



Graduate Board
Thursday, March 24, 2022

By Zoom:

[Join Zoom Meeting](#)

ID: 88375847888

Passcode: 310967

3:00-4:30 pm

AGENDA

1. Review/approval of the February 17, 2021 Graduate Board minutes
2. Review/approval of the March 1, 2022 Curriculum Committee report
3. Announcements/updates
 - a. UMSS – need judges/volunteers (Janina Deisenrieder)
 - b. Commencement update
 - c. ERGP (GERS) rollout
 - d. Scholarship award recipients
4. Academic Program proposals
 - a. MBA concentration in Engineering Management
 - b. Graduate Certificate in Rural Integrated Behavioral Health in Primary Care
 - c. Graduate Certificate in Climate Science and Adaptation (revised proposal)
5. Revised draft policy on a land acknowledgment statement for theses and dissertations
6. Proposed revision of letter of recommendation form
7. Items arising



Graduate Board
Thursday, February 17, 2022

By Zoom:

[Join Zoom Meeting](#)

ID: 88476102805

Passcode: 497816

3:00-4:30 pm

AGENDA

Called to order: 3:04pm

Attendance: E. Allan, P. Agrawal, J. Artesani, J. Ballinger, C. Beitzl, J. Bonnet, T. Bowden, S. Butler, M. Camire, S. Campbell, A. Cruz-Urbe, S. Delcourt, J. Deisenrieder, S. De-Urioste-Stone, D. Dyer, S. Fraver, J. Gill, A. Goupee, H. Greig, W. Gramlich, V. Herbert, K. Huguenard, S. Klein, A. Knightly, M. LaRocque, Z. Ludington, S. Marrs, J. McClymer, C. Murphy, E. Pandiscio, F. Peterson, J. Romero-Gomez, S. Smith, N. Stormer, P. Van Walsum, R. Wheeler, T. Yoo, Z. Zhang, Y. Zhu.

Guests: Crystal Burgess, Director of Graduate Communications; Ace Barrera, Graduate Student Success Manager; Orlina Boteva, Director of International Programs; Sarah Joughin, Senior Associate Director of International Programs; Erin Victor, Graduate Student; Ryan Weatherbee, Assessment Data Analyst (OIRA).

1. Review/approval of the January 27, 2022 Graduate Board minutes
 - a. Motion to approve – Seth Campbell
 - b. 2nd – Val Herbert
 - c. No further discussion/Unanimous approval

2. Review/approval of the February 1, 2022 Curriculum Committee report

New Courses:

(Part of the core requirements for the PhD program in Education)

EHD 661 - The Sociology of Education

EHD 663 - Comparative and International Education

EHD 664 - Philosophy of Education

ESS 551-Teaching Social Studies at the Secondary School

Modifications:

EDT 571- Methods of Integrating Computational Thinking for Diverse Learners
EHD 660 - History of American Education

Motion to accept: Andy Knightly
2nd – Elizabeth Allan
No further discussion / Unanimous approval.

3. Announcements/updates

- a. UMSS – April 15 in the Nw Balance Field House
(Virtual Judging - April 3-15) - location of
Link to event information: <https://umaine.edu/umss/>
Faculty, staff, and graduate student judges are needed!
- b. GSG seeking a graduate student BOT representative – (formerly held by
Ameya Karapurkar, PhD candidate in Chemistry)
GSG Executive Committee decided to extend the nomination period. Position
will go until January 2024.
Posting for GSG BOT Rep and other GSG Officer Positions:
<https://docs.google.com/forms/d/134c1S0oiVo9Qq-ly96EMaQOOQxByokvaFNmhb5-ETIc/edit>
- c. Stodder Graduate Community Coordinator openings – 2 positions posted.
These students live in Stodder and handle daily issues in the residence hall
(i.e. lock-outs, resident conflicts, community relations. Also plan and
organize Stodder and graduate student community events.)
Link for all openings: <https://umaine.edu/graduate/funding/prospective/>
Link for GCC position: <https://umaine.edu/graduate/2022/02/04/graduate-community-coordinator-stodder-hall/>
- d. Suggested addition to the Graduate School's letter of recommendation form
(Will revisit at our next meeting once everyone has had a chance to review.)
- e. *Science* OP-ED on comprehensive examinations – will discuss further at a
future meeting; may relate to the work of the *ad hoc* mentoring committee.
- f. Erin Victor (PhD candidate in Anthropology and Environmental Policy) –
wanted to meet with Graduate Board members to discuss the need for a
UMS purchased software packages to support qualitative research. The
University does not currently have any supported software for qualitative
researchers leaving individual faculty and graduate students to make the
purchases on their own. In discussing this issue with Robin Sherman (UMS
IT), the suggestion was made to try and assess the need for software to
support qualitative research. Erin has drafted a survey and wanted
feedback.

Sandra De Urioste-Stone – discussed the number of individual software licenses that have currently been purchased at UMaine (approximately 150 which would cost approximately \$25,000 for a university-wide license.

Dylan Dryer noted: The lack of a currently implemented platform suppresses the need for such software, though, so the survey should have an option for "if you had a university platform, *would* you give more weight to these approaches in your research?"

Jen Bonnet added that UMaine's current offerings from IT may be found here: <https://umaine.edu/it/software/>.

S. Delcourt would like to work with Sandra De Urioste-Stone Erin Victor, and other interested faculty to disseminate the survey and identify a viable solution.

4. Ryan Weatherbee, OIRA – update on [Graduate Program Learning Outcomes](#) (PLO) tracking

Background: NECHE prompted the roll out of program assessment in 2020.

Ryan's slide presentation:

<https://docs.google.com/presentation/d/1UzXIAXMrsXHneEnILt7U3ZONpXJ8XQywwbHRSqnXAEw/edit#slide=id.p>

Steps for Grad Programs to follow: Submit draft PLOS by April 1 – to both Mandy Barrington & Ryan Weatherbee

Post PLO's prominently on your program's website

Send link to Mandy & Ryan to share on OIRA website

E-Series for unified accreditation self-study – due by February 28th. This is part of the system unified accreditation effort, so needs to be complete by this date. (A reminder will be sent out from OIRA next week.) Seth Campbell asked for an earlier resend of this information.

Scott shared a link to the UMS self-study to be submitted to NECHE and noted to please take a look at Standard 4 (Graduate Programs):

<https://www.maine.edu/unified-accreditation/historical-documentation/self-study-draft/>

Val Herbert asked if grad certificates should be included in the E-series information since the link provided is to the MS in nursing.

5. Orlina Boteva and Sarah Joughin, International Programs

Orlina and Sarah wanted to discuss 2 topics with the Graduate Board:

- a. Conditional admission of international graduate students
- b. Identifying and recruiting visiting scholars

Intensive language institute – has been at UMaine for over 25 years. It is a

good chance for students to prepare their English language skills before they start their graduate programs. If your program is interested in bringing a student in as a conditional admission, it can be through the UMaine bridge program (for students just under the required English proficiency), or a conditional admission into the core IEI program if the student is lower than 80% of the required English test score level. There are some applicants who request conditional admission. This can be an access tool for learners who need additional support.

