineering from the Department of Materials Science and Engineering effective Summer 2018. Nanomaterials and Nanoengineering is a major discipline within
Materials Science and Engineering as well as a rapidly-growing career area. It is a 30-credit one-year courses only program, using capacity in existing courses.

**Motion:** Moved and seconded to approve the request to create the named option “Nanomaterials and Nanoengineering” in the M.S. Materials Science and Engineering. The motion was passed unanimously.

Professor Negrut presented a request to create the named option “Modeling and Simulation in Mechanical Engineering” in the M.S. Mechanical Engineering from the Department of Mechanical Engineering effective Fall 2018. This is a one-year courses only program targeting industry needs for graduates fluent in computer modeling and simulation. Courses used have existing capacity, and in one case, additional section are planned to cover increasing enrollment.

**Motion:** Moved and seconded to approve the request to create the named option “Modeling and Simulation in Mechanical Engineering” in the M.S. Mechanical Engineering. The motion was passed with 13 for, 1 abstention.

6. Dean Karpus introduced Professor and Chair of the Department of Civil and Environmental Engineering David Noyce and Adjunct Professor Michael Doran, who presented a request to move the MEng Civil and Environmental Engineering Named Option “Environmental Engineering” to the M.S. Civil and Environmental Engineering effective Spring 2018. Professor Noyce explained that the option was originally developed following master of science degree standards. The GFEC noted however that the named “Environmental Engineering” is very similar to a currently existing option in the M.S. Civil and Environmental Engineering, “Environmental Science and Engineering.” Additionally, a Spring 2018 effective term is impossible to implement at this late date.

**Motion to table the request to approve the move the MEng Civil and Environmental Engineering Named Option “Environmental Engineering” to the M.S. Civil and Environmental Engineering. The motion was passed unanimously.**

**Approval Updates:**
7. Associate Dean Ramanathan presented the Three-Year Progress Report Check-in of the M.S. Environmental Conservation. The program is stable and meeting enrollment capacity, but is having some issues with faculty workload for advising students.

8. Associate Dean Ramanathan introduced a discussion of the Ten-Year program review response from the Biophysics M.S./Ph.D./Doctoral Minor. The program has responded to concerns regarding funding changes and other recommendations.

9. GFEC Member Michael Graham introduced the Institutional (10-Year) Review of the M.S./Ph.D./Doctoral Minor in Biological Systems Engineering. Graham noted the strengths of the program, including high research productivity among faculty, increased enrollment, competitive time-to-degree and generally satisfied students. Graham also discussed challenges to the program, including a UW policy conflicting with criteria for a USDA national needs program that could help fund students, a low application and enrollment rate of underrepresented minority students, difficulty attracting top domestic graduate students, older facilities spread among five buildings and a limited number of graduate course offerings. Graham noted review committee recommendations, including working with CALS to open access to the USDA national needs program, inviting graduate student representatives to
faculty meetings, bolstering marketing efforts to improve the quality and diversity of the applicant pool, creating a colloquium and graduate courses, working with CALS and UW Foundation on a development strategy to improve facilities, and seeking strategies to increase instructional offerings. Associate Dean Martin noted that the program should meet with Graduate School Assistant Dean for Diversity, Inclusion and Funding LaRuth McAfee to create a plan to increase diversity by developing actionable recruiting strategies of underrepresented minority students. The GFEC commends the program on its strengths and recommends it engage in efforts to address the review committee’s concerns.

**Motion:** Moved and seconded to accept the Institutional (10-Year) Review of the Ph.D./M.S./Doctoral Minor in Biological Systems Engineering. The motion was passed unanimously.

**Adjournment:**
**Motion:** Moved and seconded to adjourn. The motion passed unanimously.
Date: November 6, 2017

To: Sarah Mangelsdorf, Provost
William Karpus, Dean of the Graduate School

From: Sarah Pfatteicher, Associate Dean for Academic Affairs, CALS

Subject: Request for Changes to Agricultural and Applied Economics Graduate Programs

On October 3rd, the CALS Academic Planning Council met and unanimously approved the following requests for changes to the graduate programs in Agricultural and Applied Economics:

a. Curriculum Changes to MS AAE (replace thesis with 6 crs. of 300+ coursework)
b. Move Resource and Energy Demand Analysis Named Option from MA to MS
c. Discontinue MA effective Fall 2018
d. Create Named Option of MS Agricultural and Applied Economics
e. Change CIP code for the MS and PhD

The council also acknowledged receipt of updated learning outcomes for the MS and PhD, which is not within the APC’s purview to approve but may be of interest to the Graduate Faculty Executive Committee.

A primary goal for requesting these changes is to align the graduate programs’ CIP codes with a STEM designation. Not only will the requested classification better fit the programs, but it will also provide new avenues for research funding and attract more students, particularly international students, which is especially important for the Resource and Energy Demand Analysis (REDA) program, a named option under the master’s degree.

The proposal is attached along with supporting documentation. Please feel free to contact me if you have any questions.

Cc: Nikki Bollig, Assistant Dean, CALS
Marty Gustafson, Assistant Dean, Graduate School
Sarah Kuba, Academic Planner, APIR
Jocelyn Milner, Associate Provost and Director, APIR
Julie Scharm, Senior Executive Assistant and Office Manager, CALS
Dick Straub, Senior Associate Dean, CALS
Kathryn VandenBosch, Dean, CALS
Dear CALS Academic Planning Committee:

On August 14th, the Agricultural and Applied Economics Faculty approved the following changes detailed in the attached memos:

1. Curriculum Changes to the MS AAE: Memo 1
2. Change of the MS in AAE to a named option, effective fall, 2018: Memo 1b
3. Remove the MA from the AAE curriculum, effective fall, 2018: Memo 2
4. Change the MA in REDA to an MS in REDA, effective fall, 2018: Memo 3
5. Change of Learning Outcomes: Memo 4
6. Change the Classification of Instructional Programs (CIP) code for all graduate programs in Agricultural and Applied Economics (PhD and MS) from 01.0103 – Agricultural Economics to 45.0603 – Econometrics and Quantitative Economics, effective fall 2018: Memo 5

Supporting materials attached are:

1. Emails from current students accepting the changes
2. Completed Named option form with supporting information
3. Supporting Memo from Economics Chair
4. Syllabi from MS and PhD programs
5. Assessment Plan for MS program

Thank you for your time and consideration. Please contact me if you need further information.

Best regards,

Jeremy Foltz
Professor and Department Chair
Agricultural and Applied Economics
Memorandum August 22, 2017

From: Jeremy Foltz, Chair, Agricultural and Applied Economics

To: Dean Kate VandenBosch, Graduate Faculty Executive Committee Members

Subject: MS in AAE Curriculum Changes, Effective Fall 2018

The Agricultural and Applied Economics Faculty has approved the following changes to the AAE MS curriculum and seeks approval from the Graduate Faculty Executive Committee.

Effective fall 2018, AAE MS students would no longer have to complete 6 research credits and a successful thesis to earn the MS. These 6 credits will be replaced by AAE elective courses at level 400 or above. The change allows all graduate students who complete the rigorous curriculum to earn an MS in AAE.

For tracking purposes, our existing MS program will be moved to an MS named option in Agricultural and Applied Economics. We have attached the completed named option proposal form.

Current Curriculum for the MS:

To receive the M.S. degree, a student must complete a Master's thesis and earn 30 credits with an overall grade point average of at least 3.0 (4.0 scale). A minimum of 15 credits must be courses designated as “graduate level” in the Course Guide. In addition, the courses used to fulfill requirements 1-3, below, must be successfully completed with a grade of B or better in each course, as recorded on the official transcript. The specific course requirements are as follows:

1. Microeconomic Theory* (3 credits)
   AAE 635 Applied Microeconomic Theory

2. Econometrics* (6 credits)
   AAE 636 and 637 Applied Econometric Analysis I & II

3. Economic Analysis (9 credits)
   Nine credits in Agricultural and Applied Economics taught courses at the 500-level or above

4. Other Course Work (6 credits) Six credits at the 300-level or above in any department (including Agricultural and Applied Economics). These credits may include independent study.

5. Six additional credits of 990 Research and Thesis, or graduate-level taught courses.

New Curriculum for the MS named option in Agricultural and Applied Economics:

To receive the MS degree, a graduate student must earn 30 credits with an overall grade point average of 3.0 (on a 4.0 scale). A minimum of 15 credits must be courses designated as “graduate level” in the Course Guide. They must also successfully complete requirements 1-3, below, earning a grade of B or better in each course, as recorded on the official transcript. The specific course requirements are as follows:

1. Microeconomic Theory* (3 credits)
   AAE 635 Applied Microeconomic Theory
2. Econometrics* (6 credits)
   AAE 636 and 637 *Applied Econometric Analysis I & II*

3. Economic Analysis (15 credits, both a and b)
   a. At least 9 credits of Agricultural and Applied Economics taught courses at the 500 level or above, and
   b. At least 6 credits of Agricultural and Applied Economics taught courses at the 400 level or above

4. Other Course Work (6 credits)
   Six credits at the 300-level or above in any department (including Agricultural and Applied Economics) to bring the total number of credits up to 30. These credits may include independent study.

*Curriculum for the MS named option in Resource and Energy Demand Analysis (no changes):*

To receive the MS degree under the REDA named option, a graduate student must earn 31 credits with an overall grade point average of 3.0 (on a 4.0 scale). The specific course requirements are as follows:

1. Microeconomic Theory (3 credits)
   AAE 771 *Microeconomics of Resources and Energy: Theory to Practice*

2. Statistics and Econometrics (10 credits)
   AAE 770 *Introduction to Quantitative Methods*
   AAE 636 *Applied Econometric Analysis I*
   AAE 772 *Applied Econometrics of Resource and Energy Demand*

3. Economic Analysis (8 credits)
   AAE 777 *Survey and Sample Design in Applied Economics*
   AAE 643 *Foundations of Environmental & Natural Resource Economics*
   AAE 531 *Natural Resource Economics* or AAE 671 *Energy Economics*

4. Energy and Natural Resources Policy Coursework (6 credits)
   AAE 773 *Seminar in Resource and Energy Demand Analysis*
   PA 809 *Introduction to Energy Analysis and Policy*

5. Practicum Research (4 credits)
   AAE 774 and 776 *Practicum in Resource and Energy Demand Analysis I & II*

The learning goals for the MS degree have been updated. The assessment plan and the Guide will be updated accordingly.

Based on this information, I respectfully request approval for the curriculum changes to the Agricultural and Applied Economics MS degree. Please contact me with any questions you have: jdfoltz@wisc.edu, 2-6871
Memorandum August 22, 2017

From: Jeremy Foltz, Chair, Agricultural and Applied Economics

To: Dean Kate VandenBosch,

Subject: Change MS AAE to a Named Option, effective Fall 2018

The Agricultural and Applied Economics Faculty has approved the following changes to the MS Agricultural and Applied Economics curriculum and seeks approval from the Graduate Faculty Executive Committee to change the AAE MS to a named option which will be called the MS-Agricultural and Applied Economics. The named option application is attached with supporting documents.

Please contact me with any questions you have: jdfoltz@wisc.edu, 262-6871
Memorandum August 23, 2017

From: Jeremy Foltz, Chair, Agricultural and Applied Economics

To: Dean Kate VandenBosch, Graduate Faculty Executive Committee Members

Subject: Change of REDA from MA named option to MS named option, Effective Fall 2018

The Agricultural and Applied Economics Faculty has approved the change of REDA from a named option in the AAE MA degree to a named option under the AAE MS degree, effective fall 2018.

REDA students are admitted to summer term and graduate the following summer. Currently enrolled students will graduate with an MA degree in summer 2018. Students that are admitted for summer 2018 will apply to and enroll in the MA, but will have their program changed to an MS in fall 2018; they will graduate with the MS degree in summer 2019. The REDA program coordinator will communicate with summer 2018 prospective and admitted students about the change from an MA degree to an MS degree. Because our peer institutions award MS degrees in economics, we anticipate a positive response from all future students.

Based on this information, I respectfully request approval for the REDA named option to move from the MA to the MS degree. Please contact me with any questions you have: jdfoltz@wisc.edu, 2-6871.
Memorandum August 22, 2017

From: Jeremy Foltz, Chair, Agricultural and Applied Economics

To: Dean Kate VandenBosch, Graduate Faculty Executive Committee Members

Subject: Deletion of AAE MA degree, Effective Fall 2018

The Agricultural and Applied Economics Faculty has approved the deletion of the AAE MA degree, taking effect in fall 2018.

By eliminating the MA degree, we are clarifying the nature of the AAE Master’s degrees. The AAE Master’s programs give students the opportunity to develop advanced mathematical and statistical economic analysis skills. All of the core AAE courses depend on strong math and economics preparation. The average GRE Quantitative score for incoming MA and MS degree students is at the 85th percentile. The average GRE Quantitative score for the REDA program is at the 75th percentile. Additionally, peer agricultural and applied economics graduate schools, which offer similar curriculum, Michigan State, Iowa University, Cornell and University of Maryland award the MS with a thesis option, not the MA. Overall, the change aligns our master’s program with campus’ efforts to designate master’s degrees as professional degrees rather than research degrees.

There is little difference between the existing AAE MA and the MS degrees. The MS requires 6 credits of research and a successful thesis. The MA students take 6 credits of taught courses instead of research credits. Beginning in fall 2018, all AAE master’s students will earn an MS. They will continue to have the option to complete a thesis, but will not be required to do so. Over the past ten years, 44% of our traditional Master’s students (38 out of 86) have chosen to complete a thesis and thereby earn the MS degree. While MA students are able to take lower level coursework, over the past 10 years most MA students took their AAE and other electives at level 600 and above. Level 600 courses are reserved for graduate students at AAE.

This change will potentially impact master’s students that enrolled in fall 2017, a maximum of four students. We have notified these students of the proposed change, and all have agreed to the changes. Please see the attached email communication.

Based on this information, I respectfully request the elimination of the MA of Agricultural and Applied Economics degree. Please contact me with any questions you have: jdfoltz@wisc.edu, 2-6871
August 22, 2017

From: Jeremy Foltz, Chair, Agricultural and Applied Economics
To: Dean VandenBosch, CALS Academic Planning Committee

Subject: Updated Learning Goals for AAE MS and PhD, Effective Fall 2018

The AAE Faculty has approved the new learning goals for the AAE MS and PhD programs. The revised learning goals more accurately reflect the quantitative nature of the training our graduate students receive.

**Current AAE MS Knowledge and Skills Learning Goals**

- Articulates and critiques theories and empirical methods to address research issues in agricultural, environmental, international development or community economics.
- Identifies data sources, appropriate methodologies, and evaluates evidence relevant to questions in agricultural, environmental, international development, or community economics.
- Clearly communicates applied economics issues, methods, and empirical analysis using both written and oral strategies.

**Proposed AAE MS Knowledge and Skills Learning Goals**

- Articulates and critiques theories and empirical methods for quantitative analysis relevant to agricultural, environmental, international development, or community economics.
- Identifies data sources, applies appropriate econometric methodologies, and evaluates quantitative evidence relevant to questions in agricultural, environmental, international development, or community economics.
- Clearly communicates applied economics issues, methods, and empirical analysis using both written and oral strategies.
Current AAE PhD Knowledge and Skills Learning Goals

- Articulates and critiques theories and empirical methods to address research issues in agricultural, environmental, international development or community economics.
- Identifies data sources, appropriate methodologies, and evaluates evidence relevant to questions in agricultural, environmental, international development, or community economics.
- Creates scholarship that makes a substantive contribution to the chosen major field and/or to society.
- Clearly communicates applied economics issues, methods, and empirical analysis using both written and oral strategies.

Proposed AAE PhD Knowledge and Skills Learning Goals

- Articulates and critiques theories and empirical methods to address research issues in agricultural, environmental, international development, or community economics.
- Identifies data sources, applies appropriate econometric methodologies, and evaluates quantitative evidence relevant to questions in agricultural, environmental, international development, or community economics.
- Creates scholarship that makes a substantive contribution to the chosen major field and/or to society.
- Clearly communicates applied economics issues, methods, and empirical analysis using both written and oral strategies.

The assessment plans and the Guide will be updated accordingly. Please contact me with any questions you have: jdfoltz@wisc.edu, 2-6871
Memorandum August 22, 2017

From: Jeremy Foltz, Chair, Agricultural and Applied Economics

To: Dean Kate VandenBosch, CALS Academic Planning Committee

Subject: Request to Revise Classification of Instructional Programs (CIP) Code for Graduate Programs in Agricultural and Applied Economics, Effective Fall 2018

The Agricultural and Applied Economics (AAE) faculty requests permission to change the Classification of Instructional Programs (CIP) code for all graduate programs in Agricultural and Applied Economics (PhD and MS) from 01.0103 – Agricultural Economics to 45.0603 – Econometrics and Quantitative Economics, effective fall 2018. The requested CIP code more accurately reflects the nature of AAE’s graduate program as a highly quantitative program and provides official STEM designation to the program.

AAE’s faculty approved this request on August 14th, 2017. We have attached a letter of support from the Department of Economics.

Background

Historically, AAE has awarded three graduate degrees: MA, MS, and PhD. Students wishing to earn an MS degree must complete six credits of 990 Research and Thesis, whereas students wishing to earn an MA degree are allowed to take six credits of AAE courses taught at level 400 or above; otherwise the requirements for the MA and MS degrees are equivalent.

In summer 2015, AAE launched its MA named option in Resource and Energy Demand Analysis, an accelerated professional master’s program.

All AAE graduate students follow a quantitatively rigorous curriculum. The average GRE Quantitative score for incoming graduate students is at the 75th percentile for REDA students, 85th percentile for non-REDA master’s students, and 91st percentile for PhD students.

Master’s students take two semesters of econometrics (AAE 636 and AAE 637 or AAE 772) and one semester of microeconomic theory (AAE 635 or AAE 771). PhD students take two semesters of econometrics (ECON 709 and ECON 710), two semesters of microeconomic theory (ECON 711 and ECON 713), and one semester of macroeconomic theory (ECON 712 or ECON 714). AAE’s graduate program centers on three topic areas: agricultural economics, international development, and environmental & resource economics. Each topic area within our department offers a 600 level foundations course (AAE 641/642/643) and two 700 level frontiers courses (AAE 730/731, 746/747, and 760/762); these courses cover theory and empirical methods relevant to the topic area. AAE offers additional courses at the 700 level that cover advanced empirical topics. We have attached syllabi for representative graduate courses, including AAE 635, 636, 637, 706, 737, 746, and 772, that demonstrate the quantitative nature of training that our graduate students receive.

Given the quantitative nature of our graduate training, the AAE faculty believe the CIP code 45.0603 – Econometrics and Quantitative Economics is a more accurate description of our graduate program.

45.0603 – Econometrics and Quantitative Economics
A program that focuses on the systematic study of mathematical and statistical analysis of economic
I accept these changes. Thank you Mary.

Sent from my iPhone

On Aug 15, 2017, at 10:42 AM, MARY C TRELEVEN <mtreleven@wisc.edu> wrote:

Dear Amiel,

I am contacting you with information on changes to the master’s degree programs in the Agricultural and Applied Economics Department (AAE) and require a response to this email as part of the process to make the changes.

The AAE graduate department is proposing to change its degree offerings from MA and MS degrees to offering the MS degree only. Starting in 2018, all students will receive an MS regardless of whether they complete a thesis or not. Therefore when you graduate in May of 2019, you will receive an MS in AAE by fulfilling the requirements listed below.

To receive the MS degree, a graduate student must earn 30 credits with an overall grade point average of 3.0 (on a 4.0 scale). A minimum of 15 credits must be courses designated as “graduate level” in the Course Guide. They must also successfully complete requirements 1-3, below, earning a grade of B or better in each course, as recorded on the official transcript. Students have the option to complete a thesis by taking 6 credits of 990. The proposed requirements are as follows:

1. Microeconomic Theory* (3 credits)
   AAE 635 Applied Microeconomic Theory

2. Econometrics* (6 credits)
   AAE 636 and 637 Applied Econometric Analysis I & II

3. Economic Analysis (15 credits, both a and b)
   a. At least 9 credits of Agricultural and Applied Economics taught courses at the 500 level or above, and
   b. At least 6 credits of Agricultural and Applied Economics taught courses at the 400 level or above

4. Other Course Work (6 credits)
   Six credits at the 300-level or above in any department (including Agricultural and Applied Economics) to bring the total number of credits up
to 30. These credits may include independent study. Students who choose to complete a thesis would enroll in 6 credit of research credits, AAE 990.

Please respond to this email with an acknowledgement that you received this email and that you accept these changes. If you have any questions or concerns, I am happy to address them.

Best regards,

Mary Treleven  
Graduate Academic Program Coordinator

Ag & Applied Economics  
University of Wisconsin-Madison  
423 Taylor Hall  
Madison, Wisconsin 53706  
mtreleven@wisc.edu  
(608)262-9489

Agricultural & Applied Economics, Ph D, MS & MA programs  

AAE Home  

Resource & Energy Demand Analysis  

<image001.jpg>
Dear Mary

I read the email and I accept the changes.

Thank you for informing the changes.

I look forward to meet you very soon.

Best
He Hao

Sent from my iPhone

On Aug 15, 2017, at 08:45, MARY C TRELEVEN <mtreleven@wisc.edu> wrote:

Dear Hao,

I am contacting you with information on changes to the master’s degree programs in the Agricultural and Applied Economics Department (AAE) and require a response to this email as part of the process to make the changes.

The AAE graduate department is proposing to change its degree offerings from MA and MS degrees to offering the MS degree only. Starting in 2018, all students will receive an MS regardless of whether they complete a thesis or not. Therefore when you graduate in May of 2019, you will receive an MS in AAE by fulfilling the requirements listed below.

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level or above, and

\begin{itemize}
  \item At least 6 credits of Agricultural and Applied Economics taught courses at the 400 level or above
\end{itemize}

\begin{itemize}
  \item Other Course Work (6 credits)
\end{itemize}

Six credits at the 300-level or above in any department (including Agricultural and Applied Economics) to bring the total number of credits up to 30. These credits may include independent study. Students who choose to complete a thesis would enroll in 6 credit of research credits, AAE 990.

Please respond to this email with an acknowledgement that you received this email and that you accept these changes. If you have any questions or concerns, I am happy to address them.

Best regards,

Mary Treleven
Graduate Academic Program Coordinator

Ag & Applied Economics
University of Wisconsin-Madison
423 Taylor Hall
Madison, Wisconsin 53706
mtreleven@wisc.edu
(608)262-9489

Agricultural & Applied Economics, Ph D, MS & MA programs

AAE Home

Resource & Energy Demand Analysis
Dear Mary,

Thanks for the information! I intended to pursue the MS in any case so I believe I won't be affected by the changes (please inform me if I'm incorrect in this regard).

Thanks,
Adam

On Tue, Aug 15, 2017, 11:39 PM MARY C TRELEVEN <mtreleven@wisc.edu> wrote:

Dear Adam,

I am contacting you with information on changes to the master’s degree programs in the Agricultural and Applied Economics Department (AAE) and require a response to this email as part of the process to make the changes.

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Please respond to this email with an acknowledgement that you received this email and that you accept these changes. If you have any questions or concerns, I am happy to address them.