If you decide to admit a student conditionally, please work with Jason Aylmer in the Graduate School. Jason will assist in connecting the applicant to the ESL program.

IEI website - <https://umaine.edu/iei> (Core IEI and UMaine Bridge programs). The purpose of both ESL programs is to bring a student up to standard in English to be able to function in the classroom and meet English standards.

Will Gramlich asked more about funding. Some students are self-funded. Tuition for this program is \$5000 per semester. Scott added that students would be eligible for assistantships once they passed the proficiency exam. Appointment as a TA does require a higher standard for English proficiency. Many of the students admitted conditionally are done so with the support of an agent or their governments – and are usually self-funded.

UMaine Bridge – admission to IEI while student concurrently takes academic courses, with the goal of getting them up to speed more quickly. OIP does have some scholarship funding to help with students in need of English proficiency.

Will Gramlich – to be eligible for admission – do the conditionally-admitted students have to pass a test? They do need to pass a test through the IEI program (not a traditional TOEFL).

Yifeng Zhu asked: Do conditionally admitted students need to provide the same amount of financial statement as regularly admitted students to obtain I-20? Scott Delcourt replied: Yes - same dollar amount if they are admitted to a graduate program through the UMaine bridge. They must document a different amount if admitted first to the core IEI program.

Sarah Joughin – brief overview of J1 exchange visitor program. Education and Cultural Exchange – overseen by US Department of State. Funding can come from a variety of places. Some fund their own education, some are funded by their home country, and some are funded by UMaine. Primarily – research scholars, post-docs, and non-degree. The program is used by many of our engineering programs and some of our professional programs.

Fulbright Scholar in Residence Program – Any scholar who qualifies can be provided with travel support, housing, and help to meet other financial needs.

International Programs assists with obtaining paperwork needed for visiting scholars to be able to get their visas, as well as any student visa issues once a student arrives.

Information on the person, the position, and funding should be shared with OIP. Faculty host assists with helping the international student with housing, etc. Faculty host is required to provide some experiences to share our culture. There does need to be some type of attendance monitoring and reporting to OIP if questions or concerns arise. OIP provides a lot of support for International Students – but International Scholars rely more upon the faculty host. If you have questions, email : umaineimmigration@maine.edu

OIP charges \$250 to assist with the process of bringing in international scholars.

Planning is important in case situations arise. (We ran into a lot of complications with the pandemic where people had a hard time returning to their home country, etc...)

University is now covering health insurance for visiting scholars. Juan Romero said he will check in with Sarah Joughin regarding any visiting scholars who do not have their insurance covered.

H1B Visa vs. J1 Visa – J1 requires a 2-year home residency after completion of the post-doctoral program. H1B is a work visa, and the student is considered a resident alien. If you hire someone who is using F1-OPT – it may be a long process to change the visa status to H1B.

Informational session on visiting scholars – a multi-office panel is being considered for this spring – Office of Research Development, Office of Major Scholarships, and the Office of International Programs. Opportunity to support a visiting scholar to work in a research group is a great opportunity. Funding can be shared. It is a great opportunity to enrich our diversity on campus.

6. Sandra De Urioste-Stone – Results of the Survey of Postdoctoral Research Associates

Post-Doctoral Survey – distributed in early January. Survey will closed on January 21st. 77 survey respondents so far. Generalizations made from those who have responded thus far. Majority have been in their position for less than 1 year. Career goals – faculty tenured position – with an emphasis in teaching, industry, or research efforts. Those who changed their goals did so because of family and career balance.

Specific support needs: specific training for post-docs, providing opportunities to network, funding opportunities, teaching, and training opportunities.

Sources of stress in current work: scholarly productivity, ability to make progress on their research.

Majority of respondents had a degree in Natural Sciences and in Engineering.

S. Delcourt noted that the Graduate School does administer an exit survey to graduating students, but we have talked about doing something earlier in students' programs. Monique LaRocque is interested in a survey mechanism for online students. Some questions on this survey would have merit for post docs, graduate students, and for online students.

7. Continued discussion of Land Acknowledgment Statement - Draft proposal is included in the February Graduate Board packet.

Ideas from January meeting:

- a. Adopt the President's Council on DEI recommended statement.
- b. Adopt a more individualized researcher positionality statement that could be used by the student in their thesis.

Should students be able to pick from one of these two options – or recommend but not require either option?? Students would need to work very closely with faculty for guidance on developing a researcher positionality statement.

Alicia Cruz-Uribe commented: Our department is in favor of having a required, designated land acknowledgment statement, which would then not preclude any given student from including additional information in their regular acknowledgment section (i.e. students who might have a close connection to the land through their research or personal experiences). Having prescribed language would help to avoid potential issues.

Jacqueline Gill commented: I think it would be nice to give students the opportunity to personalize their land acknowledgement, but still retain the statement that was developed by the President's DEI council. (Seth Campbell expressed agreement with this.)

Nathan Stormer commented: I think its fine as a standard statement in a thesis, not unlike the University's position

8. Nonterminal master's degrees

Students who wish to obtain a master's degree on the way to their doctoral degree. Psychology is the only department who has something similar already in place. Please discuss within your program and we can discuss whether or not we should develop a Graduate School policy for this.

Z. Zhang commented: this would be of interest to the PhD programs of the GSBSE. Jim McClymer added: Physics has some earn a ME degree on way to PhD. Jacqueline Gill asked: would it be possible to discuss the possibility of streamlining the MS > PhD pipeline for continuing students – rather than having to reapply? S. Delcourt replied that some master's students are changed to a PhD without re-applying, but this is not the same as actually earning a masters while in a doctoral program.

9. Items arising
Scholarship awards – will be announced by next month.

CURRICULUM COMMITTEE REPORT

The Curriculum Committee met on March 1, 2022 and is recommending the following courses to the Graduate Board for approval at its March 24th meeting.

New Courses:

EDT 574 Computational Thinking for Early Childhood and Elementary

EDT 575 Integrating Computational Thinking for Middle and High School

EMA 505 Mathematics methods for Secondary Teachers

PAX 590 Special Topics in Peace and Reconciliation Studies

PAX 699 Masters Project

Modifications:

EDT 580 Summer Technology Institute

EDT 657 Educational Practicum

FSN 542 Sustainability, Nutrition and Health



GSG welcomes all graduate students and faculty members to apply and nominate for the following awards:

Awards Presented at the Student Symposium - April 15th

- Provost's Innovative and Creative Teaching Award
- Dean of the Graduate School Undergraduate Mentoring Award
- Student Innovation Commercialization Award

Awards Presented at the Spring Appreciation Event - April 27th

- Graduate Faculty Mentor Awards
- Dan Sandweiss Graduate Student Advocacy Award

Award winners will be informed they won prior to the Spring Appreciation and Student Symposium events and thanked for their hard work and efforts throughout the year.

The GSG Awards highlight the efforts of mentors, instructors, teaching assistants, researchers, and other members of the University of Maine Graduate School. It also gives graduate students the opportunity to showcase their research on a commercial platform. Additionally, each award also comes with a monetary reward, along with a commemorative plaque.

Apply or nominate someone by March 30th at 5 PM. To learn more about these awards and to apply, [click here](#).

Have questions? Contact Graduate Student Government at gsg@maine.edu.