Best regards,

Mary Treleven
Graduate Academic Program Coordinator
Ag & Applied Economics
University of Wisconsin-Madison
423 Taylor Hall
Madison, Wisconsin 53706
mtreleven@wisc.edu
(608)262-9489

Agricultural & Applied Economics, Ph D, MS & MA programs

AAE Home

Resource & Energy Demand Analysis
Dear Mary,

I have received this email and accept these changes.

Best,
Xiaotong

On 08/15/2017 23:46, MARY C TRELEVEN wrote:

Dear Xiaotong,

I am contacting you with information on changes to the master’s degree programs in the Agricultural and Applied Economics Department (AAE) and require a response to this email as part of the process to make the changes.

The AAE graduate department is proposing to change its degree offerings from MA and MS degrees to offering the MS degree only. Starting in 2018, all students will receive an MS regardless of whether they complete a thesis or not. Therefore when you graduate in May of 2019, you will receive an MS in AAE by fulfilling the requirements listed below.

To receive the MS degree, a graduate student must earn 30 credits with an overall grade point average of 3.0 (on a 4.0 scale). A minimum of 15 credits must be courses designated as “graduate level” in the Course Guide. They must also successfully complete requirements 1-3, below, earning a grade of B or better in each course, as recorded on the official transcript. Students have the option to complete a thesis by taking 6 credits of 990. The proposed requirements are as follows:

1. Microeconomic Theory* (3 credits)  
   AAE 635 Applied Microeconomic Theory

2. Econometrics* (6 credits)  
   AAE 636 and 637 Applied Econometric Analysis I & II

3. Economic Analysis (15 credits, both a and b)  
   a. At least 9 credits of Agricultural and
Applied Economics taught courses at the 500 level or above, and

At least 6 credits of Agricultural and Applied Economics taught courses at the 400 level or above

Other Course Work (6 credits)

Six credits at the 300-level or above in any department (including Agricultural and Applied Economics) to bring the total number of credits up to 30. These credits may include independent study. Students who choose to complete a thesis would enroll in 6 credit of research credits, AAE 990.

Please respond to this email with an acknowledgement that you received this email and that you accept these changes. If you have any questions or concerns, I am happy to address them.

Best regards,

Mary Treleven
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Agricultural & Applied Economics, Ph D, MS & MA programs

AAE Home

Resource & Energy Demand Analysis
Dear Mary,

I have read the email and I accept the changes on master's degree programs.

Regards,
Yue Zhao

------------------ Original ------------------

Dear Yue,

I am contacting you with information on changes to the master’s degree programs in the Agricultural and Applied Economics Department (AAE) and require a response to this email as part of the process to make the changes.

The AAE graduate department is proposing to change its degree offerings from MA and MS degrees to offering the MS degree only. Starting in 2018, all students will receive an MS regardless of whether they complete a thesis or not. Therefore when you graduate in May of 2019, you will receive an MS in AAE by fulfilling the requirements listed below.

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   AAE 635 *Applied Microeconomic Theory*

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   AAE 636 and 637 *Applied Econometric Analysis I & II*

3. Economic Analysis (15 credits, both a and b)
a. At least 9 credits of Agricultural and Applied Economics taught courses at the 500 level or above, and

b. At least 6 credits of Agricultural and Applied Economics taught courses at the 400 level or above

4. Other Course Work (6 credits)
   Six credits at the 300-level or above in any department (including Agricultural and Applied Economics) to bring the total number of credits up to 30. These credits may include independent study. Students who choose to complete a thesis would enroll in 6 credit of research credits, AAE 990.

Please respond to this email with an acknowledgement that you received this email and that you accept these changes. If you have any questions or concerns, I am happy to address them.

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mtreleven@wisc.edu
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Agricultural & Applied Economics, Ph D, MS & MA programs

AAE Home

Resource & Energy Demand Analysis
INSTRUCTIONS FOR PROPOSING NAMED OPTIONS and USE OF PROPOSAL FORM

A named option is a formally documented sub-major within an academic major program. Named options serve as a convenient way to distinguish a distinct curriculum or delivery format within a major. A named option is NOT a new degree or major. Authorization by the Board of Regents to deliver an academic program is at the degree/major level.

PLANNING A NAMED OPTION

- Planning starts with idea development among the program faculty and staff.
- If you are part of a planning group that thinks a named option is a good idea, start to fill out the Named Option Proposal Form.
- When your ideas are starting to take shape, consult with your school/college dean’s office. If you aren’t sure who to talk to in your school/college dean’s office or if you have questions and want to discuss your plans, contact Jocelyn Milner (Jocelyn.Milner@wisc.edu), Director of Academic Planning and Institutional Research.
- When you have a full draft of a completed Named Option Proposal Form, and ideally before school/college approval, send the proposal to Jocelyn Milner (Jocelyn.Milner@wisc.edu) for a check in and proposal review. This will help make sure that the named option meets all components of the UAPC guidelines and will identify any implementation questions.

APPROVAL STEPS FOR A NAMED OPTION

1. The program faculty who are sponsoring the named option (most often a department) formally approve the named option proposal.
2. The school/college that houses the named option considers the named option for approval, usually at the Academic Planning Council.
3. After school/college approval, the dean forwards the proposal to the provost with a copy to the director of Academic Planning and Institutional Research.
4. The provost will seek a recommendation for approval from the University Academic Planning Council.

FOR INFORMATION AND FORMS:  http://apir.wisc.edu/degreesmajorsoptions.htm
At this URL you will find links to the following information:
- These instructions and the Named Option Proposal Form, which includes detailed instructions
- Policy Guidelines for Named Options within Academic Majors, which is the policy framework for the proposal form (adopted April 2016)

QUESTIONS:
Jocelyn Milner, Director, Academic Planning and Institutional Research (jocelyn.milner@wisc.edu)
Sarah Kuba, Academic Planner, APIR (sarah.kuba@wisc.edu)
PROPOSAL FORM
NAMED OPTION

A named option is a formally documented sub-major within an academic major program. Named options serve as a convenient way to distinguish a distinct curriculum or delivery format within a major. A named option is NOT a new degree or major. Authorization by the Board of Regents to deliver an academic program is at the degree/major level.

This form is to be used in concert with the Policy Guidelines for Named Options within Academic Majors. Complete the form and save as a Microsoft Word document.

1. Overview
   1.1. Named Option: MS-Agricultural and Applied Economics
   1.2. Academic Major: Type name of associated major here.
   1.3. Home Department: Ag and Applied Economics
   1.4. School/college: Agricultural and Life Sciences, College of
   1.5. Partner department(s)/units/schools/colleges: Type names of partner units, if any, here.
   1.6. Chair of the Major (name, title, email): Jeremy Foltz, AAE Chair, Professor, jdfoltz@wisc.edu
   1.7. Primary faculty or staff contact for the proposal (name, title, email): Bethany Glinsmann, REDA Coordinator, bethany.glinsmann@wisc.edu and Mary Treleven, Graduate Program Coordinator, mtreleven@wisc.edu.
   1.8. Primary school/college dean’s office contact (name, title, email): Sarah Pfatteicher, Associate Dean, sarah.pfatteicher@wisc.edu, Nikki Bollig, Assistant Dean, niki.bollig@wisc.edu
   1.9. Briefly describe the type and purpose of the named option.
      We are moving the traditional MS in AAE under the named option for organizational purposes. Named option types are described in the Policy Guidelines for Named Options within Academic Majors: 1. Area of curricular emphasis within the major for undergraduate programs; 2. Honors in the major for undergraduate programs; 3. Area of curricular emphasis within the major for graduate programs; 4. Non-pooled tuition revenue programs; 5. Distance/Online Programs; 6. Off-Campus Location for graduate, professional, or undergraduate programs
   1.10. Date form completed: 8/18/2017

2. Approval Implementation and Expectations for Review
   2.1. School/College Approval Date: 8/14/2017
   2.2. GFEC Approval Date (graduate level named options only): Click here to enter a date.
   2.3. UAPC Approval Date: Click here to enter a date.
   2.4. Expected first term of student enrollment (typically the first fall after UAPC approval): Fall, 2018
   2.5. Year of three year progress report to GFEC (3 years after first student enrollment; graduate level named options only): Fall, 2021
   2.6. Year of first program review (5 years after first student enrollment): Fall, 2023
   2.7. Are all academic programs in the home department up to date for program review? Yes

APIR will provide a list of programs and most recent review date if needed.
If no, program reviews need to be completed before a new proposal is advanced at campus level (GFEC and UAPC). Please provide and information related to plans for completion of program reviews:
AAE is currently under the 10 year review. The decision to make the MS in AAE a named option and eliminate the MA came about as a result of the self study process.

Named Option Proposal Form v 5-2-16
3. Background/Rationale
   3.1. How does the named option relate to the major and to other named options in the major, if relevant?
   We are moving our traditional master’s program to a named option for tracking purposes
   3.2. What is the purpose of the named option? How does the named option contribute to the mission of the sponsoring unit?
   We are moving our traditional master’s program to a named option for tracking purposes
   3.3. What is the evidence that there is a student demand for the named option?
   We are moving our traditional master’s program to a named option for tracking purposes. If we propose new options in the future, the organization of the options will be more clear for students.

4. Curriculum
   4.1. Delivery modality:
      Face-to-face
      Distance-delivered programs are those programs in which 50% or more of the required courses may be taken as distance-delivered courses. If the option is intended to provide a way to distinguish between students in a face-to-face or an online/distance delivered program, the provide information on how the distance program is developed and supported in 10.1.
   4.2. Provide a complete list of named option requirements.
      List named option requirements here.
      Program requirements should provide content that leads to the completion of major learning goals. See section 5 Assessment.
   4.3. ☒ Attach a full curriculum including all required and elective courses.
   4.4. ☐ For undergraduate named options, attach a four year roadmap.
      Named options for undergraduate majors will have requirements totaling 120 credits and students should be able to complete the degree/major within four academic years.
   4.5. ☒ For graduate named options, attach a chart outlining minimum degree requirements and elements for satisfactory progress.
      Master’s level programs will include at least 30 credits of requirements. Doctoral level programs will include at least 51 credits of requirements.

Checklist for Verification of Curricular Policy Requirements *
You will have an opportunity to provide explanation and rationale for any Curricular Policy Requirements that have not been affirmed in the text box that follows the check list, below.
☒ Courses are offered on a regular basis.
☒ Courses have enrollment capacity for students in the named option.
☒ All courses required for the named option are fully approved.
☒ Units must maintain Named Option requirements so that they are up-to-date; all curriculum changes must be approved through the appropriate school/college academic planning council (APC) or curriculum committee. The school/college APC or curriculum committee will notify the Office of the Registrar and the Graduate School (graduate level named options only) about approved curricular changes to the named option. Typically, any changes in requirements will be effective no sooner than the fall semester after approval.

*Provide explanation and rationale for any Curricular Policy Requirements that have not been affirmed.
Provide explanation for Curricular Policy Requirements that have not been affirmed here.

5. Assessment
   5.1. ☒ Attach a program assessment plan when submitting this proposal.
Assessment plans for a named option should be integrated with the assessment plan for the major. See the Basic Assessment Plan for instruction and accompanying template. The Basic Assessment Plan and Template are minimum expectations for this information. Programs that have developed plans that exceed what is specified in the basic plan may provide that information.

5.2. Provide a summary of the program assessment plan, including learning goals for the major and any additional learning goals that are specific for the named option, key methods and assessment approaches, and how assessment information will be reviewed and acted on.

We are moving our traditional master's program to a named option for tracking purposes. We have attached the current assessment plans and learning outcomes. However, we are seeking approval to revise the learning outcomes. Once approved, we will update the assessment plan accordingly.

The assessment summary should highlight how the named option is included in the overall assessment plan for the major. The named option must adhere to all learning goals for the major and may also have additional learning goals that are specific for the named option.

6. Overlap and Related Programs

6.1. Specify any other degree/majors, named options, or certificates that may not be earned in combination with this named option.

There are no degree overlap restrictions for the proposed MS-Agricultural and Applied Economics. All incoming MS students will be admitted to one of the named options.

Overlap restrictions must be managed at the program level as part of the advising process. When proposing a named option that has the same name as an existing degree/major certificate or doctoral minor at the same level, the program will be required to put in place processes to ensure that students do not enroll in both programs with the same name. If the program faculty choose to limit any other overlap with other degree/majors, named options, or certificates a list must be specified in the proposal and the program faculty/staff will be responsible for monitoring and enforcing overlap limits.

7. Admissions & Enrollment

7.1. For graduate programs proposing a named option with admissions requirements that are distinct from the major with no named option, explain the admissions criteria and process.

We are moving our traditional master's program to a named option for tracking purposes. There will be no change in admissions requirements.

7.2. What is the projected annual enrollment in the named option? 3-5 students
7.3. What is the maximum enrollment (using existing instructional and student resources)? 15 students
7.4. What are the contingency plans for supporting enrollments higher than the stated maximum enrollment?

The majority of our graduate students are admitted to the PhD program or the REDA named option. We typically award 3-5 non-REDA master's degrees per year and do not intend to increase the size of the master's program.

Checklist for Verification of Admission Policy Requirements for Undergraduate Named Options*
You will have an opportunity to provide explanation and rationale for any Admission Policy Requirements that have not been affirmed in the text box that follows the checklist.

☐ Named option admission requirements are consistent with admission requirements for the major with no named option, if the major has any admission requirements beyond admission to the University. Admission limits should be related to interest or aptitude for the content and not based solely on a high GPA cutoff

☐ The named option will be declared and canceled using the e-Declaration process in the student information system.

☐ Undergraduates will not be advised to declare or remain enrolled in a named option if it will extend their time to graduation. Undergraduate students are to be discouraged
from earning more than one named option that represents an area of curricular emphasis within the major.

*Provide explanation and rationale for any Admission Policy Requirements that have not been affirmed in the above checklist.
Type explanations for Admission Policy Requirements not affirmed here.

8. **Advising**

8.1. List name(s) of major and named option advisor(s) with title and departmental affiliation(s).

All AAE graduate students are assigned to a faculty advisor upon admission. Mary Treleven, Graduate Program Coordinator, advises students on degree progress and graduation requirements, University resources, career and wellness.

8.2. Describe how there will be sufficient advising and academic support for all students in the major (both the existing major’s students and the new students that will be served by the named option).

We are moving our traditional master’s program to a named option for tracking purposes. There will be no change in the academic support needs.

8.3. ☒ Confirm that major and named option advisor(s) have been consulted and reviewed this proposal.

9. **Governance & Faculty**

9.1. ☒ The named option must be governed by the same department or academic unit that oversees the major. Any sub-committee governing the named option must report to the faculty governance committee for the major.

9.1.1. If a sub-committee governs the named option, describe procedures including how faculty are identified and provisions for transitions in the committee.

Describe sub-committee procedures here. (1000 word limit)

9.2. List core faculty and staff with title and departmental affiliation(s).

Faculty:
- Brad Barham, Professor, AAE
- Jean-Paul Chavas, Professor, AAE
- Tessa Conroy, Assistant Professor, AAE
- Ian Coxhead, Professor, AAE
- Steven Deller, Professor, AAE
- Fengxia Dong, Associate Scientist, AAE
- Paul Dower, Assistant Professor, AAE
- Sheldon Du, Associate Professor, AAE
- Jeremy Foltz, Professor and Chair, AAE
- Brian Gould, Professor, AAE
- Corbet Grainter, Associate Professor, AAE
- Brent Hueth, Associate Professor, AAE
- Paul Mitchell, Associate Professor, AAE
- Dominic Parker, Assistant Professor, AAE
- Dan Phaneuf, Professor, AAE
- Bill Provencher, Professor, AAE
- Thomas Rutherford, Professor, AAE
- Laura Schechter, Associate Professor, AAE
- Guanming Shi, Associate Professor, AAE
- Kyle Stiegert, Professor, AAE
- Emilia Tjernstrom, Assistant Professor, AAE

Staff:
- Nancy Carlisle, Payroll and Benefits Specialist, AAE
- Eric Dieckman, Director of IT Services, AAE
10. Fiscal Structure and Ongoing Commitment

10.1. Provide an overview of plans for funding the named option including but not limited to program administration, instructional/curricular delivery, technology needs, and program assessment.

We are moving our traditional master's program to a named option for tracking purposes. There will be no change in the funding model.

10.2. How will the named option impact staffing needs beyond the immediate program? How are those needs being met?

We are moving our traditional master's program to a named option for tracking purposes. There will be no change in the staffing needs.

If there is no change in staffing, please describe how the duties of current employees will evolve to support this named option.

10.3. For named options supported using non-pooled tuition, provide a fiscal annual summary including planned enrollment, estimated paid tuition, instructional costs, and estimated excess tuition available for reinvestment in keeping with the separate guidelines for non-pooled programs.

Not applicable.

10.4. For graduate programs supported using pooled tuition, provide a plan for how new graduate students will be funded.

AAE master’s students are self funded.

Required attachments

☐ Cover letter from the Dean of the school/college that will be the home of the named option

When a proposal for a new named option is forwarded for approval, it will have a cover letter to the provost from the supporting dean.

☐ Supporting letters/memos

Proposals must be accompanied by letters or memos submitted by the chair or director of other academic units that have overlapping interest. These notes may comment on shared resources, competition for students or other ways in which the programs will interact surrounding the named option. This will include departments/schools/colleges, share a student audience, represent a closely related area of study, have overlapping faculty, or have program names that are similar.

☒ Full curriculum including all required and elective courses

☐ For undergraduate named options, attach a four year roadmap.

☒ For graduate named options, attach a chart outlining minimum degree requirements and elements for satisfactory progress.

☒ Assessment plan

Named options supported using non-pooled tuition must attach:

☐ Core Criteria Checklist

☐ Additional Requirements Checklist

See the current Non-pooled Program Requirements Process document posted at https://kb.wisc.edu/vesta/page.php?id=59300
MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS FOR THE MS AAE

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress in addition to the requirements of the program.

MASTER'S DEGREES

The named options, M.S. in AAE and M.S. in Resource and Energy Demand Analysis (REDA)

GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

M.S.: Half of degree coursework (15 credits out of 30 total credits) must be completed in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide.

PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

M.S.: With program approval, students are allowed to count no more than 6 credits of graduate coursework from other institutions. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.S. with REDA named option: No credits of graduate coursework from other institutions may count toward the program requirements.

PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

M.S.: Up to 7 credits from a UW–Madison undergraduate degree numbered 300 or above are allowed to count toward the degree, with petition from student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.S. with REDA named option: No credits from a UW–Madison undergraduate degree may be applied toward the program requirements.

PRIOR COURSEWORK REQUIREMENT: UW–MADISON UNIVERSITY SPECIAL
M.S.: With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison University Special student. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

M.S. with REDA named option: No credits earned as a UW–Madison University Special student may be applied toward the program requirements.

**CREDITS PER TERM ALLOWED**

15 credits

**PROGRAM-SPECIFIC COURSES REQUIRED**

M.A. and M.S.: Microeconomic theory (AAE 635 Applied Microeconomic Theory), econometrics (AAE 636 Applied Econometric Analysis I and AAE 637 Applied Econometric Analysis II), and quantitative methods.

M.A. with REDA named option: The program's lock-step curriculum of 30 credits is described on the [program website](#).

**OVERALL GRADUATE GPA REQUIREMENT**

3.00 GPA required.

**OTHER GRADE REQUIREMENTS**

Students holding research assistantships are required to maintain an overall 3.2 GPA; grades of B or above in all core curriculum coursework.

**PROBATION POLICY**

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

**ADVISOR / COMMITTEE**

Every graduate student is required to have an advisor. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.
An advisor generally serves as the thesis advisor. In many cases, an advisor is assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies.

A committee often accomplishes advising for the students in the early stages of their studies.
AAE 635: Applied Microeconomic Theory. offered fall; 3 credits Microeconomic theory applied to consumers, producers, markets, and welfare analysis. Emphasis is on the mathematics of duality and optimization methods. Computer applications of the theory. Pre-Reqs: Two semesters of calc & Econ 301, or cons inst.


AAE 637: Applied Econometric Analysis II. offered spring; 3 credits Extension of the standard regression model is the primary focus. Topics: Non-linear regression models, maximum likelihood estimation, panel data, simultaneous equations, linear and nonlinear systems, analysis of discrete choice, limited dependent variables. Empirical economic applications and policy analysis Pre-Reqs: AAE 636 or cons inst

AAE 641: Foundations of Agricultural Economics. offered spring; 3 credits Overview of the economic performance of agriculture in feeding the growing world population. Examines contemporary economic issues in the food sector, along with research methods used in their analysis. Covers production analysis, risk and uncertainty, food demand, market structure, policy and welfare analysis. Pre-Reqs: AAE 635 and 636, or equivalent

AAE 642: Foundations of Development Economics. offered spring; 3 credits An overview of development economics, covering both basic theory and empirical applications. Topics include economic growth, trade, measurement of poverty and inequality, human capital, agricultural household models, technology adoption, migration, credit, savings, insurance, infrastructure, and the environment Pre-Reqs: AAE 635 and 636, or equivalent

AAE 643: Foundations of Environmental and Natural Resource Economics. offered spring; 3 credits Survey of historical topics and contemporary research questions in environmental and resource economics. Focus areas include foundational models of human/environment interaction, definition and evaluation of the suite of environmental policy instruments, measuring environmental costs and benefits, and examining natural resource use. Pre-Reqs: AAE 635 and 636, or equivalent

AAE 652: Decision Methods for Natural Resource Managers. (Crosslisted with Forest, Envir St) offered spring; 3-4 credits (B-I) Applications of quantitative methods, including optimization and simulation, to the management of natural resources, especially forests. Pre-Reqs: Math 211 or equiv & Comp Sci 132 or equiv.

AAE 671: Energy Economics. (Crosslisted with Envir St, Econ, UrbRPl, TranPU) offered spring; 3 credits (S-D) The method, application, and limitations of traditional economic approaches to the study of energy problems. Topics include microeconomic foundations of energy demand and supply; optimal pricing and allocation of energy resources; energy market structure, conduct, and performance; macro linkages of energy and the economy; and the economics of regulatory and other public policy approaches to the social control of energy. Pre-Reqs: Sr or Grad st and intermed econ or appropriate substitute per cons inst.
AAE 705: *Applied Microeconomics.* offered spring; 3 credits Focuses on developing a conceptual as well as empirical analysis of microeconomic behavior, including production and consumption analysis, technical change, and investment. Emphasizes empirical applications of microeconomics, with implications for efficiency and welfare analysis. Pre-Reqs: 635 and State 309 or equiv.


AAE 730: *Economics of Development 1.* offered spring; 3 credits Theory and empirical evidence on growth and development in low-income countries. Topics may include: measurement of poverty and inequality, risk and insurance, social networks, technology adoption, education, corruption, institutions, and behavioral economics. Pre-Reqs: Econ 709 and 711, or equivalent

AAE 731: *Economics of Development 2.* (Meets with Econ 877) offered fall; 3 credits Theory and evidence on growth and development in emerging economies, with primary focus on globalization, trade, labor markets and human capital. We use open-economy general equilibrium models to examine welfare implications of global shocks and domestic economic policies. Pre-Reqs: Econ 709 and 711, or equivalent.

AAE 737: *Applied Econometric Analysis III.* offered fall; 3 credits Prepares students for their own empirical work by examining contemporary econometric techniques as they are used in development, environment and natural resources, and agricultural economics. Guides students through a selection of applied models using past and current research as examples. By hearing lectures and working through papers, problem sets, replication exercises, and/or research projects, students will develop a deeper understanding of the many facets of empirical research in economics. Pre-Reqs: Econ 709 and 710

AAE 741: *Advanced Policy Analysis.* offered alternating fall semesters; 3 credits Economic efficiency and welfare at the micro and macro levels. Role of contracts and effects of policy instruments related to pricing and trade policy, under uncertainty. Role of technology and effects of globalization in developed and developing countries. Pre-Reqs: Econ 711 or consent of instr.

AAE 746: *Frontiers in Agricultural Economics 1.* offered spring; 3 credits Economics of agricultural technology innovation and adoption, properties and measurement of production and productivity, and impact evaluation. Empirical methods, including surveys, experiments, randomized trials, and instrumental variable methods of testing applied microeconomic models. Pre-Reqs: Econ 709 and 711, or equivalent

AAE 747: *Frontiers in Agricultural and Applied Economics 2.* (Crosslisted with Econ 747.) offered fall; 3 credits Organization, design, and performance of food and agricultural markets. Industrial organization; firm boundaries, contracting, and collective action; spatial, temporal, and quality dimensions of market design. Pre-Reqs: Econ 709 and 711, or equivalent

AAE 760: *Frontiers in Environmental and Natural Resource Economics 1.* offered spring; 3 credits Economic tools and principles pertaining to the optimal management of natural resources. Theoretical models characterize efficient resource use and predict management decisions under different institutional settings. Empirical applications relate to public and private management of forests, fish, wildlife, minerals, and energy resources. Examples highlight the importance of discount rates, property rights, and government policies. Pre-Reqs: Econ 709 and 711, or equivalent.

AAE 762: *Frontiers in Environmental and Natural Resource Economics 2.* offered fall; 3 credits The role of markets and government in the allocation of environmental goods and services. Topics include public
goods, externalities and market failure; policy instruments for dealing with environmental quality problems such as air pollution; and distributional impacts of environmental regulations. Pre-Reqs: Econ 709 and 711, or equivalent

**AAE 770: Introduction to Quantitative Methods in Resource and Energy Economics.** offered summer; 3 credits The fundamental mathematics and statistics necessary for the study of quantitative methods in resource and energy demand. Topics include the mathematics of optimization and its role in basic welfare theory and consumer demand; linear and matrix algebra and their application in both modeling consumer behavior and the statistical analysis of models; and the fundamentals of statistical analysis relevant to econometric analysis of resource and energy demand, including probability theory, sampling distributions, and statistical inference. Pre-Reqs: Enrolled in REDA MA program

**AAE 771: Theory to Practice: Fundamentals of Resource and Energy Demand Analysis.** offered fall; 3 credits Applying economic theory to the practice of resource and energy demand analysis. Topics include consumer demand theory and the proper modeling of demand systems, theoretical underpinnings of behavioral economics, welfare theory, cost benefit analysis and cost-effectiveness analysis, and technology adoption and diffusion. Pre-Reqs: Enrolled in REDA MA program

**AAE 772: Applied Econometrics of Resource and Energy Demand.** offered spring; 3 credits The estimation of the economic models of resource and energy demand, including evaluation of energy and resource programs, estimating demand systems in the study of dynamic pricing models, estimating discrete choice models, forecasting resource and energy demand from econometric models, and topics in the application of big-data analytics in resource and energy demand analysis. Pre-Reqs: AAE 636 and enrolled in REDA MA program

**AAE 773: Seminar in Resource and Energy Demand Analysis.** offered spring; 3 credits Current issues in resource and demand analysis, with weekly presentations by academic researchers and industry professionals, and an emphasis on identifying the correct conceptual approach and methods to address an issue. Pre-Reqs: AAE 771 and enrolled in REDA MA program

**AAE 774: Practicum in Resource and Energy Demand Analysis I.** offered spring; 1 credits The first in a 2-course sequence that comprises the capstone course in Resource and Energy Demand Analysis, in which students synthesize their training in a simulated "real world" analysis. The course is designed to reflect the full range of professional responsibilities of a resource/energy demand analyst, from data retrieval/cleaning to analysis to reporting. Pre-Reqs: AAE 771 and enrolled in REDA MA program

**AAE 776: Practicum in Resource and Energy Demand Analysis II.** offered summer; 3 credits The second in a 2-course sequence that comprises the capstone course in Resource and Energy Demand Analysis, in which students synthesize their training in a simulated "real world" analysis. The courses is designed to reflect the full range of professional responsibilities of a resource/energy demand analyst, from data retrieval/cleaning, to analysis, to reporting. Pre-Reqs: AAE 771 and enrolled in REDA MA program

**AAE 777: Survey and Sample Design in Applied Economics.** offered fall; 2 credits Teaches generation and use of survey data. Topics include identification of target population, random, stratified, & cluster sampling, power analysis, survey collection & implementation, retrospective and prospective surveys of respondent choice, experimental choice in survey design, and econometric modeling of respondent choices. Pre-Reqs: Declared in the Resource and Energy Demand Analysis graduate program

**AAE 780: Research Colloquium.** offered spring; For AAE Ph.D. students to develop a dissertation proposal. Working in groups and with some additional feedback from individual advisors. Developing research questions, literature search, word models, math models, testable hypotheses, identification

AAE 799: Practicum in Agricultural and Applied Economics Teaching. offered fall, spring; 1-3 credits Instructional orientation to teaching at the higher education level in the agricultural and life sciences, direct teaching experience under faculty supervision, experience in testing and evaluation of students, and the analysis of teaching performance. Pre-reqs: Grad st & cons inst.

AAE 835: Game Theory and Political Analysis. (Crosslisted with Pol Sci) offered spring; 3 credits An introduction to the tools of game theoretic analysis, with reference to the use of game theory in political science. Intended for those desiring a basic familiarity with the theory, and for those planning further work in formal modeling. Pre-reqs: Grad st.

AAE 881: Benefit-Cost Analysis. (Crosslisted with Pop Health St, Pub Affr, Envir St) offered fall, spring; 3 credits This course will present the welfare economics underpinnings for evaluating the social benefits and costs of government activities. Issues such as uncertainty, the social discount rate, and welfare weights will be discussed; case studies from the environmental, social policy, and agricultural areas will be studied. Pre-reqs: Grad status, PA 818 and 880 or PHS 875, one econ course or cons instr.

AAE 982: Interdepartmental Seminar in the Latin-American area. (Crosslisted with Anthro, Econ, Geog, History, Jour) offered; 1-3 credits Pre-reqs: Grad st & cons inst.

AAE 990: Research and Thesis. offered; 1-12 credits Pre-reqs: Cons inst.

Curriculum for the MS in Agricultural and Applied Economics:

To receive the MS degree, a graduate student must earn 30 credits with an overall grade point average of 3.0 (on a 4.0 scale). A minimum of 15 credits must be courses designated as “graduate level” in the Course Guide. They must also successfully complete requirements 1-3, below, earning a grade of B or better in each course, as recorded on the official transcript. The specific course requirements are as follows:

1. Microeconomic Theory* (3 credits)
   AAE 635 *Applied Microeconomic Theory*

2. Econometrics* (6 credits)
   AAE 636 and 637 *Applied Econometric Analysis I & II*

3. Economic Analysis (15 credits, both a and b)
   a. At least 9 credits of Agricultural and Applied Economics taught courses at the 500 level or above, and
   b. At least 6 credits of Agricultural and Applied Economics taught courses at the 400 level or above

4. Other Course Work (6 credits)
   Six credits at the 300-level or above in any department (including Agricultural and Applied Economics) to bring the total number of credits up to 30. These credits may include independent study.
Identifying Information
School/College: Agricultural and Life Sciences
Graduate Degree/Major Program Name: Agricultural and Applied Economics
Graduate Degree Level (M.S., Ph.D., DMA, etc.): M.S.
Faculty Director Contact/Title: Jeremy Foltz, chair, jdfoltz@wisc.edu
Primary Contact Information: Mary Treleven, mtreleven@wisc.edu

Student Learning Outcomes (What)
Proposed AAE MS Knowledge and Skills Learning Goals

- Articulates and critiques theories and empirical methods for quantitative analysis relevant to agricultural, environmental, international development, or community economics.
- Identifies data sources, applies appropriate econometric methodologies, and evaluates quantitative evidence relevant to questions in agricultural, environmental, international development, or community economics.
- Clearly communicates applied economics issues, methods, and empirical analysis using both written and oral strategies.

Plan for Assessing Each Student Learning Goal

<table>
<thead>
<tr>
<th>Assessment Planning (How)</th>
<th>Learning Goal #1 Articulates and critiques theories and empirical methods for quantitative analysis relevant to agricultural, environmental, international development, or community economics.</th>
<th>Learning Goal #2 Identifies data sources, applies appropriate econometric methodologies, and evaluates quantitative evidence relevant to questions in agricultural, environmental, international development, or community economics.</th>
<th>Learning Goal #3 Clearly communicates applied economics issues, methods, and empirical analysis using both written and oral strategies.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method for assessing learning (at least one direct method required)</td>
<td>Embedded questions in key courses; review of 637 course paper and theses using a rubric.</td>
<td>Review of 637 course paper and theses using a rubric; analyze exit surveys.</td>
<td></td>
</tr>
<tr>
<td>Timetable for assessment activity (at least one activity each year; all goals reviewed in a 3-year cycle)</td>
<td>Annual</td>
<td>Annual</td>
<td>Annual</td>
</tr>
</tbody>
</table>

1. **Who is responsible for assessment?** (identify an individual or team who will coordinate the implementation of the plan on an annual basis):
   The DGS will organize assessment activities at the beginning of the academic year. The Graduate Committee will analyze results in collaboration with Grad Coordinator Mary Treleven. A summary will be reviewed by the full faculty in the fall.
2. **What is the plan for review of the assessment information?** (typically during an annual meeting of the program faculty and staff; note that at this meeting the program may want to review enrollment information, course progression, degree completion, and other structural features of the student experience in addition to the evidence about student learning):

The DGS will present assessment results to the full faculty at an early fall meeting, along with recommendations for future activities. These will be discussed and voted on before the summary data is transmitted to the Provost on Oct. 1 each year.

3. **What is the plan for production of an annual summary report?** (the annual summary report includes the materials that form the basis of discussion at the annual meeting of the program faculty and staff, along with any recommendations made after considering the student learning assessment information presented):

The summary report will be produced by the DGS and staff, following Graduate Committee review and discussion and full faculty review and discussion.

4. **How will recommendations be implemented?** (explain the general process by which recommendations will be implemented):

If curricular changes are needed, the Curriculum Committee will review and recommend. All other changes will be implemented and reassessed by the Graduate Committee, with departmental overview taking place at the fall meeting. At that time the full faculty will help prioritize future activities.

**Graduate Degree Program Curriculum Mapping Worksheet (Where)**

<table>
<thead>
<tr>
<th>Curriculum Map (Where)</th>
<th>Enter program-level learning goals and check (X) which course or experience contributes to which learning goal.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Degree Program Required Courses or Experiences</strong></td>
<td>Learning Goal #1</td>
</tr>
<tr>
<td>Course #1 635</td>
<td>X</td>
</tr>
<tr>
<td>Course #2 636</td>
<td>X</td>
</tr>
<tr>
<td>Course #3 637</td>
<td>X</td>
</tr>
<tr>
<td>Course #4 641 or 642 or 643</td>
<td>X</td>
</tr>
<tr>
<td>Experience #1 conference papers (optional)</td>
<td>X</td>
</tr>
<tr>
<td>Experience #2 TAing</td>
<td></td>
</tr>
<tr>
<td>Experience #3 IRB training</td>
<td></td>
</tr>
<tr>
<td>Experience #4 thesis defense</td>
<td>X</td>
</tr>
</tbody>
</table>

Minimally, all of the courses/experiences required to complete the major degree program should be listed. Optionally, elective courses may be included in addition to the required courses.

Please email your program’s Assessment Plan Template and Curriculum Map Worksheet to regina.lowery@wisc.edu by July 1, 2016.

If you have questions, please contact regina.lowery@wisc.edu (v. 08-18-15)
August 21, 2017

Professor Jeremy Foltz,
Chair, Agricultural and Applied Economics
University of Wisconsin-Madison
Madison, WI 53706

Dear Jeremy:

I am writing to endorse the move to change the Classification of Instructional Programs (CIP) code for all graduate programs in Agricultural and Applied Economics (PhD and MS) from 01.0103 – Agricultural Economics to 45.0603 – Econometrics and Quantitative Economics, effective Fall 2018.

Best Regards,

Ananth Seshadri
Professor of Economics and Chairman
Todd E. and Elizabeth H. Warnock Distinguished Chair
AAE635
Applied Microeconomic Theory
Syllabus
Fall 2017
Tuesday/Thursday, 11:00am – 12:15pm
(Section: 4:00 – 4:50pm, Monday)
B30, Taylor Hall

Instructor:
Guanming Shi, 329 Taylor Hall, Email: gshi@wisc.edu
OH: Tuesday and Thursday 12:15-1pm, or by appointment

Teaching Assistants:
Jie (Sunny) Feng, 304 Taylor Hall, Email: jfeng65@wisc.edu
OH: Wednesday 9:30 - 11:30am
Ziqi Qiao, 317 Taylor Hall, Email: zqiao7@wisc.edu
OH: Tuesday 2:30 - 3:30pm

Prerequisites:
Intermediate Micro (Econ. 301), one semester of calculus and one semester of linear algebra.

Overview:
Microeconomics studies systematically the economic decision rules followed by consumers and firms in solving their constrained optimization problems. It also evaluates the welfare consequence of such decisions in the context of a society or a sector. We will cover the following topics:
1. Economic modeling with optimization theory and price theory for firms and consumers;
2. Mathematical tools of duality in analyzing economic behavior;
3. Welfare consequences in terms of benefit and cost of economic decisions; and
4. General equilibrium quantitative analysis applying to a sector or an economy.

Course objectives:
- To acquaint students with formal models of economic problems such as production and consumption allocations and the efficiency consequences;
- To develop students’ analytical and mathematical skills for conducting such analyses.

Primary Reference:
The primary “textbook” is the detailed lecture notes specifically designed for this class. They are posted on the class website (in a timely manner): http://www.aae.wisc.edu/aae635/main.asp

Optional References:
Some students found the following books useful in helping them walk through this course. It is your choice whether to refer to these books or not:
Hal R. Varian, “Microeconomic Analysis,” Third Edition, Norton&Company Ltd., NY. (A nice feature of this book is the compactness of how the basic concepts are presented, although some may view it as its “weakness”)

Another useful handbook you may consider:

Sydsater, K., A. Strom and P. Berck, “Economists’ Mathematical Manual”, Springer-Verlag Berlin, Heidelberg 1999. (Collection of mathematical and statistical formulas and definitions, as well as economic results and theorems, very handy and useful in and beyond this class)

**Homework:**
There will be a total of six problem sets. Students may form study groups to work out the homework, but each student must submit your own answers.

**Grading:**
Midterm Exam 30%
Final Exam 40%
Homework 30%

Grading Scale: 100-90 A, 89-85 AB, 84-76 B, 75-72 BC, 71-63 C, 62-56 D, 55-0 F
INSTRUCTOR

Prof. Daniel J. Phaneuf (pronounced fa-neff)
416 Taylor Hall
608.262.4908
dphaneuf@wisc.edu
Office Hours: Tues/Thurs 11am to 12pm and by appointment

Ms. Zhidong Chen (TA)
303 Taylor Hall
zhidong.chen@wisc.edu
Office Hours: Tues/Thurs 4:00 to 5:00pm and by appointment

CAPSULE STATEMENT

This course will introduce the basic econometric methods associated with linear models. Students will become familiar with the technical aspects of linear regression and statistical inference, and will learn how these methods are used for contemporary applied research. The course will function both as a stand-alone introduction to linear models and a point of departure for studying more advanced techniques.

LEARNING OBJECTIVES

Our examination of the linear model will focus on the conceptual properties of estimators, the use of software packages such as Stata and R to estimate linear models, and understanding how linear models can help us distinguish between associative and causal relationships between variables. Students will obtain working knowledge of ordinary least squares, instrumental variables, and some panel models; they will also learn how to gauge the appropriateness of different model assumptions for different types of applied problems. More generally, students will learn how to both recover and critically evaluate estimates from linear models.

PREREQUISITES

Students should have completed undergraduate courses in derivative calculus and intermediate microeconomics, and an upper level statistics course. Computer programming skills are not necessary, but students should be comfortable with basic computer usage as well as the manipulation of data in Excel. We will be learning and making use of the analysis software packages Stata and/or R, and so students should arrange access to these programs on their personal machines or in university computer labs.

TEXTBOOKS AND SOFTWARE

I will assign readings out of the following books:


For reference, I also find the following book useful:

The course will include several applied homework assignments. I will provide instruction and assistance in Stata, and Zhidong will be responsible for doing so in R. *I am not currently an R user, but plan to learn along with you this semester.*

**Course Requirements**

Your course grade will be based on your performance on two midterms and one final exam, as well as several homework assignments. The percentages are as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm Exams</td>
<td>40 percent (20 percent each)</td>
</tr>
<tr>
<td>Cumulative Final Exam</td>
<td>30 percent</td>
</tr>
<tr>
<td>Homework Assignments</td>
<td>30 percent</td>
</tr>
</tbody>
</table>

The following are tentative dates for the midterm exams, and a firm date for the final exam:

- **Exam 1** – Tuesday 13 October
- **Exam 2** – Thursday 19 November
- **Final Exam** – Thursday 17 December 7:45am

Homework assignment will include a mixture of analytical and applied exercises; I expect there will be ~7-8 assignments.

**Grading**

I will determine your grades based on the following percentages, which will arise from the numerical scores I assign to each of the components:

- \( \geq 93\% \) : A
- \(< 93\% \) & \( \geq 88\% \) : AB
- \(< 88\% \) & \( \geq 83\% \) : B
- \(< 83\% \) & \( \geq 78\% \) : BC
- \(< 78\% \) & \( \geq 70\% \) : C
- \(< 70\% \) & \( \geq 60\% \) : D
- \(< 59\% \) : F

**Class Format**

Most of the class time will be lecture-based, but I want to encourage your active participation. Please ask questions and respond to my queries! I will also design classroom exercises to get you actively engaged in discussing the material. Please plan to participate.

I will use a combination of handouts and chalkboard presentations. Any needed handouts will be posted by 8am the day of the lecture, so please plan to check the Learn@UW site for material. In general I will use the Learn@UW site for posting materials and emailing information, so you should plan to interact with the site regularly.

There will be a small number of Friday AM labs, which are encouraged by not required. Details on these will be forthcoming.
### Outline of Topics, Readings, and Approximate Timing

<table>
<thead>
<tr>
<th>Topic</th>
<th>Reading</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>W 1; AP 1, 2</td>
<td>1</td>
</tr>
<tr>
<td>Random variables</td>
<td>W appendix B</td>
<td>2</td>
</tr>
<tr>
<td>Mathematical statistics</td>
<td>W appendix C</td>
<td>2, 3</td>
</tr>
<tr>
<td>Simple linear regression model</td>
<td>W 2; AP 3.1.1, 3.1.2</td>
<td>3, 4, 5</td>
</tr>
<tr>
<td>Multiple linear regression:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estimation</td>
<td>W 3; AP 3.2</td>
<td>5, 6</td>
</tr>
<tr>
<td>Inference</td>
<td>W 4, 5; AP 3.1.3</td>
<td>7, 8</td>
</tr>
<tr>
<td>Binary variables</td>
<td>W 7; AP 3.1.4, 3.4.2</td>
<td>9, 10</td>
</tr>
<tr>
<td>Robust and cluster robust standard errors</td>
<td>W 8, AP 8.2.1, TBA</td>
<td>11, 12</td>
</tr>
<tr>
<td>Miscellaneous topics</td>
<td>W 9.4; TBA</td>
<td>12, 13</td>
</tr>
<tr>
<td>Panel data models</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic panel models</td>
<td>W 13; AP pp. 221-233</td>
<td>12, 13</td>
</tr>
<tr>
<td>Advanced panel models</td>
<td>W 14</td>
<td>14</td>
</tr>
<tr>
<td>Instrumental variables</td>
<td>W 15; AP pp. 113-127</td>
<td>15, 16</td>
</tr>
</tbody>
</table>
Agricultural and Applied Economics II

AAE 637

Instructor: Brian Gould

Spring 2017

Course Description: Extension of the standard regression model is the primary focus. Topics: nonlinear regression models, maximum likelihood estimation, panel data, simultaneous equations, linear and nonlinear systems, analysis of discrete choice, limited dependent variables. Empirical economic applications and policy analysis.

Course Objective: The course focuses on the development and use of more advanced econometrics techniques that follow naturally from the classical regression model usually presented in an initial regression focused class. The estimators we use are more complicated than the linear least squares based estimator (i.e., the class regression model). The parameter estimation algorithms used in this class require an iterative process to generate parameter estimates. We emphasize empirical applications, illustrating the practical methods and challenges associated with analyzing finite samples of economic data. The course should be of interest to students of economics, business, public health, political science, engineering and other disciplines in need of a more in-depth understanding of applied regression methods.

We will use the MATLAB software system. What is learned using this software such as data management, parameter estimation and post-estimation analyses will be easily transferable to other software packages such as R, OX, GAUSS, Mathematica, etc. All assignments for this class are to be completed using MATLAB. By developing your own software, you will be able to understand how the various statistics displayed in the output of canned econometric/statistical packages you may use in the future are actually calculated.

Recommended Texts:


Ellison, S., Maximum Likelihood Estimation: Logic and Practice, Sage Series in Quantitative Applications in the Social Sciences, #96, London


Judge, G.G., R.C. Hill, W.E. Griffths, H. Lutkepohl, and T.C. Lee (JHGLL), Introduction to the Theory and Practice of Econometrics, 2nd ed., John Wiley and Sons, New York, 1988. This book is out of print and I have made copies of relevant chapters. I would strongly recommend that you consider obtaining a used version for your library. Although very dry, it has a very good summary and presentation of basic econometric methods.

Train, K.E., Discrete Choice Methods with Simulation, (click on title to download from our website) Cambridge University Press, 2003. This text will be very useful for those undertaking analyses where the dependent variable is discrete. e.g., 0,1. Prof. Train makes available an online course on discrete choice analysis [with simulation] based on this text. This course is available at: http://elsa.berkeley.edu/users/train/distant.html.

Supplementary Resources: Gweke, J.F., J.L. Horowitz and M. Pesaran, 2006. Econometrics: A Birds Eye View, IZA Discussion Paper No. 2458, November, Bonn. This is an unpublished paper that basically gives a history of econometrics. It covers much more material than we will cover. It shows where the various dimensions of econometrics intersect.

Train, K.E., Qualitative Choice Analysis: Theory, Econometrics and an Application to Automobile Demand, 1993. This is a good text that describes the use of discrete (binary) choice analysis as it is applied to the analysis of consumer demand and welfare evaluation.