MEMO

To: Kody Varahramyan, Vice President for Research and Dean of the Graduate School
From: Norm O'Reilly, Dean, Graduate School of Business
Subject: MaineMBA Concentration in Engineering Management
Date: March 15, 2022

The Graduate School of Business proposes to establish an Engineering Management concentration within the University of Maine Master of Business Administration (MaineMBA).

Rationale:

Representing an interdisciplinary partnership between the University of Maine Business School and the University of Maine College of Engineering, the MaineMBA concentration in Engineering Management will deliver graduate-level professional education opportunities pairing the curriculum of the MaineMBA with the skills and knowledge necessary for individuals pursuing leadership roles within the Engineering industry.

This proposal has been reviewed and supported by:

- The Faculty of the Graduate School of Business
- The College of Engineering, University of Maine



Norm O'Reilly
Dean, Graduate School of Business

University of Maine Graduate School of Business

Proposal for a Master of Business Administration (MaineMBA) with a concentration in Engineering Management

Proposal Contents

This 33-credit degree program will allow students with an interest in management, administrative, and leadership roles in Engineering settings to simultaneously gain advanced knowledge in business while further developing their understanding of engineering operations and practices. This concentration pairs the University of Maine's outstanding graduate offerings in Engineering Management with the globally recognized business education of the MaineMBA.

1. Program Demand
2. Program Learning Objectives
3. Program Description
4. Admission Requirements
5. Course Descriptions

1. PROGRAM DEMAND

Bureau of Labor Statistics Outlook for Architectural and Engineering Managers

Median Pay, 2020: \$149,530

Number of Jobs, 2020: 197,800

Job outlook, 2020-2030: 4% Growth (8100 openings)

Nationally, the need for Engineering Managers continues to rise, with the U.S. reporting 4% growth expected over the next 10 years. Currently, over 12% of all MaineMBA enrolled students have an academic background and careers in engineering. Based on experience, MaineMBAs pursuing careers in engineering apply to the master's degree 5-7 years after their baccalaureate degree was awarded. These students cite promotion or desire for a promotion into a leadership role at their firm as the motivation for the degree.

Current MaineMBA-engineers are employed by local and national firms, including

- Allergan Medical
- Bio-Rad Labs
- Bath Iron Works
- CCB Construction
- Cianbro
- Dept of Treasury
- HDR Engineering
- IDEXX

- Knowles Industrial Services Corporation
- Mars Wrigley
- MPX
- Nichols Engineering
- Noble Drilling
- Northeast Paving
- Northrop Grumman
- Packaging Corp of America
- Pike Industries
- Pixelle Specialty Solutions
- Portsmouth Naval Shipyard
- Pratt & Whitney
- ProMedica Health System
- Safety Management Systems
- Sappi
- Siemens
- Soleras Advanced Coatings
- Systems Engineering
- Velux America

2. PROGRAM LEARNING OBJECTIVES:

In addition to the MaineMBA program objectives, students in this concentration will acquire skills in:

- Managing projects including planning, controlling, scheduling, risk analysis, and budget.
- Using data to make decisions as well as optimize processes and resources to minimize waste, maximize benefits, and maximize performance
- Managing engineering organizations and businesses including financing, human resources, and marketing.

3. PROGRAM DESCRIPTION

All courses are currently offered 100% online in either 8-week or 14-week formats. **No new courses are required for this concentration.**

CURRICULUM (33 CREDITS):

The MaineMBA core:

1. Strategic Data Analysis (BUA 601)
2. Global Supply Chain Networks (MBA 637)
3. Financial Statement Analysis (MBA 609)
4. Foundations of Business Intelligence (BUA 680)
5. Management of Contemporary Organizations (MBA 626)
6. Managerial Marketing (MBA 670)
7. Financial Management (MBA 651)
8. CAPSTONE: Strategic Decision Making (MBA 649)

Required concentration courses:

1. Advanced Project Management (ENM 586)
2. Engineering Optimization (MEE 559)
3. Lean Six Sigma (MET 440/540*)

ADMISSIONS STANDARDS:

Minimum MaineMBA admissions standards apply. Foundational coursework or tutorials are required in the areas of Accounting, Finance, Economics, and Statistics. Satisfactory scores from the GMAT or GRE exam are required but can be waived for students demonstrating significant leadership experience.

Applicants to the concentration in Engineering Management must also have an undergraduate background or work experience in engineering, engineering technology, or a related field and prerequisite Calculus III and Linear Algebra coursework completed with a grade of C or better.

SAMPLE SCHEDULE FOR MBA-EM

FA 1st year	SP 1st Year	SS 1st Year	FA 2nd year	SP 2nd Year	SS 2nd year
MBA 601	MEE559	MBA670	ENM586	MBA609	MBA649
MET440	MBA637	MBA680	MBA651	MBA 626	

4. COURSE DESCRIPTIONS

MET 440* - Lean Six Sigma

An introduction to Lean Manufacturing and Six Sigma continuous improvement methodologies via lectures, independent assignments, and in-class experiments using discipline-independent processes. Topics will include the 8 forms of waste; value stream maps; the DMAIC model; Gage R&R; hypothesis testing; Ishikawa diagrams; and Design of Experiments (DOE).

Prerequisites and Notes: MAT 127. Credits: 3

MEE 559 - Engineering Optimization

Analytical, graphical, and numerical approaches for solving unconstrained or constrained optimization problems involving linear or nonlinear functions. Application of optimality criteria and mathematical programming techniques to problems involving multiple design variables.

Prerequisites & Notes: MAT 228 (Calculus III), MAT 258 (Introduction to Differential Equations with Linear Algebra). Students who have completed MEE 459 with a passing grade are not eligible to take MEE 559.** Credits: 3

ENM 586 - Advanced Project Management

This course covers a wide range of projects management topics including project planning, controlling, scheduling, and risk analysis. Through lectures and case studies, students will be prepared to become project management professionals and will learn to bring projects to successful completion. The course also emphasizes the human relations aspects of project management such as team theory and personnel conflict.

Prerequisites & Notes: Senior standing, graduate standing, or permission of instructor. Credits: 3

* Note: MET will update this course to be cross-listed 440/540, with additional expectations for graduate-level students.

**Students who have previously completed MEE559 - Engineering Optimization will be permitted to substitute an additional graduate-level engineering course.