Course Evaluation  40% Assignments  15% Journal Article Review(s)/Class Room Participation 45% Term Paper

Course Outline

Review of the Classical Regression Model

I. Nonlinear Regression Models

II. Maximum Likelihood Methods

III. Econometric Models of Discrete Choice

IV. Regression with Limited Dependent Variable
AAE 875 – Applied Microeconometrics Using Replication

Fall 2016
University of Wisconsin, Madison
Agricultural and Applied Economics
Location: Taylor Hall
Time: MW 1:00 - 2:15 p.m.
Office hours: T 2:00-4:00 p.m. or by appointment

Instructor: Emilia Tjernström
201 Observatory Hill Office Bldg.
& 323 Taylor Hall
Email: tjernstroem@wisc.edu
Webpage
This version: Oct 06, 2016

CATALOG DESCRIPTION

Prepares students for their own empirical work by giving them hands-on experience in applying contemporary econometric techniques to issues in development, environment and natural resources, and agricultural economics. Guides students through a selection of methods in applied microeconometrics and a replication of a recently published paper in a top journal, using a research-driven, applied approach. By working through how other researchers have approached econometric problems, students will improve their understanding of empirical work.

COURSE DESCRIPTION

The purpose of this course is to prepare students for their own empirical work by giving them hands-on experience in applying contemporary econometric techniques, with examples drawn from the literature on development, agricultural economics and environmental and natural resource economics. Taking a research-driven and applied approach, the course will guide students through a selection of methods in applied microeconometrics and a replication of a recently published paper in a top journal. By working through how other researchers have approached econometric problems, students will improve their understanding of empirical work – the good, the bad, and the ugly.

Students will work on one main replication throughout the semester, presenting the methodology and discussing the identification assumptions to the class. The instructor will provide a list of papers for replication that fit the topics of the course, but students can propose alternatives; good alternatives will allow the student to become familiar with a method or a data set that they are considering using in their dissertation. Students will then write up the replication in a publishable format and present it to the class. The ideal final paper will describe the initial article, carefully delineate the ease with which the results replicate, and propose/carry out extensions or improvements to the research design.

In addition to the main replication, several problem sets will require students to manipulate and analyze data in various ways. We will focus quite heavily on estimating causal effects. The data sets for
the problem sets will be available on Learn@UW. Students will also conduct a peer-review of one of their peers’ replication projects.

LEARNING OUTCOMES

- Students will become familiar with a range of methodologies for applied economic research, such as randomized experiments, matching, instrumental variables, regression discontinuity designs, difference-in-differences, synthetic control methods, panel data, limited dependent variables, various important adjustments for correct inference (clustering, bootstrapping), as well as falsification tests and sensitivity analysis.
- Students will learn how to apply this econometric toolbox to real data through problem sets and the replication project.
- Students will learn how to conduct peer review of a paper and how to write referee reports.
- Students will learn central tenets of research ethics through the course’s focus on transparency and reproducibility in applied social science research.

1 COURSE REQUIREMENTS & GRADES

Course prerequisites: Economics 709, Economics Statistics and 710 Economic Statistics and Econometrics II

The course components are the following:

- Problem sets (25%)
- Class presentation of paper(s) relevant to replication (15%)
- Referee report of job market candidate paper (15%)
- Peer review of colleague’s progress (10%)
- Final replication paper (35%)
- In borderline cases, I will use lecture attendance and the quality of your classroom comments as the ‘tie breaker’. Of course, I hope that you don’t need this extrinsic motivation, since active class participation enriches the course, benefiting yourself, other students, and me.
- The grading scale is: A=93-100%, AB=88-92%, B=83-87%, BC=78-82%, C=70-77%, D=60-69%, F=0-59%

2 COURSE MATERIALS

I will assign readings from this textbook, available at the UW Bookstore:

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9/7/2016</td>
<td>Replication: what &amp; why?</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>9/12/2016</td>
<td>Publication bias, file drawer, the GRIM test</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>9/14/2016</td>
<td>Causality</td>
<td>Replication: paper choice</td>
</tr>
<tr>
<td>3</td>
<td>9/19/2016</td>
<td>Randomization: ethics, external validity</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>9/21/2016</td>
<td>Selection on observables (I)</td>
<td>Problem set 1</td>
</tr>
<tr>
<td>4</td>
<td>9/26/2016</td>
<td>Lab workshop</td>
<td>Repl: data downloaded</td>
</tr>
<tr>
<td>4</td>
<td>9/28/2016</td>
<td><em>I am out of town</em></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>10/3/2016</td>
<td>Selection on observables (II)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>10/5/2016</td>
<td>Instrumental variables</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>10/10/2016</td>
<td>IV with heterogeneous treatment effects</td>
<td>Problem set 2</td>
</tr>
<tr>
<td>6</td>
<td>10/12/2016</td>
<td>IV issues: weak instruments, etc.</td>
<td>Repl: table of means</td>
</tr>
<tr>
<td>7</td>
<td>10/17/2016</td>
<td>Regression discontinuity: sharp</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>10/19/2016</td>
<td>RD: fuzzy, regression kink</td>
<td>Referee reports due</td>
</tr>
<tr>
<td>8</td>
<td>10/24/2016</td>
<td>Diff-in-diff, ANCOVA</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>10/26/2016</td>
<td>Nonlinear DD (changes-in-changes)</td>
<td>Problem set 3</td>
</tr>
<tr>
<td>Week</td>
<td>Date</td>
<td>Topic</td>
<td>Notes</td>
</tr>
<tr>
<td>------</td>
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<td>------------------------</td>
</tr>
<tr>
<td>9</td>
<td>10/31/16</td>
<td>Synthetic control methods</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>11/2/16</td>
<td>Panel methods</td>
<td>Repl: Results tables</td>
</tr>
<tr>
<td>10</td>
<td>11/7/16</td>
<td>Panel methods</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>11/9/16</td>
<td>Limited dependent variable</td>
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Frontiers in Agricultural Economics 1

(AAE 746)
Instructors: Professors Barham and Foltz

Course Description: Economics of agricultural technology innovation and adoption, properties and measurement of production and productivity, and impact evaluation. Empirical methods, including surveys, experiments, randomized trials, and instrumental variable methods of testing applied microeconomic models.

Learning Objectives:

This course will examine the economics of technology, with a strong applied, microeconomic focus on technology innovation, technology adoption, properties and measurement of production and productivity, and impact evaluation. We will also have a significant unit on empirical methods where technology adoption examples will be used to explore different ways to test ideas. Included in that unit will be surveys, experiments, randomized trials, and instrumental variable methods of testing applied microeconomic models. The course is aimed to be at the intersection of our department’s three main advanced fields, the economics of agriculture, environment and natural resources, and international development. Technological innovation, adoption, and impacts are critical to the evolution of major outcomes of interest in all three fields.

Content: The course will begin with a one-week introductory module that includes a rapid overflight of the history of thought about technology and the economy and its more modern reflection in models of endogenous growth. The rest of the course consists of 5 modules, which are listed below.

1. Technology Adoption – Theories and Models
2. Production Functions and Measures of Efficiency, Complementarity, and Technological Change
3. The Economics of Technological Innovation
4. Empirical Methods with Specific Applications to Technology Adoption and Other Themes of Interest to Students
5. Impact Evaluation of New Technologies

Prerequisites: Economics 709, Economic Statistics and Econometrics I and Economic Theory-Microeconomics Sequence or equivalents

Readings

1. Overview and Theories of Innovation


2. Technology Adoption


3. The Economics of Innovation


Supplemental - Hall, B. “Measuring the Returns to R&D: The Depreciation Problem” NBER WP 13473. 2007. - IFPRI IMPACT model:


4. Production Functions   Homework Set 2 distributed


5. Empirical Methodologies Readings will appear on the Learn@UW website for the following topics: Survey Methods and Structural Models; Examples of Survey Methods/Structural Models; Randomized Control Treatment; RCT Examples; Experiments; Experiment Examples; Contingent Valuation and Ex Ante Estimates

6. Applications of Empirical Methodologies

Africa Fertilizer; Ex Ante Technology Adoption Models “Useche et al.”; Trade and Production Functions

Evaluation

1. 3 Assignments (10% each for first 2, and 25% for third one)
2. 2. Class Participation – Short Assignments (15% of grade)
3. 3. Take-home Final or Research Paper (40% of grade):
Course Description
The estimation of the economic models of resource and energy demand, including evaluation of energy and resource programs, estimating demand systems in the study of dynamic pricing models, estimating discrete choice models, forecasting resource and energy demand from econometric models, and topics in the application of big-data analytics in resource and energy demand analysis.

Course Objectives
The primary goal of this course is to provide students with the skills necessary to apply econometric analysis to issues in resource and energy demand, including:
- Econometric analysis of the impacts of all types of demand-side resource/energy programs, with an emphasis on advances in experimental and quasi-experimental methods;
- The application of discrete choice econometrics to discrete choice experiments (conjoint analysis, contingent valuation) and program participation data;
- Forecasting resource and energy demand from estimated econometric models.

Readings
The course will involve readings from required texts, peer-reviewed academic literature, and the “grey literature”. The course will draw primarily on material from the following textbooks:


Assignments
Weekly econometric assignments, to be completed in R.
4 quizzes

Topics
Week 1: Review, selection bias, randomized controlled trials
Week 2: Basic models for estimating treatment effects in RCTs
Week 3: Panel data models in the context of RCTs (include lagged dependent variable models)
Week 4: Bad controls, nonspherical disturbances
Week 5: Introduction to econometric models of discrete choice problems: propensity scores

Week 6: Econometric modeling of binary choice problems

Week 7: Econometric modeling of DCEs

Week 8: Non-RCT program evaluation, introduction to matching

Week 9: Non-RCT program evaluation, matching with regression analysis

Week 10: Non-RCT program evaluation, more on matching

Week 11: Non-RCT program evaluation, sharp regression discontinuity designs

Week 12: Non-RCT program evaluation, IV methods

Week 13: Forecasting using econometric models I

Week 14: Forecasting using econometric models II

Week 15: Catchup, Review
Course Description: Conceptual empirical analysis of economic behavior under risk and its implications for management and policy decisions. Emphasis on economic applications to the agricultural and food sector.

Prerequisite: AAE 635 Applied Microeconomic Theory

Course Objectives: The course focuses on the role of risk in resource allocation. It covers a conceptual as well as empirical analysis of economic behavior under risk and its implications for management and policy decisions. Special attention is given to the role of imperfect information in the decision making process of private agents. Also, the importance of risk in the design and evaluation of public institutions is discussed. The course emphasizes economic applications exemplified in a series of homework.

Grading:  40 percent exam
          60 percent homework (about one homework every two weeks)


WEB page: www.aae.wisc.edu/aae706/main.asp

Topics:
1- The modeling of economic behavior under risk: (4 weeks)
   - the measurement of risk
   - the expected utility hypothesis
   - the measurement of risk preferences:
     . absolute and relative risk aversion
     . the risk premium
   - the nature of risk aversion: the decreasing absolute risk aversion hypothesis
   - stochastic dominance
   - mean-variance models

2- The economics of private risk bearing: (4 weeks)
   - production decisions under risk
   - diversification strategies
   - portfolio selection and capital-asset pricing

3- Risk in a multi-period framework: (3 weeks)
   - the value of information
   - the cost of information
   - learning and the demand for information
4- Public policy and risk allocation
   - insurance and the efficiency of risk allocation
   - contract design under imperfect information
   - the design of public policy under imperfect information
   - market stabilization policy
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

| Computer Sciences Professional Master’s Program |

Term of First Enrollments

| Fall 2014 |

Check-In Completed By

| Suman Banerjee |

Date Completed

| 10/27/2017 |

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.

To be eligible for the Computer Sciences Master of Science degree, students in the Professional Master’s Program will need to complete at least 30 credits of computer science coursework, with an average grade of at least B. Fifteen credits must be received for core graduate-level courses: CS courses numbered 700-889. All remaining credits must be received for courses at 400 level or higher.

The program is designed to be completed in four semesters (two academic years), with an option to complete the program early and graduate in three semesters.

Computer Sciences courses are taught in an in-classroom, face-to-face format through lectures and lab sections. Student learning in computer sciences courses is generally assessed through exams or individual/team projects. Courses often taken by students in the PMP have expanded the number of seats to accommodate their needs. For PMP students working full-time, we have also offered the option to enroll in off-campus courses taught at Epic, to allow for schedule flexibility.
Upon completion of the Computer Sciences Professional Master’s Program, all students should be able to achieve the following learning outcomes:

1. Articulates, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in the field of study.
2. Identifies sources and assembles evidence pertaining to questions or challenges in the field of study.
3. Applies design and development principles in the construction of software systems of varying complexity.
4. Applies foundational principles in practical applications.
5. Independently acquires, synthesizes and applies required information pertaining to challenges in computer science.
6. Communicates clearly in ways appropriate to the field of study.

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.

During the 2016-2017, 2017-2018, and 2018-2019 academic years, we plan to assess all Learning Outcomes through four different assessment activities, including two direct forms of assessment.

In Spring 2017, an Exit Survey was sent to all students graduating with the MS degree in Spring 2017 and from Fall 2016. The survey contained questions asking students to rate their confidence level of each the six learning outcomes gained from their MS programs.

In Spring 2018, we will conduct a direct assessment of Learning Goal #3 (Applies design and development principles in the construction of software systems of varying complexity), by visually evaluating code for projects in programming-intensive 700-level courses taken during a student’s second year. During this semester, we will also directly assess Learning Goal #5 (Independently acquires, synthesizes and applies required information pertaining to challenges in computer science) and Learning Goal #6 (Communicates clearly in ways appropriate to the field of study), by evaluating a sub sample of reports and class presentations using rubric in 700-level courses during a student’s second year.

In Spring 2019, an Alumni survey will be sent to all MS alumni that have graduated within the last 3 years, asking about how they have applied what they have learned in their Master’s program towards their current job or graduate program. This survey will ask self-assessment questions related to each of the six Learning Outcomes.

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 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.

Most of the students in the program take a broad spectrum of upper level graduate and undergraduate courses in the department. The department has hired additional instructors for some of the undergraduate courses to increase teaching capacity. In addition, the faculty of the
department have expanded the size of the courses, aided by additional TA support provided by the department in some of these courses. Overall, this has allowed us to meet the increased teaching load. Further a separate professional program committee, and a professional programs coordinator manage the services and advising load.

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.

The department has a professional programs committee that is responsible for proper management of the program. The committee reports to the department chair, and works closely with the department’s education and curriculum committee, the directors of graduate and undergraduate studies, the budget committee, and the department chair to identify various issues related to staffing, scheduling, and planning of courses.

The faculty in CS as a whole has been supportive of this program, as they have been willing to admit students in this program into their classes when possible to enable them to make progress throughout the program.

Still some challenges remain, as the department is strained in teaching capacity and scaling of this program is limited by such capacity.

**Operations and Administration**

5. **Illustrate 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.

The Professional Master’s Program was designed for a new audience-CS developers or students with a CS background who want to obtain further training in this fast-moving field. We have not experienced any unanticipated overlap with the existing graduate programs, as the students generally have different sets of program goals and career paths after graduation.

The PMP continues to experience growing interest from prospective students and has even increased enrollment by 90% since the first admission cycle. We expect enrollment in the PMP to increase or at least remain steady over the next few years, due to increased market demand for skilled professionals in the CS field.

6. **Funding Considerations**

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

   Graduate students in the regular program in the department are funded in different ways. Some students get fellowships, Teaching Assistantships, and Research Assistantships that are awarded through the department’s admissions committee and through individual research grants. Other students are self-funded.
b. For non-pooled programs – Provide a brief summary of projected vs. actual revenues and expenses. Does the program have 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.

The program has been sustainable right from its first year of the program. The admitted number of students in the program, each fall, is approximately 40, although it has varied in different years.

The program can certainly be grown further, but it needs additional teaching capacity and related plans before we can do so.

In the 2016-2017 academic year, the program brought in a total revenue of more than $1.3M and around $800,000 in expenses (including the L&S fee).

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

The Computer Sciences Professional Master’s program is a two year graduate program, with an option to complete the program in three semesters. International students receive an I-20 set for two years. The majority of international students graduate within two years and are only allowed an I-20 extension under extenuating circumstances.

All required coursework for the Professional Master’s Program is delivered in an in-classroom format. Online courses are not offered through the department and are not generally taken in other departments. International students are made aware of ISS policies regarding online courses taken during final semester of study.

The Computer Sciences Professional Master’s Program Admissions Committee evaluates all parts of student applications, including English language proficiency test scores. Very few international students are admitted who do not meet Graduate School minimum requirements. Applicants who are admitted but do not meet English language proficiency requirements usually have other outstanding qualifications and are expected to succeed in the program. Applicants who do not meet English proficiency minimums are encouraged to retake the test prior to attending UW-Madison. Applicants unable to test out of English proficiency tests are expected to enroll in an ESL course their first semester. This is communicated and monitored by the Professional Programs Coordinator.

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

The program itself is sustainable. It can be grown further but there is a concern that a very large program can also be a detriment to the research quality of the department, especially since these students are less interested in research.

In particular, one concern of the growing size of PMP is that graduate classes have grown proportionally. This has quite impacted graduate instruction --- the department has traditionally done graduate instruction in class sizes of 20 to 40. For many project-focused courses, such sizes have been very effective for maintaining instructor-student contact and project-related discussions. With the introduction of PMP, the sizes have more than doubled in some classes making them less effective. There is a concern that the quality of graduate education may suffer as a result.
Therefore, growth of the program needs to be carefully managed if the department wants to preserve its excellence in graduate research and education. Of course, it requires hiring of many more additional faculty to add teaching capacity, and perhaps courses need to be split into professional-program only sections and others where research is encouraged and enabled more directly.
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

Computer Sciences Professional Capstone Certificate Program

Term of First Enrollments

Summer 2014

Check-In Completed By

Suman Banerjee

Date Completed

10/27/2017

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.

   To be eligible for the Computer Sciences Capstone Certificate, students in the program will need to complete four computer sciences courses, with an average grade of at least a “C”. Two of the courses must be taken at the 400 level or higher. In order to take the four core courses, students must first complete prerequisite courses (CS 300 and CS 400) or have taken the equivalency elsewhere.

   The program can be completed part-time or full-time, allowing students the flexibility of taking only one class per semester. Students have the option to enroll in on-campus courses during the day or can choose from several evening courses that are offered off-campus at Epic.

   Computer Sciences courses are taught in an in-classroom, face-to-face format through lectures and lab sections. Student learning in computer sciences courses is generally assessed through exams or individual/team projects.

   Upon completion of the Computer Sciences Professional Capstone Certificate Program, all students should be able to achieve the following learning outcomes*:
1. Recognize and apply the core principles of Computing (abstractions and algorithms) to solve real-world problems.
2. Use fundamental and detailed knowledge, skills, and tools (e.g., specific algorithms, techniques methods, etc.) of computer science and develop the ability to acquire new knowledge, skills, and tools.
3. Design and implement software.
4. Can solve problems by applying a broad toolbox of knowledge and techniques.

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.

During the 2017-2018, 2018-2019, and 2019-2020 academic years, we plan to assess all Learning Outcomes through four different assessment activities, including one direct form of assessment.

In spring 2018, an Exit Survey will be sent to all students graduating with the MS degree in spring 2018 and from fall 2017. The survey contains questions asking students to rate their confidence level of Learning Outcomes #1, #2, and #3, gained from their Capstone Program. During this semester, we will also be examining courses evaluations for courses with a high number of Capstone students enrolled. These course evaluations will contain questions directly related to each of the four Learning Outcomes.

In spring 2019, we will conduct a direct assessment of Learning Outcome #3 (Design and implement software), by evaluating projects using rubric in upper-level project courses (e.g., 537, 540).

In spring 2020, we will assess Learning Outcome #1 (Recognize and apply the core principles of Computing (abstractions and algorithms) to solve real-world problems) and #4 (Can solve problems by applying a broad toolbox of knowledge and techniques) through an Alumni Survey that will be sent to all Capstone Certificate Program Alumni who have graduated within the last 3 years.

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 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.

The CS department has taken a two-pronged approach to meet the additional teaching load. We have hired part-time instructors (lecturers and faculty associates) to increase our teaching capacity. These new instructors are taking some of the teaching responsibility of additional courses, or adding teaching capacity to existing courses to support the growth.

Clearly significantly challenges remain which limit the opportunities of growth of this program. In particular, there appears to be significant interest and demand on this program and to admit a larger pool of students into the program requires hiring on a number of additional faculty, faculty associates, and lecturers. Computer science instructors are usually hard to find because the industry in this space also experience shortage of trained individuals with great software skills, and such individuals tend to get drawn into industry software jobs for their higher pay and opportunities. More teaching and faculty positions need to be created to meet the increased demand in the program, and compensation needs to be commensurate with the median numbers in the industry.
Finally, the regular undergraduate certificate program and the professional version share some synergies as some of the students take the same courses. They potentially interact in the classes, and taught by the same instructors when possible, allowing the students in the two programs to also learn from each other’s experiences.

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.

The department has a professional programs committee that is responsible for proper management of the program. The committee reports to the department chair, and works closely with the department’s education and curriculum committee, the directors of graduate and undergraduate studies, the budget committee, and the department chair to identify various issues related to staffing, scheduling, and planning of courses.

The faculty in CS as a whole has been supportive of this program, as they have been willing to admit students in this program into their classes when possible to enable them to make progress throughout the program.

Still some challenges remain, as the department is strained in teaching capacity and scaling of this program is limited by such capacity.

Operations and Administration

5. Illustrate 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.

The Professional Capstone Certificate Program was designed for a distinct audience- working professionals with a BS degree in a quantitative field such as mathematics, physics, or statistics, who want to learn the fundamentals of Computer Sciences so that they can apply for a developer job in Computer Sciences. We have not experienced any unanticipated overlap with the PMP or the traditional graduate programs, as these students generally have different sets of program requirements and career paths after graduation.

The Capstone Certificate Program continues to experience growing interest from prospective students and has tripled enrollment since the first admission term. We expect enrollment in the PCP to increase or at least remain steady over the next few years, due to increased market demand for skilled professionals in the CS field.

6. Funding Considerations

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

      The students in the capstone certificate programs are self-funded.
b. For non-pooled programs – Provide a brief summary of projected vs. actual revenues and expenses. Does the program have 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.

The program has been sustainable right from its first year of the program. We have a steady pool of students who join the program, especially from Epic, because of their strong interest in the program.

The program can certainly be grown significantly, but it needs additional teaching capacity and related plans before we can do so.

In the 2016-2017 academic year, the program brought in a total revenue of more than $1.5M with a little more than $800,000 in expenses (including the L&S fee).

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

   International students enrolled in the Computer Sciences Professional Capstone Certificate program are expected to enroll full-time, as per student visa requirements. Thus, international students are generally able to complete the Capstone program within 3-4 semesters. International students receive an I-20 set for two years. The majority of international students graduate within two years and are only allowed an I-20 extension under extenuating circumstances.

   All required coursework for the Professional Master’s Program is delivered in an in-classroom format. Online courses are not offered through the department and are not generally taken in other departments. International students are made aware of ISS policies regarding online courses taken during final semester of study.

   The Computer Sciences Capstone Certificate Program Admissions Committee evaluates all parts of student applications, including English language proficiency test scores. Very few international students are admitted who do not meet Graduate School minimum requirements.

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

   The program has demonstrated its sustained operations over the last three years and is projected to continue as a successful program in the future. Growth in contingent on additional resources to staff instructional support at all levels --- in CS, faculty, faculty associates, and lecturers, all teach lower level and upper level undergraduate courses and such courses are strained in capacity which limits further growth.