Submitted by

Norm O'Reilly

Norm O'Reilly (Mar 15, 2022 15:12 EDT)

Mar 15, 2022

Norman O'Reilly, Dean, Graduate School of Business

Date

Approved by

Norm O'Reilly

Norm O'Reilly (Mar 15, 2022 15:12 EDT)

Mar 15, 2022

Norman O'Reilly, Dean, Graduate School of Business

Date

Dana Humphrey

Dana Humphrey (Mar 15, 2022 15:55 EDT)

Mar 15, 2022

Dana Humphrey, Dean, College of Engineering

Date

Monique LaRocque

Monique LaRocque (Mar 21, 2022 09:56 EDT)

Mar 21, 2022

Monique LaRocque, Associate Provost
Division of Lifelong Learning

Date

Kody Varahramyan, Vice President for Research and
Dean of the Graduate School

Date

John Volin, Executive Vice President for Academic Affairs
& Provost

Date

Joan Ferrini-Mundy, President of the University of Maine

Date

MaineMBA Concentration in Engineering Management

Final Audit Report

2022-03-21

Created:	2022-03-15
By:	Corey Watson (corey.watson@maine.edu)
Status:	Signed
Transaction ID:	CBJCHBCAABAA0eLN-b47jgFv_PBrjWLQTUSrCwmzsg0T

"MaineMBA Concentration in Engineering Management" History

-  Document created by Corey Watson (corey.watson@maine.edu)
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-  Document e-signed by Norm O'Reilly (norman.oreilly@maine.edu)
Signature Date: 2022-03-15 - 7:12:38 PM GMT - Time Source: server- IP address: 141.114.201.242
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Signature Date: 2022-03-15 - 7:55:43 PM GMT - Time Source: server- IP address: 130.111.219.42
-  Document emailed to Monique LaRocque (mlarocque@maine.edu) for signature
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-  Document e-signed by Monique LaRocque (mlarocque@maine.edu)
Signature Date: 2022-03-21 - 1:56:37 PM GMT - Time Source: server- IP address: 141.114.200.176

✔ Agreement completed.

2022-03-21 - 1:56:37 PM GMT

Office of the Dean and Director
*College of Natural Sciences,
Forestry, and Agriculture
Maine Agricultural and Forest
Experiment Station*



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February 2, 2022

Kody Varahramyan
Vice President for Research & Dean of the Graduate School
Alumni Hall

Dear Kody:

I strongly support the proposed Rural Integrated Behavioral Health in Primary Care Graduate Certificate. The proposed program will recognize students in the Doctoral Training Program in Clinical Psychology and the Masters of Social Work program who complete the didactic and experiential requirements to prepare them to work as behavioral health professionals in rural primary care settings. The graduate certificate program was developed with the support of a \$1.48M grant from the Health Resources and Services Administration (<https://umaine.edu/ruralhealth/>).

The RIBHPC graduate certificate program will be attractive to students interested in serving rural communities and will help address the critical shortage of behavioral health professionals in rural Maine.

Sincerely,

Diane Rowland
Dean of the College of Natural Sciences, Forestry and Agriculture
Director of the Maine Agricultural and Forest Experiment Station
105 Winslow Hall
University of Maine
Orono, ME 04469
207-581-3202
Diane.rowland@maine.edu

College of
Liberal Arts and Sciences
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clas@maine.edu

February 15, 2022

Dr. Kody Varahramyan
Vice President for Research & Dean of the Graduate School
Alumni Hall
University of Maine

Dear Kody,

I strongly support establishment of the proposed Rural Integrated Behavioral Health in Primary Care (RIBHPC) graduate certificate. The proposed program will recognize students in the Doctoral Training Program in Clinical Psychology and the Master of Social Work program who complete the didactic and experiential requirements to prepare them to work as behavioral health professionals in rural primary care settings. The graduate certificate program was developed with the support of a \$1.48M grant from the Health Resources and Services Administration (<https://umaine.edu/ruralhealth/>). This initiative aligns well with several university priorities, including the cluster hire in Rural Community Wellbeing announced last fall, ongoing work to expand capacity in allied health fields, and a strong commitment to doctoral-level education in the context of an R1 university.

The RIBHPC graduate certificate program will be attractive to students interested in serving rural communities and will help address the critical shortage of behavioral health professionals in rural Maine. The proposal has been reviewed and recommended by the Academic Council of the College of Liberal Arts and Sciences. I concur wholeheartedly with its recommendation.

Sincerely,

A handwritten signature in black ink, appearing to read 'Emily C. Haddad'.

Emily Haddad
Dean, College of Liberal Arts and Sciences

CC: Jeffrey Hecker, Professor of Psychology
Thane Fremouw, Associate Professor and Chair of Psychology



January 12, 2022

Emily Haddad
Dean, College of Liberal Arts & Sciences
Stevens Hall

Dear Dean Haddad:

The Department of Psychology's Doctoral Training Program in Clinical Psychology has worked with the Masters of Social Work program to propose a new graduate certificate program. The Rural Integrated Behavioral Health in Primary Care (RIBPC) Graduate Certificate will be awarded to doctoral students in clinical psychology who complete a prescribed sequence of courses, related practicum experiences, and two professional development programs. Students in the MSW program will also be eligible to earn the certificate with modified set of course requirements.

The RIBHPC program was created with a \$1.48M grant from the Health Resources and Services Administration to increase the number of behavioral health specialists prepared to work in integrated behavioral health in rural areas (<https://umaine.edu/ruralhealth/>). The proposed certificate program is one of the grant's outcomes and will serve as a recognition that the students who earn the certificate are prepared to work in rural primary care settings.

The Department of Psychology's graduate committee has reviewed the attached proposal and is strongly supportive of the new certificate program. I also support the program and ask that you endorse the program as well.

I am happy to answer any questions you have about the proposed graduate certificate.

Sincerely,

A handwritten signature in black ink, appearing to read 'Thane Fremouw'.

Thane Fremouw
Chair
Department of Psychology



December 20, 2021

Dear Graduate Certificate Review Committee,

As the Graduate Coordinator at the School of Social Work, I have been involved in the Rural Integrated Behavioral Health in Primary Care (RIBHPC) project from its inception. I was a part of the team that completed the Heather Resources and Services Administration (HRSA) application that is funding the project.

The Graduate faculty at the School of Social Work are in full support of this project and in the granting of a RIBHPC certificate to those students who complete the requirements. Many members of the faculty are involved in the RIBHPC project from teaching required courses (SWK 586, SWK 695, and INT 610) to working with students to secure appropriate field practicum sites. We welcome this important opportunity for our students; the certificate acknowledges the learning and skills they have gained through their participation in RIBHPC.

Other than the interdisciplinary, 1-credit INT 610, no new courses were developed for this certificate.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Sandra S. Butler'.

Sandra S. Butler, Ph.D.
Professor, Director and MSW Coordinator



December 21, 2021

Dear Review Graduate Certificate Review Committee,

The Rural Integrated Behavioral Health in Primary Care (RIBHPC) Graduate Certificate was developed as part of a collaboration between the Department of Psychology's Doctoral Training Program in Clinical Psychology and the School of Social Work's Masters of Social Work program. The RIBHPC program was created with a \$1.48M grant from the Health Resources and Services Administration to increase the number of behavioral health specialists prepared to work in integrated behavioral health in rural areas (<https://umaine.edu/ruralhealth/>).

For the doctoral students in clinical psychology, the graduate certificate program will require that they successfully complete two graduate seminars: PSY581 *Supervision, Consultation, and Interprofessional Issues* and INT610 *Advanced Seminar in Integrated Behavioral Healthcare*, as well as complete two semesters of PSY691 *Psychology Practicum* at an approved training site. In addition, the students will complete two approved continuing professional education programs.

The proposal for the graduate certification program in Rural Integrated Behavioral Health in Primary Care has been reviewed by the Department of Psychology's graduate committee. The committee is strongly supportive of this new certificate program. It will help to advance the career goals of some clinical psychology doctoral students and help meet the need for well-trained clinical psychologists in rural areas.