   If the program continues to grow, we will also need to seriously consider increasing our support services, including hiring an additional professional programs coordinator and a programmer to help streamline our processes.
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
Infant, Early Childhood and Family Mental Health Capstone Certificate Program

Term of First Enrollments
Fall Semester 2014

Check-In Completed By
Roseanne Clark, PhD, Linda Tuchman-Ginsberg, PhD, & Sarah Strong, LCSW

Date Completed
October 29, 2017

*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.

**Changes to Curriculum & Learning Outcomes:** The curriculum and learning outcomes for the Infant, Early Childhood and Family Mental Health Capstone Certificate Program have remained as originally approved. Prior to becoming a Capstone Certificate, this Program experienced 4 years of success as a Certificate Program with Continuing Studies that informed the basic structure/content of this Capstone. (See Figure 1, the Curriculum Map for this Capstone Certificate Program.)
### Typical Course Modalities:
All of the Capstone requirements are taken in residence, face-to-face at UW-Madison. Courses are held once a month for 3 days, September through May during Fall Semester (PSYCHIAT 712 & PSYCHIAT 713) and Spring Semester (PSYCHIAT 715 & PSYCHIAT 716) of each academic year at the Department of Psychiatry, 6001 Research Park Blvd. Accommodations are provided for students to access up to 2 missed class session by viewing video recordings of classes that are stored on UW BOX. Also, students have the option to join their Reflective Mentoring Group (PSYCHIAT 713 & PSYCHIAT 716) by Zoom video/teleconferencing if needed due to extenuating circumstances. With enrolled students residing throughout Wisconsin, these are invaluable tools, especially during inclement weather, illness and/or other family commitments that working professionals with families must attend to.

### Course Evolution Based on Feedback:
Based on feedback from students, the Program Review and Planning Committee and Program Directors as well as review of new research and resources in the field of parent-infant/early childhood mental health, clarifications and revisions have been made to strengthen the curriculum in addressing the program’s core principles-Cultural Sensitivity and Responsiveness, Ethical Decision-Making, Trauma-Informed Practices,
Relationship Based Practices and Reflective Practices. For example, the course content was restructured to more deeply integrate content related to cultural sensitivity and responsiveness throughout all aspects of the curriculum to better reflect the diversity of families served by the members of the class and the growing diversity of the class members. (See Appendix A: Growing Our Reflective Capacities for an illustration of the foundational curriculum concepts.)

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.

**Learning Outcome Assessment Plan and Evaluation of Student Learning:** The Capstone proposal included an extensive Assessment and Review Plan which has been carried out over the first 3 years of implementing this Capstone Certificate Program. There are multiple means for assessing student learning through course assignments. This includes a *Pre- and Post-Assessment of Competencies* that has been administered each year prior to Fall Semester and at the end of the Program in June. The preliminary analysis of the Pre- and Post-Assessment changes in summarized in Appendix B. This includes data from the Pre- and Post-Assessment of Knowledge and student’s retrospective perceptions about their growth in: a) use of Reflective Practices and Strategies, and b) use of Mindfulness strategies and practices into their work as a result of participating in the Capstone Certificate Program. There is strong evidence of an increase in knowledge Pre-to Post-Assessment with all p-values .002 or less.

Other course assignments including written Assessment and Intervention Reports, an Infant/Family Observation Experience, completion of 5 Newborn Behavior Observation Assessments, and a Final Integrative Project Poster demonstrate students’ applications of course content. When students earn their grades for this Capstone Certificate Program courses, it documents that they have completed their applied assignments and demonstrated evidence of their learning in this Capstone Certificate Program. To capture the stories heard by Program Directors about the numerous ways that graduates have used the new knowledge, skills and experiences that they gained from participating in this Capstone Certificate Program, a long-term follow along survey will be sent to the students from each of the first 3 classes during the winter of 2018. This survey will continue to be sent to future graduates on a rolling basis at least one year after graduation.
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 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.

**Balance teaching loads and responsibilities:** The key faculty/staff for this Capstone have a portion of their FTE committed to carrying out responsibilities for this Capstone Certificate Program. This includes .20 FTE for Roseanne Clark, PhD, Faculty Director, .25 FTE for Linda Tuchman-Ginsberg, Co-Director, PhD, .50 FTE for Sarah Strong, LCSW, Associate Director, and .50 FTE for Lynn Sankey, BS, Program Coordinator. With the hiring of the New Associate Director, Dr. Clark is able to provide leadership to this Capstone Certificate Program and balance her teaching, research, outreach and clinical consultation service to the community as well as other administrative responsibilities. All staff have additional responsibilities on other Departmental projects. However, the activities of this Capstone are cyclical over the year. Knowledge of these cycles is useful in balancing the work load of faculty/staff around responsibilities for other Programs. The Reflective Mentors/Consultants assist in ensuring adequate staffing. Advance notice and coordinated planning, minimizes challenges in workload balance.

**Shared Assets Between Programs and Benefits:** This Capstone Certificate Program has been instrumental in launching three new continuing education initiatives: The Wisconsin Child-Parent Psychotherapy Training Program, Wisconsin Parent-Infant/Early Childhood Mental Health Consultation Training Initiative, and DC:0-5 Training. These new programs help identify new students for the Capstone Program, bring in new resources and provide continuity in staffing by adding FTE to Capstone staff. These enhancements suggest benefits to adding programs that outweigh the challenges of managing multiple projects.

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.

**Faculty Commitment:** Roseanne Clark, PhD is committed to the continued success of this Program. Since the inception of this Certificate Program, a twelve-member Annual Review and Planning Committee Meeting has been held in July with the faculty and staff and key stakeholders, including the Program Directors as well as the Reflective Mentors, Reflective Clinical Consultants, Mindfulness teacher, UW Instructional Staff and the Executive Director of
the Wisconsin Alliance for Infant Mental Health. Six are graduates of the Certificate Program. At this meeting, the team is provided with information to respectfully and critically review in order to identify Program strengths and areas for improvement in the upcoming year’s program. Program Directors intend to continue this Annual Review and Planning Committee Meeting.

**Reflections from Faculty and Staff:** See Appendix C.

**Program Implementation Supports the Department/SMPH Strategic Goals:** This Capstone strategic goals by training leaders in the field through implementing, evaluating and disseminating an innovative professional development program that advances the integration of scientific developments with clinical care models, promotes public health policy and advocacy and aspires to social responsibility. This Program supports the Department’s mission of training, mental health and health professionals to recognize, diagnose and treat people with mental illness across health care settings by increasing the focus on the well-being of the youngest, most vulnerable children and their families. Drs. Clark and Tuchman-Ginsberg are seeking to illuminate the contributions of Mindfulness and other contemplative practices to growing the capacities of parent-infant/early childhood mental health professionals to be reflective and compassionate.

**Operations and Administration**

5. **Illustrate 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.**

**Enrollment of New Students:** The enrollment in this Capstone Certificate Program has remained steady over the first 4 years and meets or exceeds the number proposed in the Capstone proposal of 25-30 students. Below is the enrollment by year along with the percentage of students who have been awarded this Capstone Certificate. The Program has an impact in Wisconsin as supported by the Enrollment Map (See Appendix D) that shows the distribution of students in Wisconsin by county.

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>Number of Students Enrolled</th>
<th>Number of Students Awarded the Capstone</th>
<th>Percent (%) of Students who Have Completed the Capstone</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014-2015</td>
<td>29</td>
<td>25</td>
<td>86</td>
</tr>
<tr>
<td>2015-2016</td>
<td>31</td>
<td>26</td>
<td>84</td>
</tr>
<tr>
<td>2016-2017</td>
<td>31</td>
<td>8*</td>
<td>87 Projected by 8/2018**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28 Projected**</td>
<td></td>
</tr>
<tr>
<td>2017-2018</td>
<td>26</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

*10 additional students are eligible to be awarded the Capstone Certificate in December 2017 (i.e., have had grades submitted).

** 5 additional students are expected to complete their work by December 2017; and 3 more by August 2018, bringing the total to 28 (87%).

Faculty/staff provide ongoing support to students who need additional time to complete assignments during the year following course completion to assist them in earning the Capstone. Students report they have found the time useful for integrating and consolidating what they learned into their practice.

Program Directors anticipate that enrollment will continue to be steady over the next several years, while also exploring ways to increase enrollment. The Program Directors are aware that increased enrollment in non-pooled programs, including Capstone Certificate Programs is a priority for UW-Madison. One priority for new outreach is to continue to increase the diversity of the students enrolled in this Capstone Certificate Program. While there has been growth in the diversity of students enrolled in this Program over the first four classes, it is important to grow the workforce of parent-infant/early childhood professionals who reflect the diversity of families served in the field. This includes outreach to traditionally under-represented students by race, ethnicity, language, sexual orientation, socio-economic status and gender, including men who are underrepresented in these professions.

**Overlap with Other Programs:** The proposal for this Capstone Certificate Program indicated that there were no overlaps with other UW-Madison campus programs. That continues to be the case. The Directors have tracked that no new UW Programs address the uniquely focused niche of this Capstone Certificate Program in the field of Infant, Early Childhood and Family Mental Health.
6. Funding Considerations

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

b. For non-pooled programs – Provide a brief summary of projected vs. actual revenues and expenses. Does the program have 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.

Summary of Projected vs. Actual Revenue and Expenses: Over the course of this Capstone Certificate Program, the projected and actual revenues and expenses have been stable. This has primarily been due to the stability in enrollment over the 4 first four classes and the Program’s success in generating funds to assist most students with tuition costs. However, Program Directors are concerned about the 10% fee assessed by the Division of Continuing Studies for the past 2 years, and even more so about the potential for that amount to increase. These reductions in revenues and potential increases in tuition may cause challenges to the fiscal sustainability of this program over time, unless new sources of revenue are generated.

Sufficient Enrollment for Sustainability: This capstone will continue to be sustainable with enrollments in the targeted range of 25-30.

Market Outlook Compared to Original Study and Plans: The market outlook continues to be positive given the number of applications received each of the first 4 years. The number of key stakeholders who assist with outreach and recruitment has increased to include:

- Wisconsin Department of Children and Families/Child Welfare
- Wisconsin Department of Health Services/Birth to 3 Program
- Milwaukee County Health and Human Services/Birth to 3 Program
- Wisconsin Office of Children’s Mental and the Infant/Toddler Policy Committee staffed by this State Office

Plans to Grow or Change the Program to Become Sustainable: It is a priority of the Program Directors to explore new sources of revenue so that the Program can accommodate the market of potentially interested students. The Program Directors are scheduled to meet with Katherine Duren, Associate Dean, Division of Continuing Studies before the end of 2017 to discuss strategies for growth and ongoing support, including outreach and marketing. A UW Foundation account has been established for this Capstone Certificate Program to generate scholarship funding. While some funds have been raised, there is a need to work with the UW Foundation to identify strategies to increase donations.
7. If the program admits international students, describe how program processes address length of stay visa issues, online course restrictions, and needing ESL services.
   NA to date.

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

This Capstone Certificate Program has been very successful to date. There are few programs across the national that fill this unique workforce need to prepare professionals in the field of Parent-Infant/Early Childhood Mental Health. Dr. Clark’s contributions to the field, including this Capstone Certificate Program are recognized nationally and even internationally. As long as faculty/staff continue to be successful in raising funding to assist students with tuition, we anticipate long-term sustainability of this Capstone Certificate Program that is dedicated to advancing the well being of people in Wisconsin and potentially beyond. It is very helpful that Capstone Certificate Program students will likely have access to Federal Financial Aid again in the near future.

Appendices:
   Appendix A: Growing Our Reflective Capacities
   Appendix B: Summary of Data Demonstrating Evidence of Student Learning
   Appendix C: Reflective Comments from Reflective Mentors, Reflective Consultants and Instructional Staff
   Appendix D: UW Infant, Early Childhood and Family Mental Health Capstone Certificate Program: Enrollment by Wisconsin County - 2014-2018
Appendix A: Growing our Reflective Capacities

Throughout your experience in the Capstone Certificate Program there will be many opportunities to develop your own reflective capacities.

Some aspects of the program and content may at times result in surprising emotional reactions in ourselves. This may occur throughout the Program including class lectures and discussions, Mindfulness class and practice, Infant/Family Observations, reflective parts of assignments, journaling, Motivational Interviewing, work with clients, case-based presentation and specific readings. Content or process may activate our own insecurities, traumatic experiences or distress about our own experiences of being parented OR concern about our parenting. This can result in a parallel process that may contribute to how we respond to parents and caregivers which then may affect how they respond to their infants/young children. We may encounter ethical dilemmas and cultural, racial or ethnic differences and/or unconscious biases that may evoke emotional responses in us that are important to become aware of.

As difficult or challenging moments occur for you throughout the year, allow yourself to experience and know what is emerging for you, feel free to bring these up in your Reflective Mentoring Group, in Mindfulness and/or come talk with one of us. We all have experienced intense moments of anxiety in this challenging and rewarding work.

Becoming more reflective about our own internal experiences allows us to experience with more clarity in working with the difficult and primitive emotions that may arise for parents/caregivers with infants and young children. It allows us to be more present and trauma-informed with the families with whom we work, to consider the meaning and context of their behavior, to truly hear and see them, and to witness, validate and hold in mind the adverse experiences they may have encountered.

Mindfulness provides space to manage difficult feelings without judgment and with great kindness and compassion for ourselves and others, not just a space to find calmness. In the course of the self-examination that is a part of this deeper exploration, you may experience some suffering in memories and/or emotions that surface, particularly related to our own experiences of being parented, in parenting our own children and/or wishing to become parents. This is expected and is an important and essential part of the journey.

We invite you to...
- Be fully present
- Embrace courageous self-reflection and compassionate self-awareness
- Engage in self-examination
- Sit with emotions that at times may feel "almost intolerable"
- With greater awareness of your own own experience, join with and choose how you might best respond to parents and caregivers with more openness and reflective exploration.

Finding your own supports in this work will be helpful. They may include...
- Your Reflective Mentor and Mentoring Group members as a safe place to hold and examine some of the responses
- Journaling
- The Program Directors and other fellows in this program
- Colleagues and your personal support system
- Therapeutic work to examine your own “ghosts in the nursery” and to further develop self-awareness and compassion for yourself

Resources
5 Practices from Thich Nhat Hanh, a Vietnamese Buddhist monk who has brought mindfulness practice to the west, on healing medicine and nurturing happiness: http://www.lionsroar.com/5-practices-for-nurturing-happiness/
- Letting Go
- Inviting Positive Seeing
- Mindfulness-based Joy
- Concentration
- Insight
Growing Our Reflective Capacities
Appendix B: Summary of Data Demonstrating Evidence of Student Learning

1. This table includes a summary of changes in student’s knowledge and competencies from Pre- to Post-Assessment.

<table>
<thead>
<tr>
<th>Year</th>
<th>Pre &amp; Post</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014-15</td>
<td>Pre</td>
<td>19</td>
<td>74.6%</td>
<td>4.2%</td>
<td>.010</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>26</td>
<td>83.1%</td>
<td>4.3%</td>
<td>.008</td>
</tr>
<tr>
<td>2015-16</td>
<td>Pre</td>
<td>39</td>
<td>70.4%</td>
<td>12.6%</td>
<td>.020</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>29</td>
<td>79.8%</td>
<td>6.8%</td>
<td>.013</td>
</tr>
<tr>
<td>2016-17</td>
<td>Pre</td>
<td>37</td>
<td>75.3%</td>
<td>6.5%</td>
<td>.011</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>26</td>
<td>80.3%</td>
<td>5.4%</td>
<td>.011</td>
</tr>
</tbody>
</table>

NOTE: Because the data was not paired, this test assumes independence, which may bias the variance; nevertheless, there is strong evidence of an increase in knowledge pre to post. (all p-values are .002 or less).
2. This section includes a summary of Pre- and Post-Assessment data on student’s retrospective perceptions about their growth in: use of Mindfulness strategies and practices (Table 2), and b) use of Reflective Practices and Strategies in their Work (Table 2) as a result of participating in the Capstone Certificate Program.

<table>
<thead>
<tr>
<th>Table 2: Retrospective Student Perception of Their Growth in Use of Mindfulness Practices and Strategies as a Result of Participating in the Capstone Certificate Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Post-Assessment Mean Score by Year</em> (1 min-7 max)</td>
</tr>
<tr>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td>Mindfulness Strategies: Breathing and Dropping In</td>
</tr>
<tr>
<td>Before</td>
</tr>
<tr>
<td>After</td>
</tr>
<tr>
<td>Regular Mindfulness Meditation Practice</td>
</tr>
<tr>
<td>Before</td>
</tr>
<tr>
<td>After</td>
</tr>
<tr>
<td>Loving Kindness Practice</td>
</tr>
<tr>
<td>Before</td>
</tr>
<tr>
<td>After</td>
</tr>
</tbody>
</table>
Table 3: Retrospective Student Perception of Their Growth in Use of Reflective Practices and Strategies as a Result of Participating in the Capstone Certificate Program

<table>
<thead>
<tr>
<th>Post-Assessment Mean Score by Year (1 min-7 max)</th>
<th>2014-2015 N=28</th>
<th>2015-2016 N=32</th>
<th>2016-2017 N=26</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidence in Engaging in Reflective Practice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before</td>
<td>3.1</td>
<td>3.2</td>
<td>3.6</td>
</tr>
<tr>
<td>After</td>
<td>6.3</td>
<td>6.0</td>
<td>6.1</td>
</tr>
<tr>
<td>Use in Reflective Practices in Your Work Environment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before</td>
<td>2.7</td>
<td>2.9</td>
<td>3.7</td>
</tr>
<tr>
<td>After</td>
<td>5.7</td>
<td>5.6</td>
<td>5.8</td>
</tr>
<tr>
<td>Use of Reflective Practices with Families</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before</td>
<td>2.6</td>
<td>3.0</td>
<td>3.3</td>
</tr>
<tr>
<td>After</td>
<td>5.7</td>
<td>5.6</td>
<td>5.8</td>
</tr>
<tr>
<td>Confidence in Providing Reflective Supervision and/or Consultation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before</td>
<td>2.3</td>
<td>2.5</td>
<td>2.8</td>
</tr>
<tr>
<td>After</td>
<td>5.8</td>
<td>5.2</td>
<td>5.0</td>
</tr>
</tbody>
</table>

All changes were significant at p < .005
Appendix C: Reflective Comments from Reflective Mentors, Reflective Consultants and Instructional Staff

Jen Perfetti, LPC, staff in Dr. Clark’s lab wrote the following about being a Reflective Mentor, Reflective Clinical Consultant, Instructor and Graduate of the Certificate Program in 2010. The Infant, Early Childhood and Family Mental Health Capstone Certificate Program has been an integral part of the advances made in addressing the mental health needs of families with young children throughout our state. The interdisciplinary nature of the program leads to conversation and engagement across fields, offering new perspectives and range of approaches in supporting families. Fellows of the Capstone program make incredible changes over the course of the year in relationship based assessments and interventions, understanding of critical contextual factors such as culture, poverty and history of relational trauma, and their own development as providers through reflective practice and mindfulness. Fellows are supported on many levels throughout this growth and learning, from the program directors, to their reflective group mentors, to individual consultants, to the peer support they develop with each other. From this foundation Fellows have gone on to integrate what they have learned to impact their workplaces and communities in better supporting the mental health needs of infants, young children and their families.

Jen Perfetti, LPC, IMH-E® (IV)
Clinical and Professional Development Coordinator
Parent-Infant Mental Health Programs
Department of Psychiatry
UW School of Medicine and Public Health
Madison, WI

Kathleen Hipke, PhD, Reflective Consultant, Instructor and Graduate of the Certificate Program in 2010 shared the following.
This Capstone Certificate Program has woven together various types of learning, including the experiential, to help fellows move from an intellectual understanding of infant mental health concepts in their work to application in ways that lead to better insight about complex families, collaboration and outcomes. They, in turn, report less burnout in what is extremely challenging yet important work with families often struggling with poverty, trauma and mental illness. Importantly, this energy for new learning is often brought back into their agencies where they initiate new projects and training for their co-workers, thus further contributing to the 'ripple effect' of the Capstone program for Wisconsin.

Kathleen Hipke, PhD, IMH-E® (IV)
Clinical Psychologist
SSM Health Care Medical Group
Madison, WI
Anne Heintzelman, MS, Reflective Consultant, Instructor and Graduate of the Certificate Program in 2010 wrote the following.

I believe that as a result of completing the Capstone Certificate Program, the individuals I have mentored are viewed quite differently in their workplaces and by the families with whom they work. Each of my mentees has shared with me that administrators and colleagues have commented that they have a new confidence in infant and early childhood development. As they put a relationship-based approach into their practice with families, they find that their work is much more satisfying and effective, and that families report that they are learning a great deal about their children and themselves as parents. Each of my mentees has become an advocate for providing a more relationship-based approach to service to families within their agencies, and several have extended their advocacy work into their communities through outreach. Many of our trainees have gone on after the capstone to pursue an enhanced clinical practice including infant mental health concepts, and presented their work at our state-wide conference.

Anne Heintzelman, MS, CCC-Sp, IMH-E® (III)
Waismann Center – Emeritus
Madison, WI

Janna Hack, LCSW, Reflective Consultant and Instructor noted the following.

I am continually amazed at the feedback I hear from students regarding how life changing this program has been for them, completely changing the way in which they work with infants, toddlers, young children and their families. The curriculum not only provides the most current research and practices in the field, but also provides multiple opportunities to deepen their learning through reflection, mindfulness, movement, and experiential learning. Students are also often commenting on the supportive environment that really allows them to be successful in their learning. At the end of the year, when we have the opportunity to hear the students integrative project it is clear the depth of which they have taken the content and applied it to their work and to their communities. This program has created a cadre of infant mental health professionals across settings and across the state.

Janna Hack, LCSW, IMH-E® (IV)
Infant Mental Health Consultant
Peaceful Beginnings
Madison, WI

Samantha Wilson, PhD, Reflective Consultant, Teaching Faculty and Graduate of the Infant, Early Childhood and Family Mental Health Certificate Program 2011, noted the following.

The Capstone Program fills a critical need within Wisconsin. From the well-curated content, to the professional interactions with established national experts, to the cultivation of interdisciplinary collaboration and integrated thinking, the Capstone Program provides vital, foundational experiences to promote the healthy development of Wisconsin’s youngest children and their families.

Samantha Wilson, PhD, IMH-E® (IV)
Associate Professor of Pediatrics
Division of Child Development at the Medical College of Wisconsin
Milwaukee, WI
Appendix D:
UW Infant, Early Childhood and Family Mental Health Capstone Certificate Program: Enrollment by Wisconsin County 2014-2018

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Students Enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014-2015</td>
<td>29</td>
</tr>
<tr>
<td>2015-2016</td>
<td>31</td>
</tr>
<tr>
<td>2016-2017</td>
<td>31</td>
</tr>
<tr>
<td>2017-2018</td>
<td>26</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>117 Students</strong></td>
</tr>
</tbody>
</table>

---

Number of Students Enrolled in the UW Infant, Early Childhood and Family Mental Health Capstone Certificate Program by Year:

- 2014-2015: 29
- 2015-2016: 31
- 2016-2017: 31
- 2017-2018: 26

Total: 117 Students
Memo

To: Marty Gustafson

From: David Eide

Date: October 31, 2017

Re: Three-Year Check-In of Capstone Certificate in Clinical Nutrition programs

Please see the attached Three-Year Check-In document for the Capstone Certificate in Clinical Nutrition and Capstone Certificate in Clinical Nutrition – Dietetic Internship programs.

If you have questions or concerns, please contact me.

Sincerely,

David Eide, Ph.D.
Professor and Chair
Department of Nutritional Sciences
University of Wisconsin-Madison
1415 Linden Drive
Madison, WI 53706
608-263-1613 (office)
608-262-1118 (lab)
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
Capstone Certificate in Clinical Nutrition (CCCN) and Capstone Certificate in Clinical Nutrition-Dietetic Internship (CCCN-DI)

Term of First Enrollments
CCCN: 1144 (Spring 2014)
- Year 1 (Spring ’14 – Fall ’14)
- Year 2 (Spring ’15 – Fall ’15)
- Year 3 (Spring ’16 – Fall ’16)
CCCN-DI: 1156 (Summer 2015)
- Year 1 (Summer ’15 – Spring ’16)
- Year 2 (Summer ’16 – Spring ’17)
- Year 3 (Summer ’17 – Spring ’18)

Check-In Completed By
David Eide, PhD, Professor, Chair, Program Director
Makayla Schuchardt, MS, RDN, CNSC, Program Manager

Date Completed
10/31/17

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.
Capstone Certificate in Clinical Nutrition (12 credits)
The Capstone Certificate in Clinical Nutrition (CCCN) is awarded at the completion of 12 graduate credits. All courses within the CCCN program are 100% online and include a variety of course modalities such as individual and group assignments, quizzes, role play activities, case studies, and a combination of asynchronous and synchronous learning opportunities (e.g. discussions, lectures, and office hours). No changes have been made to the program's learning outcomes. The program is structured as follows:

**Summer Session**
NS 652 (3 credits) Advanced Nutrition Counseling and Education
NS 651 (3 credits) Advanced Clinical Nutrition – Pediatrics

**Fall Semester**
NS 650 (3 credits) Critical Care and Nutrition Support

**Spring Semester**
NS 653 (3 credits) Clinical Nutrition Research

Capstone Certificate in Clinical Nutrition-Dietetic Internship (18 credits)
The Capstone Certificate in Clinical Nutrition-Dietetic Internship (CCCN-DI) is awarded at the completion of the 12 graduate credits within the CCCN and an additional 6 credits from NS 670/671: Nutrition and Dietetics Practicum 1 and 2. These courses include 1200 hours of face-to-face learning and hands-on patient care within a clinical residency, in addition to both synchronous and asynchronous learning via assignments, journal clubs, and case studies. No changes have been made to the program’s learning outcomes. The program is structured as follows:

**Summer Session**
NS 652 (3 credits) Advanced Nutrition Counseling and Education
NS 651 (3 credits) Advanced Clinical Nutrition – Pediatrics

**Fall Semester**
NS 650 (3 credits) Critical Care and Nutrition Support
NS 670 (3 credits) Nutrition and Dietetics Practicum 1

**Spring Semester**
NS 653 (3 credits) Clinical Nutrition Research
NS 671 (3 credits) Nutrition and Dietetics Practicum 2

Curriculum changes
NS 650: Critical Care and Nutrition Support was initially offered in the summer session and NS 652: Advanced Nutrition Counseling and Education was offered in the fall session. Based on feedback from dietetic interns, dietetic internship preceptors, and course instructors, NS 650 is now offered in fall and NS 652 is offered in summer. This change was made because it is valuable for the dietetic intern to learn more advanced counseling and education techniques prior to the start of their clinical residency – NS 670/671.

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.
The CCCN and CCCN-DI Assessment Plans were approved by the Department of Nutritional Sciences faculty on May 5, 2017. Makayla Schuchardt, program manager, and Katie Butzen, graduate coordinator, are responsible for program assessment. Student learning goals are met through a variety of required coursework. Assessment planning is completed via several direct assessments. A review of assessment information is completed annually at a meeting of the executive committee for the online programs. The committee reviews learning outcomes, enrollment information, course completion, and course evaluations. Please see tables below for progress on student learning goals for the first 3 years.

**Student Learning Goals – CCCN**
1. Apply concepts of advanced-level nutrition skills to provide patient care and counseling.
2. Synthesize the latest research in clinical nutrition.
3. Demonstrate capability to complete graduate-level work.

<table>
<thead>
<tr>
<th>Method for assessing learning</th>
<th>Performance on videotapes counseling scenario on “Counseling Patients with Chronic Disease” in NS 652.</th>
<th>Performance on final projects in NS 653 (research proposal and online presentation).</th>
<th>Performance on final comprehensive case study in NS 650.</th>
<th>Performance on final comprehensive case study in NS 651.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timetable for assessment</td>
<td>Year 1 (Fall 2014)</td>
<td>Year 2 (Spring 2015)</td>
<td>Year 3 (Fall 2016)</td>
<td>Year 3 (Summer 2016)</td>
</tr>
<tr>
<td>Outcomes</td>
<td>85% of students earned a B or higher.</td>
<td>67% of students earned a B or higher.</td>
<td>100% of students earned a B or higher.</td>
<td>70% of students earned a B or higher.</td>
</tr>
</tbody>
</table>

**Student Learning Goals – CCCN-DI**
1. Apply the study of metabolic demands of critical illness and how these alterations influence the nutritional needs of critical care patients.
3. Assess research articles and solve clinical nutrition problems using research and analysis.

|------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|

Ver. 3 6/23/17
<table>
<thead>
<tr>
<th>Timetable for assessment</th>
<th>Year 1 (Fall 2015 – Spring 2016)</th>
<th>Year 2 (Fall 2016-Spring 2017)</th>
<th>Year 3 (Fall 2017 – Spring 2018)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcomes</td>
<td>100% of students received a grade of B or better in their Critical Care/Nutrition Support rotation.</td>
<td>100% of students received a grade of B or better in the above rotations.</td>
<td>TBD</td>
</tr>
</tbody>
</table>

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 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.

Instructors in the CCCN participate in instruction in the certificate program and also in the online Master of Science in Clinical Nutrition (MS-CN) program. The specific and dedicated role these instructors play in these programs ensures that we meet our needs without placing challenges on instruction in our undergraduate or on-campus graduate programs. The coordinator of the CCCN, Makayla Schuchardt, also participates in undergraduate teaching but a portion of her appointment (0.65 FTE) is provided to serve as coordinator. The CCCN does place some burden on student advising and this is borne by staff who also advise in our undergraduate program. Thus far, we have had the staff capacity to meet these additional demands. The existence of the capstone has greatly facilitated the establishment of our new MS-CN program by providing some of the core courses as well as the expertise in teaching in an online environment. This has been an invaluable asset in MS-CN development. Finally, instruction in the certificate is supported by tuition revenue so it has not placed a financial burden on the department.

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.

The CCCN has the full commitment of the Department of Nutritional Sciences. This post-baccalaureate certificate program serves to provide additional education to students seeking to become Registered Dietitians. The training of RDS through our undergraduate program in dietetics has been a major purpose of our department since its inception and, therefore, this capstone serves our strategic goals very well. The CCCN coordinator and its instructors are valued members of the Department of Nutritional Sciences and are no less important to our mission than any other member of our faculty and staff. Beyond the CCCN coordinator, oversight of the program is provided by the same governance structure that oversees all other departmental programs. Modifications to the program are presented as motions at department meetings where they are voted on by faculty and staff. In this way,
the CCCN is provided with the best possible advice and oversight to maintain its continued success.

**Operations and Administration**

5. Illustrate 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.

The CCCN and CCCN-DI programs have brought a total of 87 new students to the Department of Nutritional Sciences. Enrollment in the CCCN-DI program is limited to the number of available internship positions offered through UW Hospital. The current dietetic internship class capacity is 15 students; however, this will increase to 20 students in 2019.

Both programs have been instrumental in the successful development and launch of our 30-credit, on-line, “non-pooled” Master of Science in Clinical Nutrition degree (MS-CN). The program is needed to meet the expansion of knowledge/skills required of clinical nutrition practitioners and impending changes in the requirements to become a Registered Dietitian Nutritionist (RDN) that will require a master’s level degree starting in 2024. The program has had a very strong start with its inaugural admission cycle – fall 2017. The DNS has already surpassed initial year one-enrollment goals by 50% by admitting a total of 30 students in the fall 2017 class. Applications for year one enrollment will also be accepted prior to November 1st for a spring 2018 start and March 1st for a summer 2018 start. The total enrollment in year one could potentially reach as high as 50 students in the MS-CN program (250% of our initial projection of 20 students). Given the growth of our MS-CN program, we do predict that numbers in the CCCN will remain steady or slightly decrease because students will enroll in the MS-CN program instead.

<table>
<thead>
<tr>
<th>Program</th>
<th>Year</th>
<th>Enrollment Dates</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCCN</td>
<td>1</td>
<td>Spring 2014 - Fall 2014</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Spring 2015 - Fall 2015</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Spring 2016 - Fall 2016</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Sub-Total</td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>CCCN-DI</td>
<td>1</td>
<td>Summer 2015 – Spring 2016</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Summer 2016 – Spring 2017</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Summer 2017 – Spring 2018</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Sub-Total</td>
<td></td>
<td>39</td>
</tr>
<tr>
<td>CCCN + CCCN-DI</td>
<td>3 Year Total</td>
<td></td>
<td>87</td>
</tr>
</tbody>
</table>

6. **Funding Considerations**
a. For traditional/pooled programs – How is the program successfully funding its students? 
n/a

b. For non-pooled programs – Provide a brief summary of projected vs. actual revenues and expenses. Does the program have 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.

For the fall and spring semesters, revenues have exceeded projections. The CCCN-DI has brought stability to those semesters. For the summer semesters, it started with revenues exceeding projections and trended towards an increasing imbalance between projected and actual revenues. There are numerous reasons for this. Fewer dietetic interns took the courses than expected and the CCCN was less competitive due to the creation of numerous online Master’s programs in nutrition and is not price attractive. Also, the Department of Nutritional Sciences was not able to provide the attention to marketing it wanted to due to the tremendous energies needed to develop the MS-CN. That said, at all times, both programs were able to meet its operating expenses as well as provided funds for course development for the MS-CN. The Dietetic Internship will provide stability to the CCCN-DI. The CCCN program, while not having many students, will provide a niche demand and it is possible that some niche discovered could spur growth. It should be noted that since these are shared courses with the MS-CN, there are not any adverse financial impacts associated with maintaining either Capstone program in the future.

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

International students who need a F-1 or J-1 visa to legally study in the United States are not eligible to apply for the CCCN or CCCN-DI programs. If the student is already in the United States on another visa type (e.g. J-1 scholar, J-2 dependent, HIB) they are eligible for admission. If an international student plans to continue to live outside of the United States during the CCCN program, they are eligible to apply. We make it very clear to these applicants that we are unable to provide international students with a F or J visa to study in the U.S.

Students who are admit to the CCCN-DI program are required to have completed a Didactic Program in Dietetics that is accredited by the Accreditation Council for Education in Nutrition and Dietetics. These programs are all English as a first language programs.

The Division of Continuing Studies offers a variety of resources for students through their English Language Program (ELS).
8. Are there any issues impacting the program’s long-term sustainability? If so, what support would you like to help you succeed?

**CCCN-DI**
The long-term sustainability of the CCCN-DI program is viewed as very optimistic. The program will be increasing from a maximum of 15 to 20 students starting in 2019. Acceptance into a Dietetic Internship program remains a very competitive process. In the past four years, the national match rate has been 50% due to the shortage of available internship spots. We anticipate the demand for the CCCN-DI program will remain high.

**CCCN**
The CCCN program is anticipated to have steady or slightly declining enrollment due to the start of the MS-CN program in Fall 2017. There are not any adverse financial implications associated with maintaining the CCCN due to the shared coursework with the MS-CN program. Our energy has been focused on the launch and growth of the MS-CN program in order to support the Chancellor’s charge for 131 programs in growing new audiences. Any assistance with marketing and recruitment from the University will help support the growth of all non-pooled programs.
Dear Dean Karpus,

Thank you for your letter dated June 20, 2017, reporting on the 10-year review of the Graduate Program in Population Health by the Graduate Faculty Executive Committee. The review noted the many strengths of our program, but also expressed some concerns. Below we provide itemized responses to these concerns:

- ……the GFEC requests that the program develop a plan to provide students with an annual written assessment and provide it to the Graduate School by November 1, 2017, for implementation in the upcoming academic year.

**Plan for providing Population Health students with annual written assessments:**

At present advisors meet every semester with students in the pre-thesis or pre-dissertation stage to discuss course work, and plans for qualifying and preliminary exams. A signed form is returned to the Graduate Coordinator. For dissertators, the dissertation committee meets every year and provides feed-back to students. In light of the above comments from GFEC, we will tighten and formalize these processes and institute a requirement for annual written assessment of students as follows:

1. Starting in Spring of 2018, a Student Review Committee consisting of 4 faculty members and the Graduate Program Coordinator will be appointed to review coursework, grades, funding and research progress for all students. The committee will include the Director of the Graduate Program, the Chair of the Admissions Committee, the Chair of the PhD Qualifier Committee and a rotating member who is a faculty member advising PhD students.

2. All students will be required to prepare Individual Development Plans (IDPs) and submit to the Graduate Program Coordinator as well as to their advisors. The IDP will include information on financial support and a summary of student research progress and activities (such as publications and abstract presentations at meetings). The Graduate Program Coordinator will supplement the IDPs with grade rosters and information on preparing for and passing exams, and make the information available to the Student Review Committee.

3. The Student Review Committee will provide a brief report to each graduate student advisor, summarizing how the student compares to other students in terms of (a) Progress, depth and breadth of course work, with special consideration of whether the student is on her/his way to fulfill degree requirements and career goals. (b) An assessment of whether the student is well prepared for the next step exams, such as qualifying exam or Preliminary Examination. (c) Comments on funding and potential career opportunities. A brief form will be developed to standardize this summary, which will address student shortcomings as well as recognize achievements and point out opportunities for career growth.
4. Advisors will combine the review committee's summary with the IDP and their own observations, meet with the student and provide a written review together with the plan for course work and/or research for the following semester and year. For dissertators, the review will also include comments from the annual meeting of the student's dissertation committee.

- The GFEC also concurs with the review committee’s recommendation that the program should work with the School of Medicine and Public Health to create a sustainable plan for replacing faculty members that will maintain a critical mass of educators and mentors for the graduate program.

The Dean's office is in final negotiations with the candidate selected for Chair of Population Sciences. We are currently awaiting the results of these negotiations.

- Data from the Graduate School identified the Ph.D. program’s low rate of completion compared to its peer institutions, with roughly 1/3 of students leaving after receiving a Master's degree. The committee believes that an investigation into the reasons for this attrition would be beneficial. Even though reasons or leaving can be individual, systemic issues may be discovered. Therefore, we ask that the program investigate why students are leaving the Ph.D. program and report its findings to the GFEC by November 1, 2017.

**Analysis of completion rate and plan of action:**

UW-Madison Academic Planning and Institutional Research reports a 62.5% 10-year completion rate for PhD students in Population Health versus 78.4% at peer institutions in the AAU. However, if we compare our program with some closely related programs at UW-Madison, our 62.5% PhD completion is similar to or higher than that in several related programs, while the 78.4% at AAU programs in Population Health is out of line with AAU data for other programs. (see below table).

<table>
<thead>
<tr>
<th></th>
<th>Population Health</th>
<th>Sociology</th>
<th>Economics</th>
<th>Clinical Investigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>UW-Madison</td>
<td>62.5%</td>
<td>62.9%</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>AAU peers</td>
<td>78.4%</td>
<td>66.5%</td>
<td>53.4%</td>
<td>64%</td>
</tr>
</tbody>
</table>

An inquiry to the UW-Madison Academic Planning and Institutional Research regarding definition of the AAU peer group for Population Health brought the following response:

This match was done at the four-digit CIP code level, as there was only one other institution that submitted directly to the 51.2208 CIP, and we require three or more institutions to make a comparison. The 51.22 four-digit CIP is considered “Public Health”, broadly, and you can browse the CIP Codes that are included in that here: [https://nces.ed.gov/ipeds/cipcode/browse.aspx?y=55](https://nces.ed.gov/ipeds/cipcode/browse.aspx?y=55)

Browsing the link shows that our code 51.2208 is defined as “Community Health and Preventive Medicine” and that our peers range across 11 codes from “Public Health Education and Promotion” to “Health Services Administration”, “Health/Medical Physics”, and “Occupational Health and Industrial Hygiene”. It, therefore, appears that the comparisons in the table above may be more relevant.

Nonetheless, we take the issue of drop-out very seriously. Our actions have included the following:

1. We reviewed all the PhD students who dropped out after matriculation 2011-2017 both individually and statistically.

(a) On the individual level, we found a mixture of circumstances leading to drop-out, such as failing the qualifying exam, childbirth and moves to be closer to family. One circumstance that stood out was the loss of some residents and medical fellows. We, for example, have policies in place to automatically
admit MD/PhD students and certain residents and fellows already accepted in clinical programs. While many of these students excel in course work and research for the MS or PhD, a few are not adequately prepared, especially for the quantitative aspects of our program. Others are recruited away for faculty positions at other Universities before they can finish their PhDs.

(b) On the statistical level, we did not find any differences in admission characteristics between those who dropped out from the PhD and those who completed. Perhaps this is not surprising, as our admissions criteria have been quite strict and well defined in recent years.

(c) Our analysis did find that students who dropped out tended to earn B’s in several core courses prior to drop-out. We therefore expect that the student review process outlined in 1 above may have a positive impact on PhD completion by more systematically identifying students who are not on a satisfactory trajectory and require more intense mentoring.

(d) We reviewed several reports of research on PhD drop-out. Some factors such as gender (women have higher non-completion, and most PH students are women) and being a foreign student (higher completion) are difficult to address. However, it has been consistently found that student confidence in their abilities and strong mentoring increase completion rate. Again, our steps in student review and feedback outlined above have the potential to reduce drop-out.

2. We considered the fact that Population Health does not exist as an undergraduate major. Hence, we need to ensure that applicants to the program understand quantitative and other expectations.

Finally, we would like to note that we also have 3-4 MS students every year who switch from the MS to the PhD either in Epidemiology or in Population Health. Also, the MS in Population Health is a very employable and valued terminal degree.

- The GFEC is also concerned with limited first-year funding for students in the program. While the current organizational structure places some constraints on the ability to obtain training grants which can be used to fund the first year of a student’s program, GFEC recommends that the program develop alternative approaches to provide first-year funding to the students.

We are very interested in obtaining training grants that can support our first year students. Recently an application to the Agency for Health Care Research and Quality population health training grant with John Mullahy as PI was submitted, and we are alert to other similar opportunities.

Starting in the next admissions cycle, we will make a point of reviewing funding opportunities earlier in the admission cycle, so that offers can be made as soon as students are admitted. As almost all admitted students end up receiving support, this is a matter of timing and of a more systematic mapping of what types of student are sought by funded PH Program faculty, institutes and research programs.

- Finally, given that the department now offers an M.S./Ph.D. in Epidemiology, the committee questions the need for the named option in “Epidemiology” in the M.S./Ph.D. in Population Health. The GFEC would like the department to explore alternative paths for training students in epidemiology, such as a doctoral minor or series of courses that would serve students equally well with less administrative burden.

We welcome future discussion with Graduate School of alternative approaches and how administrative burden can be reduced. As of now, the Epidemiology option has served our students very well. We have especially heard positive feedback during employment seeking. We would also like to point out that the epidemiology PhD option has requirements beyond the typical minor, such as 4 required courses, having an epidemiology faculty advisor.
and having an epidemiology related research topic. On the other hand, the option requires less undergraduate biology and calculus preparation than the Epidemiology degree. We therefore feel that the epidemiology option in the Population Health graduate program serves a special purpose.

We will be happy to provide further information as needed regarding the above issues.

Sincerely,

Maureen Durkin, Ph.D.
Professor and Interim Chair, Department of Population Health Sciences
School of Medicine and Public Health
University of Wisconsin

Mari Palta, PhD
Professor and Director of Graduate Programs, Department of Population Health Sciences
School of Medicine and Public Health
University of Wisconsin

Cc: Robert Golden, School of Medicine and Public Health
Richard Moss, School of Medicine and Public Health
James Keck, School of Medicine and Public Health
Andrea Poehling, School of Medicine and Public Health
Quinn Fullenkamp, Department of Population Health Sciences
Jocelyn Milner, Office of the Provost
Sarah Kuba, Office of the Provost
Parmesh Ramanathan, Graduate School
Marty Gustafson, Graduate School
Emily Reynolds, Graduate School
23 May 2017

TO: Sarah Mangelsdorf, Provost  
    Bill Karpus, Dean of the Graduate School

FROM: Kathryn VandenBosch, Dean, CALS

CC: Bill Tracy, Chair, Department of Agronomy  
    Jocelyn Milner, Director, Academic Planning and Institutional Research  
    Sarah Kuba, Associate Academic Planner, APIR  
    Sarah Pfatteicher, Associate Dean for Academic Affairs, CALS

RE: Program Review of Agronomy BS-MS-PhD

We are pleased to report that the College of Agricultural and Life Sciences has completed the first stages of the program review for the Agronomy bachelor’s, master’s of science, and doctoral degrees (program code ALS 054). The self-study prepared by the program and the report of the review committee are attached to this memorandum. We share these materials with you, along with the assessment of our Academic Planning Council that the program should continue.

The CALS APC met on April 18th and again on May 2nd to hear from Prof. Jiwan Palta, who chaired the review committee, and from Prof. Bill Tracy, the chair of the Agronomy Department. APC discussion continued on May 16th and the review was unanimously accepted as complete on that date, with comments and recommendations to ensure the future strength and resilience of the program, as outlined below.

As noted by the review committee and echoed by the APC, the academic programs in agronomy benefit from a strong, engaged, and active faculty, undergraduate and graduate students who report overall satisfaction with their experience in the department, and good job opportunities at graduation. The review committee’s concerns were primarily focused on addressing the low enrollments in these programs (noting that this review did not include consideration of Agroecology, nor Plant Breeding & Plant Genetics, both of which have more robust enrollments and strong engagement by Agronomy faculty), although some attention was also paid to program rigor and coverage, and to graduate recruiting, mentoring, and community-building. I encourage the department to consider all of the review committee’s recommendations, but note here several of particular significance.

The report and the APC discussion included an emphasis on ensuring that undergraduate students are prepared to continue on to graduate education should they choose to do so. In order to serve their full array of students, the department has chosen to focus on ensuring preparation for graduate school through enhanced advising for students interested in that route rather than...
through curricular requirements that would apply to all students regardless of career path. After a hiatus in which advising was not enforced, pre-registration advisor holds are again being placed on all students to ensure these conversations are occurring. The APC was satisfied with this response, particularly given other curricular revisions under discussion, as described below.

The most significant recommendation from the review committee was to consider developing a multi-departmental, joint program in production agriculture at both the undergraduate and graduate levels, to build on the current student interest and employer demand, while taking advantage of shared resources across other small majors in the college. I am pleased to note that discussions are already underway at the undergraduate level and include representatives from Agronomy and Horticulture as well as Entomology, Plant Pathology, and Soil Science. The group has opted to focus first on the undergraduate program, leaving the graduate program as is for the moment. (I note that ensuring graduate-school readiness has already been a key topic in these discussions.) I have asked Associate Dean Sarah Pfatteicher to join these discussions to advise the group on campus procedures and to support continued progress in this promising direction.