Sincerely,

Shawn Ell, Ph.D.
Associate Professor
Graduate Coordinator

Proposal for a new graduate certificate program in:
Rural Integrated Behavioral Health in Primary Care

a. A statement of the educational objectives of the program:

Training clinicians to be responsive to the behavioral health needs of individuals living in rural communities is essential in the educational curriculum for social work and clinical psychology students. The University of Maine's Rural Integrated Behavioral Health in Primary Care (RIBHPC) training program will address these needs by:

1. Offering a collaborative training model for team-based integrated behavioral health care in primary care settings for social work and psychology graduate education; and
2. Developing a diverse pool of social work and psychology health care professionals interested and prepared to work in high need areas of rural Maine.

Education and training will emphasize specific needs of rural populations including behavioral health care of adolescents and young adults in transition in primary care settings, trauma-informed care, and contemporary telehealth practice. Social work and psychology students who complete the RIBHPC curriculum will develop:

- A deeper understanding of integrated behavioral healthcare; an experiential knowledge of team-based assessment and treatment planning in integrated health care practice;
- Skills managing interprofessional working relationships;
- An understanding of the unique challenges and opportunities of integrated behavioral healthcare in rural settings;

Through the RIBHPC program, the University of Maine will expand relationships with community partners to increase access to high quality integrated behavioral health services in rural Maine.

b. A statement of the proposed course sequence associated with the certificate, including titles and course descriptions both for existing courses and any new courses that may be developed:

Graduate students in the MSW program and the doctoral training program in clinical psychology will complete a sequence of graduate courses that will help prepare them to be effective practitioners in integrated behavioral health care. The proposed graduate certificate in Rural Integrated Behavioral Health in Primary Care totals 10 credits (in Psychology) to 14 credits (in Social Work) and is designed to be completed in one year. The certificate is comprised of three required courses

PSY:

INT 610 *Advanced Seminar in Integrated Behavioral Healthcare* (1 credit)

PSY 581 *Supervision, Consultation, and Interprofessional Issues* (3 credits)

PSY 691 *Psychology Practicum* (6 credits)

SWK:

INT 610 *Advanced Seminar in Integrated Behavioral Healthcare* (1 credit)

SWK 586 *Advanced Clinical Social Work Practice in Integrated Healthcare* (3 credits)

SWK 695 *Advanced Field Practicum in Social Work* (10 credits)

The foundational courses in the curriculum sequence (SWK 586 and PSY 581) are required courses for the students in their respective programs and are offered on a regular rotational basis. Additionally, PSY 691 and SWK 695 are the student practica courses. The psychology practicum is 6 credit hours over two semesters and the social work practicum totals 10 credits taken over two semesters of the MSW advanced year. MSW students will finance the completion of the certificate program through a stipend and PSY doctoral students will receive an assistantship. MSW students typically do not receive tuition support, but are self pay. Students enrolled in the certificate program will enroll in either PSY 691 and SWK 695 to fulfill their practicum requirement. The practicum training sites must meet the prescribed criteria of an integrated behavioral health setting that serves an medically underserved rural area of the state.

New Course - INT 610 *Advanced Seminar in Integrated Behavioral Healthcare:*

Builds on foundational understanding of integrated behavioral health care developed in SWK 586 or PSY 581. Students will advance their understanding of the roles of behavioral health providers in integrated health care practice, develop team-based assessment and treatment planning skills, and learn to navigate issues that arise related to practice overlap and differing disciplinary perspectives. The course will especially emphasize the challenges and opportunities associated with integrated health care practice in rural areas.

PSY 581 - *Supervision, Consultation, and Interprofessional Issues:*

The goal of this course is to provide an introduction to the theory, practice, and emerging empirical research regarding supervision, consultation, and interprofessional issues in clinical psychology. Trainees will build on knowledge, awareness, and skills acquired in this course throughout the remainder of their graduate training and during the course of their careers.

By taking and participating in this course, students will gain initial competence in supervision, in consultation, and in navigating interprofessional issues by:

- Critically evaluating the existing empirical literature on supervision, consultation, and interprofessional issues
- Obtaining working knowledge of guiding theories for supervision, consultation, and interprofessional functioning
- Gaining first-hand experience of the practice of supervision, consultation, and interprofessional work through peer supervision, peer consultation, and interprofessional role playing

SWK 586 - *Advanced Clinical Social Work Practice in Integrated Healthcare:*

This course will introduce students to the essential practice skills needed to effectively address the challenges of integrating services, care, and support for persons with health, mental health, and substance use problems. Students will become fluent in the language and culture of health and will develop a working knowledge of a wide variety of chronic health conditions. Students will examine the challenges of multidisciplinary team practice and current best practices for effective intervention. Throughout the course, students will critique behavior change theories, practice models, and evidence-based interventions for their utility in an integrated healthcare system. Building on the student's foundational knowledge of general practice skills (engagement, screening, comprehensive assessment, treatment planning, documentation, and evaluation) this course will emphasize practice skills and implementation of approaches designed to enhance effective communication, consumer engagement, motivation, and empowerment with clients and as a member of a collaborative health care team. Finally, students will increase their knowledge of complementary and alternative therapies and the importance of self-care as healthcare.

PSY 691 *Psychology Practicum:*

This course is a closely supervised experience in psychological evaluation, psychotherapy, behavior modification, consulting, research, teaching, or a combination of these in a field setting.

SWK 695 *Advanced Field Practicum in Social Work:*

The purpose of the social work field practicum in the advanced year is to provide an opportunity for students to develop advanced practice skills. The seminar is meant to enable students to discuss, explore and analyze the relevance and applicability of the knowledge, skills and values one has learned throughout the MSW program. The seminar is the critical link between the classroom and field. It provides a key mechanism for students to apply theory to social work practice across diverse settings and at multiple levels of intervention with individuals, families, groups, organizations and communities. The seminar also serves the purpose of addressing professional, ethical, policy and practice concerns that students identify in the field placement. The seminar is designed to promote students' development towards advanced level practice and professional behaviors, and increase students' negotiating skills and ability to work collaboratively in

groups. The faculty liaison will facilitate the weekly seminar. Each week, students will have an opportunity to process their field experiences in writing and group discussion.

Continuing Professional Education

In addition to the required course work students will complete two approved continuing professional education programs. The RIBHPC program offers two professional education experiences (e.g., workshops, webinars) annually and graduate students from the two programs can participate in these at no cost. Students have the option to fulfill this certificate requirement by attending other professional education offerings approved by the RIBHPC leadership team

- c. *A statement of how the proposed course sequences associated with the certificate will meet the stated educational objectives:*

Through a combination of didactic and experiential training, students will prepare for professional practice as members of integrated behavioral health care teams in rural areas. Completion of discipline-based foundational courses (*Supervision, Consultation, and Interprofessional Issues* (PSY 581) or *Advanced Clinical Social Work Practice in Integrated Healthcare* (SWK 586) are part of the required curriculum in their respective programs.

Advanced Seminar in Integrated Behavioral Healthcare (INT 610) will offer students the opportunity to learn how to work in an integrated behavioral healthcare team. Seminars will focus on students' reflections on interprofessional issues arising in practica, case-based assessment and treatment planning, and discussion of required readings.