As noted in the review, the existing graduate program would benefit from attention to developing a department-wide sense of community and engagement and should revise and update the graduate handbook. In addition, the committee recommended including the student services coordinator in the departmental curriculum committees, even if as a non-voting member, to benefit from the role the coordinator plays in translating the curriculum to students and in bringing student perspectives to bear on curriculum planning evolution. I believe these are all steps that can and should be taken in the near future.

We look forward to working with campus leadership, GFEC, and the UAPC on the next stage of this review.
Agronomy Department Review Summary and Recommendations

Review Committee: Caitlyn Allen, William Hickey, Jiwan Palta (Chair) and Nicole Perna (GFEC representative)

Review Process

The committee was charged by CALS Senior Associate Dean Richard Straub to review the Academic Teaching Programs (BS, MS and PhD) of the Department of Agronomy. The Agronomy Department had provided a self-study document for this review. The committee reviewed this document and additional information prepared by the Graduate School as well as Data Support Packet content from three peer programs (Horticulture, Plant Pathology and Soils) in the UW Graduate School. The committee requested additional information on the current courses taught by the Agronomy Faculty and the placement of alumni based on first as well as current positions held by former graduate students. The requested information was prepared and supplied to the committee. The review committee held meetings, on September 22 and October 6, with various individuals and groups in the Agronomy Department including undergraduate and graduate students, curriculum and graduate studies committee members, research staff (including Post-Doctoral Associates), student services coordinator, administrative assistant and department chair (Appendix 1).

Overall Summary and Recommendations

Areas of Strength

Faculty members have great strength and are actively engaged in teaching and research in diverse areas of plant sciences. The faculty members are well recognized especially in the areas of molecular biology and genetics. In addition to Agronomy, they contribute actively to both research (graduate training) and instruction in the Plant Breeding and Plant Genetics as well in the Agroecology two of the very successful graduate programs in CALS.

The graduate students in Agronomy rate their overall experience as very good. The students feel they are well supported and guided by the faculty.

Agronomy Department has an active undergraduate program. Current enrollment is higher than the three peer programs.

Both undergraduate and graduate students are successful at finding good job opportunities. These programs fulfill important needs of the production agriculture industry. The time to graduation is consistent with peer programs and CALS as a whole.

Areas of Concern
Agronomy Department has a small graduate program with only seven students currently enrolled. Only five faculty members serve as graduate student dissertation advisor with a primary focus on production agriculture. There is shortage of graduate courses taught in the area of production agriculture especially in weed science and crop physiology. There is shortage of FTEs engaged in teaching and mentoring student research in production agriculture. In its present state the Agronomy Graduate Program may not be sustainable.

The graduate students in the department do not feel a sense of community. There are no departmental seminars or activities that bring the graduate student together on a regular basis. The graduate student handbook needs updating. Specifically, the manual should clearly layout the milestones students need to achieve on the path to graduation. For example, it should explain when and how graduate students compose their research committee.

There is a shortage of undergraduate courses being taught in the production agriculture especially in crop physiology, weed science and cropping systems.

Because of a lack of strong science requirements for BS in Agronomy, including organic chemistry, organic chemistry lab, physics and calculus, the students after graduation are not ready for graduate programs in Agronomy.

**Recommendations**

The Agronomy Department together with Horticulture (and perhaps Soil Science and Plant Pathology) should develop robust graduate and undergraduate programs in production agriculture. Many such programs exist at other institutions under the names of Crop Science, Plant Science, Crops and Soil Science. The Horticulture Department has also very few graduate students and similar to Agronomy these students are interested in production agriculture and these students have good opportunities for jobs in the industry and academia. Utilizing a larger pool of FTEs a combined program could enhance course offering, graduate training and program activities. At the undergraduate level this program should develop a track that prepares students for pursuing graduate studies. The review committee feels strongly that such a combined program would be more sustainable.

Develop and teach courses in production agriculture especially in the areas of weed science, crop physiology and cropping systems.

Offer a regular weekly seminar in production agriculture. In addition provide other activities for students to get together outside the class room.

The student services coordinator should serve as an ex-officio on the departmental curriculum and graduate studies committee to ensure consistency and provide proactive administrative response.

Revise and update undergraduate and graduate handbooks.
Establish an undergraduate track that prepares students for graduate studies.

**Graduate Education**

**Curriculum: Course offering and faculty available; strengths and gaps**

The Agronomy Department provides opportunities in broad areas of graduate education including weed science, crop production and management, plant breeding and genetics as well as plant physiology and biochemistry. The faculty members have great strength as well as keen interest both in teaching and research in several of the areas mentioned. The faculty is well recognized especially in the area of molecular biology and genetics. However, the graduate students with interest in these areas opt to major in Plant Breeding and Plant Genetics, an inter-departmental program well recognized nationally and internationally for graduate training. Many of the faculty members strongly contributes to teaching of courses and guiding graduate students in Agroecology, a very successful program training students with MS degrees. Most graduate students in Agronomy Department at present are interested in production agriculture research. Only five faculty members currently serve as graduate student dissertation advisors in Agronomy.

There are very few graduate level courses taught in the department. A strong need was expressed for having additional graduate level courses in Agronomy. Many of the courses especially in weed science and crop physiology have not been taught for some time. Both students and faculty identified weed science and plant physiology as the areas of concern in terms of course offering as well as gaps in additional faculty members needed. Some students indicated lack of courses linking statistics with production agriculture. There seems to be overlap and lack of coordination among various graduate courses. Course offering and timing doesn’t appear to be coordinated between Agronomy, Horticulture and Plant Breeding and Plant Genetics. Students wished that Agronomy /Stat 771 and 772 were offered every year so students could take these courses at appropriate time.

**Graduate Students: Recruitment, funding, advising, expectations, learning goals and carrier opportunities**

There is no centralized recruiting process in the department. Students apply to individual faculty and the faculty makes decision on acceptance. In the last ten years only one MS (2% of the total) and none PhD degrees have been granted to the domestic targeted minorities in the Agronomy department. This is similar to Horticulture department but lower than the Dairy Science and Soil Science departments. In the last ten years the graduate degrees granted to international students were 12%, 6%, 11% and 44% in the departments of Agronomy, Horticulture, Soil Science and Dairy Science respectively. A more active centralized recruiting process would help in recruiting domestic targeted minorities.

The graduate students in Agronomy rate their overall experience as very good. They indicated that the faculty and university reputation attracted them to UW-Madison. The students feel they are well supported and guided by the faculty. They are happy with the research staff and facilities for research.
The faculty involves students in the broader research and extension activities and offer them support to attend to attend scientific and industry meetings. The faculty is helpful in connecting the students to the potential employers.

The Agronomy Graduate Program is relatively small in terms of the graduate students trained and number of graduate courses (at 500 and above level) offered. In the last ten years 10 PhD and 36 MS degrees have been granted in Agronomy. In the last five years (2012-2016) 3 PhD and 13 MS degrees were awarded in Agronomy. These numbers are similar to Horticulture Department with similar graduate training emphasis in production agriculture. While some faculty members expressed support for the graduate program in Agronomy others thought a broader graduate program in production agriculture could be more sustainable.

The students do not feel a sense of community. Even though there are only seven graduate students currently majoring in Agronomy they did not seem to know each other. There are no departmental seminars or activities that bring these students together on a regular basis. Students wished there were more departmental seminars. They would like to see a mandatory seminar that brings the students together on a regular basis. There is a Monday noon journal club organized by the Plant Science Graduate Council. Students wished that more faculty members would actively participate in this activity. Although the students generally felt that the departmental staff was very helpful, they indicated that the onboarding process for the incoming students needs improvement. The expectations and requirements are not clear. The graduate student handbook needs updating. There are not many set requirements for the graduate program. The requirements are tailored to each student’s research project that are recommended by the certification committee. Advantages of this flexibility are offset by student’s confusion over requirements. Additional advising in the early stages of graduate studies should be considered.

Agronomy graduate students (MS and PhD) have a high potential for employment in the crop production industry immediately following graduation. This not true for the basic sciences graduate students in plant sciences that must have several years of post-doctoral experience before finding a permanent position in academia or industry. Thus, while the Agronomy graduate program may be relatively small, but based on employment metrics the department is very successful. The faculty feels that granting a degree named Agronomy may not be as important as the presence of graduate students with interest and background in addressing issues of production agriculture. This training helps the students to secure employment in the industry. The Agronomy graduate program is focused on training students to address the problems facing production agriculture. The faculty feels that it is easier to train student, who understand production agriculture, to do molecular biology than the other way around.

**Undergraduate Education**

**Curriculum: Course offering and faculty available; strengths and gaps**
The undergraduate enrollment in the Agronomy Department has increased 2.7 fold in the last 10 years, from 18 students in 2006 to 48 in 2015. Current enrollment and degrees granted in Agronomy are greater than Horticulture, Soil Science and Plant Pathology. In addition to serving its majors several undergraduate courses serve the needs of students from other departments including the departments of Dairy Science, Soil Science, Plant Pathology and Entomology. In general the faculty is doing a good job at teaching and advising students.

The Agronomy Department offers one undergraduate degree option: a Bachelor of Science degree with a major in Agronomy. Reflecting the strong strengths of the faculty members there is good course offerings in breeding, genetics, biotechnology and agroecology. However, there is a lack of courses in production agriculture including crop physiology, weed science and cropping systems. Students expressed strong need for courses in weed science and crop physiology. Students also expressed need for courses with hands-on learning experience. The students wished for a research-based capstone course and a semester-long practical course. The only beginning course, Agronomy 100, has laboratory exercises, which students appreciate. Some students do get practical experience through independent studies and internships.

For most students enrolled in the program it is the terminal degree. There are good job opportunities in various sectors of agricultural industry that employs agronomists (with a BS degree in Agronomy). Thus the major serves very important needs of the agricultural industry.

In the self study document it is stated “The agronomy major serves as an excellent foundation for student interested in pursuing advanced studies in agronomy, plant biotechnology, breeding genetics, crop management and protection, agroecology, or sustainable agriculture”. However the students with a major in Agronomy are not required to take a number of courses that are considered necessary for seeking admission to graduate program including physics, organic chemistry and calculus. Thus students getting a BS degree with a major in Agronomy at UW-Madison are not ready to go for graduate studies.

Research staff

The research staff interviewed included individuals with post-doctoral positions as well as academic staff (Assistant Scientist). All expressed a high level of satisfaction with their work in the Department of Agronomy. The research staff did not express any concerns regarding the Department of Agronomy, and none were otherwise identified by the Evaluation Committee. The greatest concern expressed by the staff was the uncertainty of future permanent employment following the completion of their work in the Department of Agronomy, which was purely a reflection of the job market. The research staff spoke highly of the mentorship they received from their faculty supervisors, in terms of both their guidance of current work and assistance in career development.

All those holding post-doctoral positions indicated that they had developed Individual Development Plans consistent with NIH guidelines in conjunction with their faculty advisors. These were voluntary
efforts as none of the post-doctoral positions were NIH-funded. All of the staff indicated that they had opportunities to mentor undergraduate students, most often in association with Biology 152 projects that students were undertaking in the labs if the faculty supervisors. The undergraduates were a diverse group, and ranged from those majoring in Agronomy to Biomedical Engineering. The research staff also had opportunities to advance their experience in formalized instruction through participation in classes offered by the faculty advisors and/or through activities coordinated by the Delta Program.
This visualization was created by the Graduate School. Questions should be directed to Peter Kinsley, peter.kinsley@wisc.edu.
October 23, 2017

To: Sarah Mangelsdorf, Provost and Vice Chancellor for Academic Affairs

From: Ian Robertson, Dean of the College of Engineering

Re: Final Summary of the Program Review for the Environmental Chemistry and Technology Graduate Program

The Environmental Chemistry and Technology (ECT) Graduate Program review was completed by a review committee chaired by: George Huber, Professor of Chemical and Biological Engineering, with members: Steve Loheide, Associate Professor, Civil and Environmental Engineering, Christopher Rutland, Professor, Mechanical Engineering, and Nicole Perna, Professor of Genetics.

The review committee was charged with assessing the strengths and weaknesses of the program and recommendations for future directions. The College of Engineering APC discussed and approved the review committee report on October 18, 2017. Based on my review of their report and the APC response, I am providing the following executive summary of the program review:

Overview

Strengths of the ECT Program include a strong multi-disciplinary program that trains students in applying chemistry to environmental and engineered systems, graduate students who are very satisfied with the program and engaged with faculty, graduates who have gone on to academic positions, and faculty who are research active.

Weaknesses of the ECT Program include no full-time full professors, facilities that are in need of renovation, facilities that are geographically located far from the engineering campus, and a lack of administrative support and limited engagement from senior faculty that raise program sustainability concerns.

Recommendations

We recommend developing a strategic plan through Civil and Environmental Engineering and the dean’s office about the sustainability of resources that the ECT program will have available. This strategic plan should address how to increase the ranks of senior faculty associated with the
program, especially in the area of air quality, and identify viable future program directions. We also recommend developing plans to renovate facilities, integrate the facilities into the engineering campus, and resolve conflicts in shared laboratories.

Attachments
Review Committee Report

Copies:
James P. Hurley, Graduate Program Chair, Environmental Chemistry and Technology Graduate Program
George Huber, Professor of Chemical and Biological Engineering
Jocelyn Milner, APIR
Bill Karpus, Graduate School
Sarah Kuba, Associate Academic Planner, Academic Planning and Institutional Research
Marty Gustafson, Assistant Dean for Academic Planning and Assessment, Graduate School
Jake Blanchard, Executive Associate Dean, College of Engineering
Darryl Thelen, Associate Dean for Research and Graduate Affairs, College of Engineering
Laura Albert, Assistant Dean for Graduate Affairs, College of Engineering
Review Committee Members

- George W Huber, Professor, Chemical and Biological Engineering (Chair)
- Steven P Loheide, Associate Professor, Civil and Environmental Engineering
- Christopher Rutland, Professor, Mechanical Engineering
- Nicole T Perna, Professor, Genetics (Graduate Faculty Executive Committee Representative)

Review Process

1. After reviewing the material sent by the ECT department the committee prepared a list of questions about the ECT program and an agenda for the ECT meeting. The committee met in person on August 25th and had a more in-depth discussion about the ECT program. The committee sent this list of questions to ECT on August 25th.

2. On August 28th the committee visited the Water Science and Engineering Laboratory and toured the facility. The committee met first with Christopher Worley (the only staff in the ECT program). Then the committee met individually for 45 minutes with Professors James Hurley (ECT program chair), Matthew Ginder-Vogel (assistant professor) and Christina Remucal (assistant professor). Professor Hurley has a 25% appointment in ECT. Professor Ginder-Vogel and Remucal are the only two full time core faculty (defined as faculty who have 100% appointments in ECT) in this program at the time of the interview. A third core full time faculty (Greeshma Gadikota) was starting as an assistant professor in September and was not interviewed. Professor James Schauer, who has recently started a new position as the director of the Wisconsin State Laboratory of Hygiene, was also not interviewed. Professor Schauer has a 10% appointment in ECT. In addition, there are nine additional faculty affiliated with the ECT program. All the faculty have their full time tenure homes in other departments (primarily CEE). After meeting with the core faculty we then met with 1 MS student and 5 PhD students in the program.

3. We had a meeting on September 26th with Professor David Noyce the department chair of Civil and Environmental Engineering (CEE).

Overview of the program

The Environmental Chemistry and Technology (ECT) program offers both MS and PhD degrees. The program was established in 1962 as the Water Chemistry program. The focus of the program was to provide training for graduate students in
the application of chemistry to aquatic systems. In the 1960 and 70s this program
grew rapidly due to environmental concerns about pollutants in the aquatic system.
Several of the graduates in the program went on to positions in academia and
government environmental regulatory agencies. In the 1990s the program expanded
their research focus to other environmental problems and identified air pollution
chemistry as a priority. The program then changed their name to the Environmental
Chemistry and Technology program. The program fills a unique niche of the
analysis of applied environmental chemistry problems in both natural and
engineered systems. The faculty and graduate students that we interviewed felt that
this was the only program where their unique skill set (including analytical
chemistry, air chemistry, water chemistry, soil science modeling, and environmental
technology) could be utilized to solve applied environmental problems.

The program is part of the CEE Department and is housed in the Water Science and
Engineering Laboratory (near Memorial Union). ECT currently has three full time
core faculty: Matthew Ginder Vogel (assistant professor), Christina Remucal
(assistant professor) and Greeshma Gadikota (assistant professor). There are two
part time core faculty: James Hurley (25% appointment) and James Schauer (10%
appointment). There are 9 other affiliate faculty in the program. These affiliate
faculty have their core homes in chemistry, CEE, CBE, soil science, geoscience and
biological systems engineering, and in the Wisconsin State Laboratory of Hygiene.
Three core faculty retired from 2007-2011. In 2017 one core faculty member (James
Schauer) became head of the Wisconsin State Laboratory of Hygiene now having
only a 10% appointment in ECT. The strategic plan is to hire one more full time
faculty member in the next two to five years.

From 2012-2015 the program awarded 7 PhD and 3 MS degrees. In 2015 the
program has 13 PhD students and 2 MS students with a projected plan that this
number will grow to 20 in 2016/17. Two thirds of the graduate students are women
in the program. Most of the graduate students we interviewed had BS degrees in
chemistry from smaller colleges. Of the graduates from 2005-2016 46% are in
academia 22% are in the private sector 14% are in public sector agencies and 11%
are in non-profits. The starting salary after graduate school ranged from $50,000-
70,000 for 58% of the graduates.

The program has one full time staff member (Christopher Worley) who helps with
facilities, safety and running the laboratory that is paid 50% on soft money.
In 2010 the ECT program was ranked by the National Research Council with Civil, Biological Systems and Environmental Engineering Departments. Three programs at UW were included in this ranking including ECT, CEE and Geological Engineering. Out of 130 programs ECT was ranked between 11-43 based on the S-ranks. Using research criteria (which includes publications, citation rates and grants), ECT was ranked between 5-30. For the US News and World Reports graduate rankings the ECT programed is combined with the CEE department in the Environmental Engineering programs. In the latest US News and World Report ranking the environmental engineering at UW Madison was ranked 12th.

ECT Strengths
1. This program fills an important societal need in environmental chemistry. The program is multi-disciplinary and has a good breadth of application. The program provides a good bridge for science students who want to apply chemistry knowledge to environmental and engineered systems. The program also allows other faculty, outside ECT, who have interests in environmental chemistry to become affiliates, mentor graduate students, and collaborate on environmental issues.
2. A large number of graduates have gone onto academic positions. Most go onto teach at smaller colleges, while others have gone on to positions at Research 1 institutions (Berkeley)
3. ECT faculty are publishing at a higher rate and have more citations than other CEE faculty.
4. The graduate students are genuinely excited about this program and receive attention from the faculty. The graduate students felt a strong sense of community in this program. Most feel connected with the faculty and to each other (but see concerns below about whether this extends beyond participants in the core building).
5. There have been no major safety incidents. The building manager knows about past safety issues and trains the students in the building. SOPs and CHPs are up to date (according to building manager).
6. The two assistant professors are publishing, receiving grants and doing well in their field.
7. The graduate students get real world training on state of the art analytical tools for environmental testing of air and water. Some of this occurs through connections that the faculty have with both on- and off-campus research programs, agencies and facilities such as the State Laboratory of Hygiene. New analytical tools and sensors are being developed and utilized in this program for air and water testing.
8. The program provides graduate classes in environmental chemistry that are important to other graduate programs including CEE, CBE, and chemistry. Twenty five non-ECT graduate students and 34 undergraduate students took ECT graduate classes in 2016-17. The 5 ECT graduate classes had a total enrollment of 83 students.

ECT Program Concerns
1. This program has no full-time full professors. Full professors were replaced by assistant professors and one full professor recently left the program.
2. There is a perceived lack of administrative support by ECT faculty. There is no full time administrative support in the water chemistry building. The faculty do get administrative support from CEE. (According to the CEE department chair) Faculty in ECT get the same administrative support as other CEE faculty. The staff in CEE are all located in Engineering Hall.
3. The facilities are very old. There has been some recent renovation of the graduate student area. There are additional plans to continue to renovate the buildings and laboratories. This renovation is being funded by CEE and the College of Engineering.
4. There is confusion about the graduate handbook for the ECT program. Graduate students expressed some confusion about several of the rules required for graduation. ECT uses the CEE handbook for academics, WSEL and tracking forms for meetings with APC. There is a lack of support for putting together a graduate handbook specifically for ECT students. None of this information is available electronically to the students.
5. ECT lacks a mechanism by which it can request the hiring of new faculty directly if a critical need arises. Rather, the strategic hiring plan for the program is tied to that of CEE, which may or may not perceive the same needs as the ECT program faculty. CEE needs to continue and augment efforts to ensure ECT program faculty and students feel fully integrated into the department given their distributed locations, recent leadership changes, and preponderance of junior faculty.
6. On the laboratory tour there were some minor safety violations which represent a relaxed safety culture. Some students not wearing proper eyewear in laboratories. The building laboratory manager wore shorts. The laboratory manager did not enter any laboratories with shorts.
7. The facilities are a 15-20 minute walk from the rest of the engineering campus. This department is isolated from the rest of Engineering. This can cause
problems when seminar speakers come and when engineering students want to take ECT classes.

8. The median time to a PhD degree was high (6.5 years in 2013, 6.4 years in 2014, 5.0 years in 2015 and 7.0 years in 2016). It should be noted that prior to this time period the median time to a PhD was 4.4 years. [ECT’s note: Though limited data on recent years was provided by a source other than our self-study, the ten-year median time to a Ph.D. is not high. It is 4.4 years and a full year shorter than our peer institutions. The additional data provided to the committee gives the appearance of 7.0 years as the norm. That was due to limited graduates in 2014-16 (reflecting faculty retirements and transition). Since our report, three Ph.D.’s have been awarded (students of Remucal and Ginder-Vogel), averaging 4.6 years to completion.)]

9. There are concerns about the sustainability of this program. If more senior faculty do not become involved and more administrative help is not given to this program it is possible that successful junior faculty will leave for other programs.

10. The program’s written program level learning goals are primarily a restating of the graduate school’s minimal expectations and not specific to the ECT program. There is no assessment plans. (ECT response: Program concern 10 (p. 4) is not warranted by the information provided to the committee. Our faculty developed an extensive Ph.D. assessment plan and has reported twice on our outcomes (Nov. 2016 to Grad School; Sept. 2017 to Engineering). The Ph.D. assessment plan was provided in the self-study appendices and contains details of our learning goals and our assessment, with details down to the course level. Perhaps the committee received a plan from UW Engineering that was developed for us as a template, but our detailed EC&T-centric learning goal assessment plan was submitted to the Graduate School in June 2016.)

11. Students not housed in the Water Science and Engineering Laboratory are physically separated from the majority of the students in the program and are not as connected with the program.

Recommendations
1. This program should increase its ranks at the senior professor level. The program has no full-time full professors. They should especially consider the area of air chemistry, now that Jamie Schauer currently has a 10% appointment in the program.

2. The program should make a graduate handbook or make sure all there students are aware of the CEE graduate handbook. The graduate students were confused
about the requirements for this program. (Currently the ECT academic planning committee is drafting a student handbook.) The program should consider developing more specific program level learning goals and an assessment plan.