Through PSY 691 and SWK 695, students will complete an approved nine-month advanced experiential training practicum. Approved practicum training sites must involve some combination of rural populations, integrated behavioral health care and a primary care setting.

The opportunity to earn the RIBHPC Certificate will motivate students to satisfy the program criteria including successful completion of relevant experiential training.

- d. *A statement of the need for the proposed program and the basis for such a need, supported by either externally or internally derived data:*

Ten of sixteen counties in Maine have a shortage of mental healthcare professionals in at least part of the county, and seven of these ten counties are nonmetropolitan (RHIIhub, 2020). Maine has identified a need for more clinical psychologists as well as social workers in the mental health and substance abuse sectors (Leparulo, 2014). There are only 0.27 licensed psychologists for every 1,000 people in the state of Maine, a proportion 22% below the national average (Leparula, 2014).

The most recent survey of health occupations in Maine found that 50% of the state's psychologists and 52% of mental health/substance abuse social workers were employed in the state's three most urban counties: Cumberland, Androscoggin and York, within which 44% of Mainers reside. By contrast, 25% of psychologists and 19% of mental health/substance abuse social workers were employed in the ten most rural counties containing 32% of Maine's population (Leparulo, 2014).

The University of Maine's RIBHPC Certificate program will help address the behavioral health needs in rural Maine by.

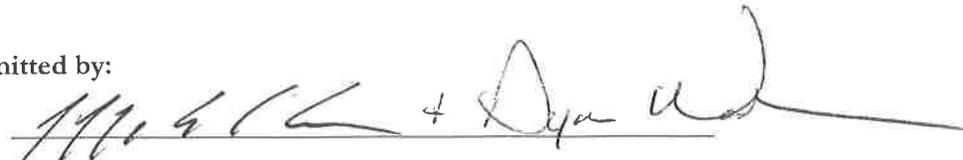
1. Growing the number of social work and clinical psychology students for whom experiential training in rural health care settings is a significant feature of their graduate education
 2. Helping students develop the knowledge and professional skills needed to become members of integrated behavioral healthcare teams in rural primary care settings
- e. *The names of at least 2 graduate faculty members associated with or contributing to the certificate program, either by teaching one or more of the courses associated with the program or participating in the design of the course sequence:*

Jeffrey Hecker, Professor, Department of Psychology
Sandy Butler, Professor and Director, School of Social Work
Emily Haigh, Associate Professor, Department of Psychology
Rebecca Schwartz-Mette, Associate Professor, Department of Psychology
Leah Maxwell, Field Director, School of Social Work
Mary E Cuddy, Community Supervisor, Department of Psychology
Jamie Rogers, Adjunct Faculty, School of Social Work
Dyan Walsh, RIBHPC Project Coordinator, School of Social Work

References

1. Leparulo, P. (2014). *2014 Health Occupations Report*. Maine Department of Labor Center for Workforce Research & Information.
2. RHIhub. (2020). *Health Professional Shortage Areas: Mental Health, by County, 2020—Maine*. Rural Health Information Hub.
<https://www.ruralhealthinfo.org/charts/7?state=ME>

Submitted by:



(Signature of Person Responsible for Program Plan)

(Date) 2/16/2022

Approved by:



(Director, School of Social Work)

(Date)



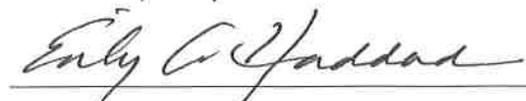
(Chair, Department of Psychology)

(Date) 2-18-22



(Dean, College of Natural Sciences Forestry and Agriculture)

(Date) 2/23/22



(Dean, College of Liberal Arts and Sciences)

(Date) 2-17-22

(Vice President for Research and Dean of the Graduate School)
(Date)

(Provost)
(Date)

(President)
(Date)

CLIMATE CHANGE
INSTITUTE



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March 4, 2022

Dear Dr. Varahramyan,

We are pleased to submit a proposal for a new Graduate Certificate program in Climate Science & Adaptation. This has been developed in consultation with the Division of Lifelong Learning and faculty at the Climate Change Institute.

Content for the Certificate will target three key knowledge areas in climate studies: the physical science basis, climate-biosphere interactions, and practical application. The Certificate can be earned with 9 credits with a series of online course options. Our aim is to serve working professionals that are not concurrently enrolled in degree-granting academic programs at University of Maine. This allows us to expand rigorous, innovative climate science and climate change content to a wider audience. This initiative is timely, as there is widespread state support for climate change content training, and an educated citizenry is imperative to adapting to a warming world.

This proposal package includes an overview of the program rationale, which includes our intended professional audience, our educational goals, and expected outcomes. We detail the course requirements to earn the Certificate, marketing research and survey results that demonstrate need, and resources available to launch and sustain this program.

Please let me know if you have additional questions or require additional information.

Sincerely,

Katherine Glover
Associate, Climate Change Institute (CCI)

CC: Scott Delcourt, Associate Vice President for Graduate Studies
Paul Mayewski, Director, CCI
Karl Kreutz, Director, School of Earth and Climate Sciences
Seth Campbell, School of Earth and Climate Sciences, CCI Graduate Coordinator
[Monique LaRocque, Associate Provost, Division of Lifelong Learning](#)

Approval Page for Graduate Certificate in Climate Science & Adaptation:



January 12, 2022

Katherine Glover, Associate, Climate Change Institute
(Person(s) Responsible for Program Plan)



21 January 2022

(Director, Climate Change Institute) (Date)

Monique LaRocque January 24, 2022

(Associate Provost, Division Lifelong Learning) (Date)

(VP for Research and Dean of the Graduate School) (Date)

(Provost) (Date)

(President) (Date)

1. Program Title:

Graduate Certificate in Climate Science & Adaptation

2. Planning Committee

Katherine Glover, Climate Change Institute
Karl Kreutz, School of Earth and Climate Sciences
Patricia Libby, Division of Lifelong Learning
Rachel Mathieson, Division of Lifelong Learning
Paul Mayewski, Climate Change Institute
Dagmar Moravec, Division of Lifelong Learning

3. Program Objectives

a. Overview

We propose a new Graduate Certificate in Climate Science & Adaptation that is supported by Climate Change Institute (CCI) faculty and the Division of Lifelong Learning (DLL). We conceive this as a 9-credit program delivered largely online, to **an intended audience** of a wide variety of professions that include K-12 education, management, business, and policy.

As the program is established, we hope to grow a robust national and international audience. Overall, we envision the new Certificate in Climate Science & Adaptation serving a different audience than the Graduate Certificate in Interdisciplinary Climate Studies. The latter was established in 2014, and serves the in-person, on campus graduate students enrolled in degree-granting programs. Required classes for that program are in-person, and focus on academic research and professionalization with the assigned reading load, required writing, and other assessment. The Certificate proposed here is intended for professionals to bring climate change principles and communication to a broader range of workforce sectors.