3. The program should develop a clear strategic plan through CEE and the dean’s office about the sustainability of resources that they will have available.

4. A clear plan is needed about the facilities for this program. How will they raise the funds for a new building or renovating a building? How will they be integrated into the engineering campus? The water chemistry building is in a very beautiful location next to Lake Mendota and Memorial Union. However, it is far from the engineering campus and the chemistry building. The program should take measures to ensure that ECT faculty and students remain connected across facilities, and with CEE.

5. All the laboratories are shared. There is no clear plan about facility rules and ownership. This is likely to cause conflict in the future.

6. The program should work through a self-evaluation exercise and determine viable future directions. For example, it would seem promising to expand to become a multi-disciplinary hub for campus wide water initiatives.

7. The program should strive to decrease the median time to a PhD to 5 years. They should put policies in place that will help the graduate students be more successful (in publications, presentations) in a shorter time. (ECT’s note: Given the information provided above, Recommendation 7 (p. 4) has been met for the ten-year window (4.4 years) and in the current track of Ph.D.’s since the report has been submitted (4.7 years).)
Applicants, Admits and New Enrollments

This visualization was created by the Graduate School. Questions should be directed to Peter Kinsley, peter.kinsley@wisc.edu.
This visualization was created by the Graduate School. Questions should be directed to Peter Kinsley, peter.kinsley@wisc.edu.
Students with an Appointment of 33% or Higher

This visualization was created by the Graduate School. Questions should be directed to Peter Kinsley, peter.kinsley@wisc.edu.
PhD Time-to-Degree Metrics, Peer Comparison

Select UW-Madison Program
Environmental Chemistry and Technology

Select Time-to-Degree Metric
Time at UW-Madison as a Doctoral Student

Time-to-Degree Metrics
- UW-Madison (Years)
- AAU Peer (Years)
- AAU Peer (Years)

This visualization was created by Academic Planning and Institutional Research (APIR), Office of the Provost, UW-Madison. Questions should be directed to Sara Lazenby, sara.lazenby@wisc.edu.
May 17, 2017

To: Provost Sarah Mangelsdorf and Dean Bill Karpus, Graduate School

From: Paul Robbins, Director, Nelson Institute

Subject: Director’s Response to the 10 Year review of the Transportation Management Program (TMP) Certificate

We are very pleased with the thorough and thoughtful review of our Transportation Management and Policy certificate and commend the committee for its excellent work. The review committee was chaired by Prof. Kurt Paulsen presently in the Dept. of Urban and Regional Planning (URPL). There are two major conclusions: 1) they believe that the certificate serves a useful purpose and should be continued; 2) to continue, it will be necessary to find a new home for it. We endorse both recommendations.

The status of the TMP certificate in brief: Until recently, the certificate was substantially underwritten by a large multi-year center grant from the U. S. Department of Transportation for which Prof. Teresa Adams was the principal investigator. She also served as academic chair for the certificate. A renewal proposal to extend the funding was unsuccessful, and as a result the resources available for the certificate dropped significantly. At present there are somewhere between two and six students in the program. Prof. Adams, for various reasons, has indicated that she is no longer able to continue as chair. This means that it will be necessary either to cancel the certificate or, as the review suggested, to find a new home for it.

It should be noted that the willingness of Nelson to part with the certificate is not because we do not value it. Issues surrounding transportation management and policy have profound consequences for the environment and solutions to its problems must be found in an interdisciplinary context. In a recent discussion in the Nelson APC, strong support for the continuance of the program was expressed by the Nelson faculty member most familiar with the program. She emphasized that the program has served its student well, with graduates going on to take responsible and well remunerated positions. At the same time, it was recognized that the centers of academic interest in transportation management, especially with respect to technical matters, are mostly in other units.

In considering the future of the program, colleagues in URPL see TMP fitting perfectly with the strategic goals for their new merged department and have indicated a willingness to take on its management. They further emphasized that they do not want the program to be suspended.
because they wish to begin to rebuild it as soon as possible. They have already identified students interested in signing up for the certificate and have given assurances that they are prepared to take on advising and student oversight as soon as their departmental merger is completed. In short, they suggest no hiatus in program oversight. There is also a possibility of a faculty hire in Planning with specific research interests in transportation; they could be expected at some time in the future to take on the position of program chair.

We therefore strongly recommend that the program be transferred to the new department of Planning and Landscape Architecture (PLA).

Following the procedures for the transfer of a program promulgated on 16 December 2016, we will proceed by taking the proposal to transfer to our Governance Committee at its first meeting in fall, 2017. In the event of a positive vote (likely), early in the fall semester, the Director’s office will submit a formal proposal to the Provost’s Office for a transfer of the certificate to PLA. We will use the summer to confer with our colleagues in the new department of Planning and Landscape Architecture and with Prof. Adams to assure that we have a strong rationale for the transfer.

We are submitting this review so as to complete the phase that is procedurally independent of the request for a transfer.

Best wishes,

Paul Robbins
Director

CC: Prof. Teresa Adams, Chair, TMP
CC: Prof. Paul Zedler, Associate Director for Research and Education, Nelson Institute
CC: Prof. Kurt Paulsen, Chair, program review committee
CC: Prof. Ken Genskow, Chair, Department of Urban and Regional Planning
CC: Jocelyn Milner, APIR
CC: Sarah Kuba, APIR
CC: Marty Gustafson, Graduate School
Date: March 15, 2017

To: Paul Robbins, Director, Nelson Institute

From: Program Review Committee for the Transportation Management and Policy graduate certificate program (TMP): Paulsen (Chair, Urban and Regional Planning (URPL)), Photenhauer (Mechanical Engineering and GFEC), Ahn (Civil and Environmental Engineering), and Gocmen (URPL).

RE: Report from the TMP Program Review Committee

As requested, the committee undertook a program review for the interdisciplinary graduate certificate program Transportation Management and Policy (hereafter TMP), currently administered by the Nelson Institute. The context for our review is different from traditional program reviews required of departments because TMP is a low-enrollment certificate program and because the governance and status of the certificate is currently uncertain, as detailed below. As a result, our review not only addresses issues required by the Graduate School and GFEC, but was subsequently tasked by Nelson administration with identifying possible governance strategies for continuation of the program.

Review procedure.
Our committee read the self-study materials and had a committee discussion as well an extended interview with Teresa Adams, the current program director. Because the list of faculty stakeholders with interest in the TMP program are scattered over many departments, we solicited feedback from identified faculty through a Qualtrics open-ended survey, inviting additional comments via email. (Faculty/staff were identified as either being listed on the current list of faculty governance of the program, previously on the governance faculty, in departments with significant enrollment in TMP and/or faculty/staff with identified interest/knowledge in the field of transportation.) We did not interview current students in the program because we were told there is currently only one student formally enrolled. Moreover, we did not conduct a “demand study” of potential enrollment through a survey or marketing effort of graduate students in the various contributing departments nor a survey of alumni. We believe that is not the duty of a review committee but rather of departments and/or programs. One of our recommendations (see below) is that the program should take stronger efforts to market the program to potential students, and should more regularly contact alumni.

1 Some of the persons surveyed may have been alumni of the TMP program as well.
**Status of Program.**
We first discuss the status of the certificate program because it is the most important issue based on recent events.

The TMP program was established in 2002 as the educational arm of CFIRE, The National Center for Freight Infrastructure Research and Education. CFIRE was, until recently, a Tier 1 University Transportation Center (UTC), where UW Madison was the lead university in a consortium of universities providing research and education in transportation. UTCs are funded by the US Department of Transportation (US DOT), and represent a high level of prestige and funding. The research funding associated with CFIRE’s designation as a UTC provided the source of funding for graduate students in TMP to work on CFIRE projects. Since 2002, 55 students have completed the certificate program, and most received funding through CFIRE.

The certificate program is formally housed in the Nelson Institute, but has been built, operated, maintained, and funded through CFIRE staff and faculty. As such, it currently has no actual costs to Nelson, other than a minimum amount of Nelson Student Services Coordinator and Graduate Advisor Jim Miller’s time. (Jim Miller estimates that TMP related activities take up no more than 10 hours per semester). Graduates of the program have taken on high-level positions of influence with top state and metropolitan transportation planning agencies and private consulting firms.

Unfortunately, CFIRE was not successful in its application for continued UTC funding from US DOT. As a result of this, some of the staff from CFIRE who administered the TMP program and advised students have left. The current TMP Program Director (and CFIRE Executive Director) Prof. Teresa Adams has indicated to our committee that she cannot continue to serve as TMP director because of the funding situation. Although Prof. Adams is interested in and willing to teach the 772 Practicum course in the future if sufficient enrollment obtains, she is not currently offering this course. Thus, for all practical purposes, the certificate program is currently in a state of uncertainty and new students are not being admitted, pending decisions on future governance.

Our review committee (and certainly those of us from URPL which has had the majority of TMP graduates) want to extend our heartfelt appreciation to Dr. Adams for her leadership and funding of the TMP program. Generations of planning, policy, engineering, and business students are making a difference in the real world because of her mentorship and leadership. She has run this program at no cost to participating departments for over 14 years. In our interview with her, she expressed deep love and appreciation for the program and hopes it can continue, but she is unable to be the main “champion” or funder at this time.
Absent a new “champion” to take over the TMP program, the certificate program cannot survive. Therefore, one purpose of this report is to outline some of the key strategic and governance issues that would be involved for a champion faculty member(s) and/or department(s) to reinvigorate the TMP program.

Our review finds that the greatest strength of the TMP program overall for the university has been its affiliation and sponsorship by CFIRE. CFIRE and Dr. Adams created the program, managed the program, advised the students, and funded the students. (The other main strength, as detailed below, is its inter-disciplinary nature).

**Costs and benefits of TMP**
Because the program would potentially need to be administered or governed by a different unit, it is worthwhile to outline the costs and benefits associated with the TMP program as currently structured. As the program is a small, interdisciplinary certificate program, the main “costs” involve some portion of a faculty member’s time to serve as director and teach required courses, and some amount of staff time to advise students, undertake marketing/recruitment, handle admissions, and ensure proper paperwork.

Exact costs are hard to estimate because the costs represented only a portion of people’s time. In terms of Dr. Adams time, she taught one 3-credit course per year in the program, EnvrSt 772 Practicum in Transportation Management and Policy. This course was considered as part of Dr. Adams’ regular teaching load within the Civil and Environmental Engineering Department. This course involved finding a real-world client or clients and supervising the students to work on applied problems for the client. Students would be assigned to groups of 1 to 5 students, and there were often multiple project groups in each 772 class. Although designed primarily for TMP students, there were occasional students from other departments who would participate in practica. If teaching of 772 Practicum were to continue as an essential group project for each TMP cohort (as we recommend it does), the cost for one or more “host” departments would be one course of a professor’s normal teaching load. Dr. Adams has indicated a willingness and interest in continuing to teach 772 if sufficient enrollment allows. Other options could entail utilizing 772 as part of the UniverCity program to undertake transportation related projects.

The other course unique to TMP is a 1-credit colloquium course EnvrSt 970. For this course, the topics change every semester and the 1-credit course is organized around a series of readings on a topic and/or multiple guest speakers (working professionals in the transportation field). This colloquium was previously taught by CFIRE academic staff members but has been taught recently by Dr. Adams. Dr. Adams indicated that
the colloquium course does not entail significant time expenditure and is enjoyable to teach.

All of the other courses available in the menu of TMP options (or utilized by students as substitutes) were courses already being taught in other departments and therefore constituted no actual additional costs.

Academic advising was usually handled by CFIRE staff with Dr. Adams signing off on the plan of study forms and internship letters. The amount of time staff spent on advising varied by number of students in the program. Staff would meet with students at least once a semester to review the plan of study form and help students design their curriculum to meet program requirements. Often, this involved helping students find substitute courses when menu options were not available. Most students in TMP were also employed on CFIRE projects, so the time involved was minimal.

Dr. Adams estimates that her time as program director at most entailed no more than 5 hours of her time per week during the most intensive times.

CFIRE staff also made a limited number of outreach visits to classes in urban planning and transportation engineering classes to talk about the program and recruit students.

The TMP program is a very limited cost program as currently structured. It has also always been a low-enrollment specialized program. For any department(s) which might take over management of TMP, costs would likely be limited to a few hours per week for a faculty member as academic program director and a commitment from staff (graduate coordinator) to process applications, monitor student progress, respond to student inquiries, undertake marketing/recruitment (with the faculty director), and undertake advising appointments with students. Time commitments would vary based on the number of students in the program.

**Assessment: Strengths.**

Our assessment of strengths is a result of our faculty/staff survey, our interview with Dr. Adams, our review of the self-study report and our familiarity with the program.

Our survey asked respondents to identify the main strengths of the TMP program. Here is a summary of responses:

“being introduced to real-world transportation issues and projects- expands beyond just the theoretical,” “Exposure to a wide breadth of transportation fields and careers,” “Helping students understand the way transportation decisions are made (and projects are moved forward) and how different jurisdictions interact"
with one another,” “It forces students to work with others coming to transportation from different academic backgrounds (policy, planning, engineering, public health, etc.), which is good preparation for work following graduate school,” “it is a helpful credential on the job market, especially for students from fields where they otherwise would have had limited exposure to transportation issues,” “Interdisciplinary training in a topic of importance to society,” “Environmental implications of transportation are huge,” “The group practicum project,” “Addresses clear need with a coherent program,” “Training students for the highly employable field of transportation,” “Connects with engineering, urban planning, air quality, weather prediction, economics, biofuels, etc. Ideal for a certificate program to strengthen other graduate programs,” “Diversified backgrounds of students, diversified approach to transportation that reflects its social, economic, safety, environmental and overall broad impact to society and health,” “Provides outstanding experience to students, makes them highly valuable in workforce.”

We concur. The interdisciplinary nature of transportation and future transportation problems requires students who understand how other disciplines work and how to work on multi-disciplinary teams. To take the two departments that have supplied the most students – Civil Engineering and Urban Planning – one of the great strengths of the program is that Engineers learn policy, planning, and finance (which they will need to be effective), and Planners learn the important technical and engineering skills which they will need to be effective.

From a student perspective, it appears that the flexible nature of the program (choosing from a menu of course options with the potential for approved substitutions) is also a strength of the program. And, the practicum course was mentioned multiple times as a strength of the program.

Those of us on the review committee who are in URPL (Paulsen, Gocmen) would also like to highlight a strength of the program as it relates to our department degree requirements. Students in the MS program in URPL are required to define (with their advisor) an “area of specialization” and design a program of at least 12 credits to fill this specialization. For TMP students, TMP becomes their specialization. Moreover, we require an internship (usually taken between the first and second year) and TMP also requires an internship. URPL TMP students may use the same internship to satisfy both requirements. A quick perusal of the list of URPL TMP grads indicates that many of them were able to utilize a high-quality internship as a springboard to high-quality employment.
Assessment: Areas for Improvement.

Our survey also asked respondents to identify the “main weaknesses” of the program, and they are summarized here:

“lack of numbers- the students gain the most by working with students from other academic disciplines than their own,” “… the focus seems so wide (from vehicular technology, to letting out highway projects for bid, to aviation, to law enforcement, to public health, private & public sector, etc.) that it can feel a bit shallow. On the other hand, this was a strength, in that it gives students broad exposure to the different aspects of the field,” “seems too driven by civil engineering faculty, it is important for planners and policy folks to help direct it as well,” “As an interdisciplinary certificate program it will always be somewhat fragile with faculty commitment to teach the required courses, financial resources to provide administration, and faculty champions to promote the program and actively develop a sense of community among the students,” “Low enrollment…”, “Lack of effective advertising, both to engage students and to recruit new faculty,” “Nelson Institute as administrator is a place of convenience, and not aligned with bulk of participants,” “The main weakness has been: 1) integration with existing degree programs; and 2) publicity,” “Many students - even working in transportation - hadn't heard of TMP. So a higher profile is needed to reach the potential audience of existing grad students on campus, and a much higher profile is needed to reach students who are considering UW-Madison and might choose UW if they were aware of TMP (which is a really unique and wonderful program),” “There were more required classes than other certificates - like EAP - limiting whether students could "add on" TMP very easily. I talked to quite a few students who were interested in TMP, but could not fit the classes into their degree,” “Not enough students, needs more rigorous rotation of emphasis areas.”

Our committee finds that the low enrollment and publicity issues are related. The program seems to have been designed as more of a niche program to fit the needs of CFIRE, and most of the TMP students were funded by CFIRE. We can see great strengths in that model: CFIRE funding was used a recruitment tool for TMP enrollment, and TMP enrollment often carried with it CFIRE funding. This kept the cohort small, but funded.

Our review takes no position on whether the required number of courses is too high, as mentioned by a respondent in comparison to the Energy Analysis and Policy (EAP)

2 Some comments are not reported verbatim here as those comments would be easily identifiable to the respondent.
certificate. Students are required to take one 3-credit course in each of the menu categories (technology/engineering, economics, policy/management, and environmental). We cannot imagine an interdisciplinary certificate in transportation with fewer categories of coursework. Students are also required to take 772 Practicum, which we do think is essential to the program. If the certificate were to be reconfigured to be only a coursework certificate without a practicum, the students would miss a valuable experience and the program would lose coherence among a cohort of students.

We also note an area for improvement in the realm of faculty governance for an academic program. Some faculty members communicated to us that they believed themselves to have been appointed to the “governance faculty” of the TMP program, but were not consulted or asked to attend meetings. Other faculty members, when informed they were listed on the “governance faculty” for the self-study report were surprised to learn they were listed. It is our understanding that a governance group of faculty has not met to review and update the curriculum in a few years. We do recommend that TMP clarify the role and function of governance faculty, and that such faculty meet at least once a year to review the program and update the curriculum. Moreover, a robust participation of faculty governance can build support and recruitment for the program across campus.

In regards to the curriculum, we recognize the inherent difficulty in sequencing courses among many departments, where faculty retire or move or courses are not planned to be offered in the near future, thus leading to many approved substitutions by TMP staff. Some of the courses listed on the website as options will no longer be offered by their home departments due to faculty retirement. Regular review and consultation by the governance faculty representing departments offering TMP-listed courses would help keep the curriculum up to date.

**Recommendations.**
The TMP graduate certificate program is at a crossroads. Without a new champion department(s) and faculty member(s) to drive the program, it will disappear.

Transportation-related issues (safety, technology, sustainability, equity, air quality, finance, etc.) are at the center of global, national, and state concerns with livable, sustainable, healthy, and safe cities. Transportation-related expenditures constitute one of the largest components of state and local budgets. Without adequate and safe transportation systems, civilized society would cease to function.

We simply cannot imagine a world where graduate students at UW-Madison are not provided training and research opportunities in transportation from an
interdisciplinary perspective. The need for trained graduates is huge, and the potential for impact is nearly limitless. Programs such as TMP provide an option for students to receive this training.

Although the TMP program is currently a low-enrollment certificate program, it is also a relatively low-cost program that builds on existing courses in other departments and provides an important learning experience for students. Therefore, we find that the TMP certificate program is a valuable program at UW Madison that should continue. However, we repeat our concern that if a motivated faculty member(s) and department home cannot be found, the program would have to be suspended.

Should the TMP program continue, we would make the following recommendations for possible future actions, both in terms of governance/administration and curriculum/students:

**Governance and administration.**
1. The TMP certificate is currently housed in Nelson, even though very few Nelson students have participated, and even though CFIRE/Civil undertake the administrative work. If TMP is to continue on a more permanent basis, it would ideally be administered within one or more of the departments that contribute a larger number of students.

2. TMP governance faculty should be more clearly defined, and convened to undertake a strategic planning exercise to determine the future (re)direction of the program. This should include identifying additional potential contributing departments and faculty interested in transportation, as well as updating the potential list of courses for students to take. Governance faculty should meet at least annually.

3. If TMP is to thrive, efforts need to be undertaken to create a group of alumni (either formally or informally) who will serve as advisors and represent developments within the field back to the program. TMP should also consider an employers’ advisory council (including private transportation firms, MPO and/or DOT employees, etc.) to help identify ongoing issues within the field of transportation and to serve as ready conduits for internship and employment opportunities.

**Curriculum and students.**
1. If TMP is to continue, the first task of the new director is to develop a strategic recruitment and marketing plan. This would also include a demand assessment and an attempt to find out why students in contributing departments might not be interested in
TMP. Such a recruitment plan should also consider actions and strategies to increase the diversity of program participants.

2. TMP should consider (as some comments made clear) reducing the number of required courses in the certificate. Although the 1-credit colloquia courses were interesting and beneficial to both the faculty and the students, perhaps reducing the required credits to the 4 category classes and the practicum would increase enrollment.

3. TMP should consider a more specified link between the practicum course and the UniverCity projects.

4. TMP enrollment should not be specifically tied to expectations of funding from CFIRE. Funding of professional graduate students would be tied to their home departments (if any). This could increase enrollment.

5. As far as we could tell, there is not currently a “student handbook” for graduate students in the program, a recommended best practice of the graduate school. Many of these materials are already available on the web on in person from the advisors, but centralizing all this information onto one website or a student handbook would improve the student experience. Both Nelson and the Civil and Environmental Engineering departments already have good models of student handbooks available.

6. Related to number 5 above, the future student handbook should also detail various grievance and appeal procedures, consistent with graduate school and university policies and resources. As it stands now, presumably students with complaints or grievances would be covered under the Nelson Institute policies, but this is not necessarily clear to the students. As a interdisciplinary certificate program, there is no need for TMP to create procedures, but simply to clarify where students may go to find information on relevant procedures.

7. To the best of our knowledge, the TMP program does not have a formally adopted program of student learning assessment. While such an assessment would likely focus

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3 The review committee chair (Paulsen) would like to add this personal note, not necessarily shared by the other committee members. “For the past 9 years at our orientation for new graduate students, I have announced my connection to TMP and offered to serve informally as the TMP advisor within URPL. While not a scientific sample, I would say that the number one reason offered by URPL students as to why they do not participate in TMP is that they perceive the required courses in engineering to be too difficult for those without an engineering or math background. I have never been sympathetic to students who express this concern, because I have told every one of the students who express this concern that they are unlikely to be successful as transportation planners if they cannot demonstrate a passing knowledge of the material offered in these classes. I would personally strongly resist any efforts to weaken or eliminate an engineering requirement in the curriculum. But that may keep it a low-enrollment program.”
heavily on the practicum course, the program should complete a student learning assessment plan. Again, it appears that Nelson, URPL, and Civil Engineering have good models of student learning assessment on which to base TMP’s.

**Summary.**
The greatest strength of the TMP certificate program was its close connection to CFIRE. This also turned out to be the source of its potential disappearance because of the loss of UTC funding. TMP, however, is a valuable educational program at UW Madison and should continue if a new director or team can be found to continue the excellence of the program.
Certificates and Doctoral Minors: Counts

Select Data Recency
- Census date used for official cou...
Select Time Period
- 10 years

Credential Type
- Graduate and Professional Certif...
Credential Name
- Certificate in Transportation Ma...

This visualization was created by Academic Planning and Institutional Research (APIR), Office of the Provost, UW-Madison. Visit http://apir.wisc.edu for more information about APIR. Questions should be directed to McKinney Austin, mckinney.austin@wisc.edu.
Counts of Certificate-Seeking Students

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