Proposed courses and programming focuses especially on K-12 educators during initial years (AY 2022-2023 and AY 2023-2024). This timing aligns with Maine Department of Education (DOE) initiatives for new climate change content development and teacher training. This group that has demonstrated interest and need across both 1) our recent marketing research, and 2) inquiries about enrolling in in-person graduate courses at CCI that are part of the existing Graduate Certificate in Interdisciplinary Climate Studies. Historically, most educators have not been able to take these courses due to time conflicts.

Our goals for the new Graduate Certificate in Climate Science & Adaptation include:

- 1) create curriculum designed around understanding the physical processes that create Earth's climate, how climate change impacts the biosphere and society, and how students can apply this knowledge to their chosen field.
- 2) expand climate content training to a diverse set of working professionals and interested students with flexible, online course offerings.

- 3) support an educated workforce that will lead adaptation to the effects of climate change in the 21st century.

Goals #2 and 3 overlap with our **expected outcomes** for the new Certificate. With distance education, the University of Maine can play a crucial role in offering rigorous, innovative climate content to a wider audience. Delivering this content to K-12 educators allows us to reach an audience that can, in turn, educate the next generation on the scientific basis for climate change and best practices for adaptation to a warming world.

b. Rationale

Climate change is already impacting northern New England, with anticipated impacts to Maine's fisheries, timber industry, and economy. Understanding climate change science and its role in adaptation will be critical for Maine's 21st century workforce across a variety of job sectors that include businesses, government decision-making, and education. Several of the Climate Change Institute's (CCI) faculty were involved in the Maine Climate Council, a government initiative started in 2019 to craft the four-year climate plan "Maine Won't Wait."

CCI is already renowned for its competitive graduate academic programs and research that spans local, national, and global issues and locations. Adding a graduate distance education program provides an opportunity to expand its climate studies education to a national and international professional audience.

c. Intended Audience and Eligibility Criteria

An earned baccalaureate degree from an accredited program is required for admission, with a minimum grade point average of 2.5 for all candidates. A minimum TOEFL score of 80 (IbT), 6.5 (IELTS) or 60 (PTE Academic) is required for international students.

d. Learning Objectives

Program requirements that lead to the Graduate Certificate in Climate Science & Adaptation will satisfy the following learning objectives. While pursuing the Certificate, students will:

- 1) gain an understanding of the Earth's physical and chemical climate system;
- 2) gain an understanding of the relationships among climate, ecosystems, and humans;
- 3) develop basic proficiency with climate analysis tools;
- 4) strengthen key professional skills in interdisciplinary science, including communication to various audiences, collaborative skills, and proposal development.

4. Evidence for Need

Enrollment in workforce development courses has increased across the state during the COVID-19 pandemic (Loftus, 2021). We describe below the recent statewide support and trends in climate change education, and how results of our marketing research further

support this need. There has been recent growth in programs that are comparable to the Graduate Certificate proposed here. Trainings on climate change, hosted by northern New England non-profit organizations, have also grown. As the largest public higher education institution in the state, the University of Maine is uniquely positioned to offer its own program and partner with these organizations.

a. Maine State Government Support for Climate Change Education

There is a statewide trend towards support for educators to learn and teach substantive climate change content. One of the stated goals of “Maine Won’t Wait” is to increase public education offerings related to climate and education (Maine Climate Council, 2020). In March 2022, Maine State Legislature recommended “ought to pass” for LD 1902, a bill for a three-year pilot program to support climate change education in schools. This allocates \$3,000,000 towards professional development for educators in interdisciplinary climate studies (L.D. 1902, 2022). These initiatives are an opportunity to partner with DOE for our curricula designed for K-12 educators.

b. Workforce Needs - Burning Glass Reports

During the SP21 semester, the Division of Lifelong Learning conducted marketing research to assess need for the Graduate Certificate in Climate Science & Adaptation. Burning Glass does not yet have a Classification of Instructional Programs (CIP) code from the Department of Education for “climate,” so the following results are based upon keyword searches for fields that overlap with climate science. These include Political Science, Geography, Environmental Science, Anthropology, Geology/Earth Science, and Sustainability Studies. The geographic setting for this marketing analysis was nationwide. Results of this analysis show that the number of Master’s degrees conferred in most of these fields has grown 9 - 15% over the past five years, with an exceptional increase in Sustainability Studies of 134%. By 2028, job growth in these fields is expected to be 3.6 - 9.9%.

c. K-12 Educators as a Target Audience

The opportunity to earn professional credit towards the Graduate Certificate in Climate Science & Adaptation will have wide appeal and demonstrable need across a range of commercial, government, policy, educational, and non-profit job sectors. K-12 educators are one audience that has shown enthusiasm and interest in climate change trainings at this stage. We have conceived programs to offer on short-term (i.e. multi-day workshop, accelerated summer course) and long-term (i.e. coursework over an academic year) timescales. Electives outlined below would be offered in the initial pilot years of the Certificate that are designed specifically for educators. During FA21, we designed and sent a survey to grade 7-12 science and math teachers throughout Maine. With 162 responses, educators expressed the following interests:

- asynchronous or hybrid coursework for the Graduate Certificate (81.9% of respondents).

- asynchronous or hybrid modality for a summer workshop (60% of respondents).
- earning professional development or graduate credit (80% of respondents).
- 62.3% of respondents expressed that they were “likely” or “highly likely” to pursue this programming.

Topics with the most interest (at least half of the respondents) included adapting climate change content for the classroom, energy resources, climate data literacy, and impacts to local food systems. Programming most relevant to teachers in the planning stages for Summer 2022, and has been approved by DLL and the Office of Student Records. This programming includes pilot versions of the two-day, online summer workshop (July 12-13) and the course INT 500: “Climate Change Teaching Tools” during Session 6 (July 5 – 22). This is timely, as the DOE is set to release new K-12 climate change curriculum to the Maine Online Opportunities for Sustained Education (MOOSE) platform in March and July, as part of the “Maine Won’t Wait” four-year climate action plan.

d. Comparable Programs

i. Graduate Certificates at U.S. Higher Education Institutions

Nationwide, seven universities offer online graduate certificates in climate studies (Table 1). These programs range from 9-20 learning credits and vary in specialization, including topics such as forestry, climate change leadership, and international policy. Programs at northeastern institutes are listed first, and University of Maine (this proposal) is listed for comparison at the end.

Table 1. At-a-glance program specs for nationwide online graduate certificate programs in climate studies, with northeastern programs listed first, and proposed program at University of Maine listed at end. Approximate tuition cost for University of Maine calculation from current rates posted under “Tuition and Fees” for UMaine Online (<https://online.umaine.edu/tuition-and-fees/>). Data compiled Fall 2021.

Institution	Program	Credits requirements and approximate tuition (FA21 rates)	Modality
Harvard Division of Continuing Education, Extension	Environmental Policy and International Development Graduate Certificate	4 courses over 1.5 years, \$11,600	online, synchronous
School of Public Health, Yale University	Climate Change and Health Online Certificate Program	\$900 per course, \$2000 total for all three course offerings	online, blended synchronous/asynchronous
Penn LPS Online, Univ of Pennsylvania	Certificate in Climate Change	4 courses @ \$2,432/course	online asynchronous (majority) with some synchronous
Oregon State University ecampus	Forests and Climate Change Graduate Certificate	20 credits @ \$560/credit	online (majority) with some hybrid
North Carolina State University Distance	Certificate in Climate Adaptation	12 credits @ \$462/credit (residents) or \$1311/credit (nonresident)	online
University of Washington	The Graduate Certificate in Climate Science	17 credits @ \$488-560/credit	on-campus
American Public University	Graduate Certificate in Climate Change Awareness and Leadership	18 credits @ \$250-370/credit	online
University of Maine (this proposal)	Graduate Certificate in Climate Science & Adaptation	9 credits @ \$560/credit (resident and nonresident)	Online (majority) with summer workshop option

Commented [ML1]: It would be good to situate the UMaine Certificate among these as a point of comparison. Add a row for UMaine.

ii. Recent workshop programming in northern New England

We have observed a clear programmatic need, reinforced by interest and feedback from both local teachers and the DOE. One of our elective course offerings that counts towards the Graduate Certificate includes a summer workshop for educators focused on climate change content. We looked for recent programming in northern New England that was 1) targeted to educators, 2) workshop, summit, or institute-type events that lasted one to

several days, and 3) focused on climate change-related content. We noted that it is largely non-profit organizations spearheading these programs, rather than institutes of higher education.

Table 2. Summary of recent climate change-related workshop programming for educators in northern New England.

Event Name	Hosting Organization	Dates
Equity & Integration in Science Education (virtual conference with “Sustainability and Action” content)	Vermont Science Teaching Association	Jan 17 - 21, 2022
Climate Education Retreat	The Climate Initiative (formerly Kennebunkport Climate Initiative)	Aug 10-13, 2021
Workforce Pathways Conference (with “climate resilience trades” as one of the strands)	Island Institute	Oct 7-8, 2021
Maine Climate Education Summit	Maine Environmental Education Association	June 2021
various multiday workshops and professional development for educators	Vermont Energy Education Program	ongoing

iii. Summary

The results of our marketing research show that there is widespread, recent interest in climate change content in northern New England. However, affordable graduate offerings as continuing education programs are scarce at institutions of higher education in our region. This is a timely opportunity for the University of Maine to satisfy a growing demand.

5. Program Content

a. Program of Study

Students who earn this Graduate Certificate will have demonstrated their understanding of the physical principles that underpin Earth’s climate system, Earth’s biologic response to climate change, the societal impacts of climate change, and practical application of the material. Contemporary issues, societal impact, and best practices for communicating climate change are themes incorporated into all course offerings.

We have accounted for two electives during the program’s initial years (AY 2022 – 2023 and 2023 – 2024) that are designed for K-12 educators. The first is a two-day summer workshop for educators that will have its pilot offering in Summer 2022. A summary of course offerings, requirements, and electives that count towards the 9-credit certificate are detailed in Table 3.

All courses will be offered [online](#) through DLL, and listed with appropriate units (e.g. School of Earth and Climate Sciences, Dept of Anthropology, CCI, School of Biology and Ecology, Ecology and Environmental Science, School of Learning and Teaching).

Table 3. Planned program of study for the Graduate Certificate in Climate Science & Adaptation

Graduate Certificate in Climate Science & Adaptation
<i>9 credits, including:</i>
1) ERS 542: Atmosphere, Ocean, Ice and Climate Change (3 credits, required)
2) <u>One</u> of the following: BIO or EES 5xx: Contemporary Issues in Global Biodiversity (3 credits) ANT 530: Human Dimensions of Climate Change (3 credits)
3) <u>One</u> of the following practical application courses: INT 500: Interdisciplinary Applications of Climate Science INT 500: Univ of Maine Climate Change Workshop - Climate Change Teaching Tool ESC 556: Climate Change Education

b. Course Descriptions

Faculty affiliated with CCI have agreed to carry out instruction of courses, which we anticipate offering annually. Elective course ESC 556 is one exception that is a new, semester-length course with School of Learning and Teaching faculty. Currently, it is offered biennially, with enrollment preference for students already enrolled in the M.Ed. program in Curriculum, Instruction and Assessment. Any remaining spots will be available to students that are pursuing this Certificate.

ERS 542 Atmosphere, Ocean, Ice and Climate Change (3 credits)

This course covers Earth's climate system, including heating of the Earth by solar radiation, radiation balance, composition and circulation of the atmosphere and ocean. Geographic distribution and motion of ice is covered, as well as feedbacks between components of the climate system. Past changes in the radiative forcing, atmosphere, ocean, and ice on Earth. Climate change will be discussed on time scales ranging from years to millions of years.

Learning objective(s) addressed: 1

BIO or EES 5xx: Contemporary Issues in Global Biodiversity (3 credits)

This course provides students with an introduction to ecosystem function and threats to global biodiversity. Foundational ecological and environmental topics such as natural selection, basic

genetics, general earth history, and the organization and history of life are covered as we examine global patterns of biodiversity, the evolution of biodiversity, threats to biodiversity, and strategies for management and conservation. With this foundation, we will then examine contemporary topics and issues in conservation biology, including the impact of colonialism on scientific practice and species loss, best practices for land management, and how deforestation affects global health.

Learning objective(s) addressed: 2

INT 500 Interdisciplinary Applications of Climate Science (3 credits)

This is a course focused on a current, interdisciplinary topic in climate sciences, such as change in the Arctic, communicating climate risk, and the future of energy resources. Through this theme, students will explore the physical, chemical, biological, and human dimensions of this issue. Students will learn key skills, including:

- 1) Data visualization
- 2) Climate tools (appropriate at interdisciplinary level)
- 3) Presentation and communication (media training, policy) skills
- 4) Interdisciplinary collaboration
- 5) Project & proposal development

Learning objective(s) addressed: 3, 4

ANT 530 Human Dimensions of Climate Change (3 credits)

Multi-disciplinary overview of selected social science topics on humans and climate change. Critical anthropological attention to what this literature overlooks and how these omissions can be dealt with. Students learn about the importance of inclusive and participatory process in partnering with stakeholders to produce data and policy that is socially relevant and responsive.

Learning objective(s) addressed: 2, 4

ESC 556 Climate Change Education (3 credits)

The purpose of this course is to provide students an overview of climate change science and develop skills, knowledge, and dispositions associated with teaching climate change in science learning settings to a wide range of learners. In support of this work, the course provides opportunities for students to draw from their teaching experiences to implement specific approaches to teaching climate change, including but not limited to honing teaching strategies to address alternative conceptions, engaging with education research on this topic, designing a lesson to align with current research on climate change education, and reflecting on their own learning about climate change education.

Learning objective(s) addressed: 4

INT 500: University of Maine Climate Workshop - Climate Change Teaching Tools (3 credits)

Designed for educators, course objectives include enhancing knowledge and skills on different aspects of climate change. Course themes may include skill-building in teaching and communicating climate science content to diverse learners, integrating climate data into educational modules, and local impacts of climate change. This course largely involves a period of online, asynchronous study and assignments. Attendance at a two-day synchronous, online workshop is also required.

Learning objective(s) addressed: 3 & 4

c. Development of New Courses

Two of the proposed courses (BIO or EES 5xx and INT 500: Teaching Tools) are not yet approved, though both have been in the planning stages since FA21. In our survey targeted to educators, 41% of respondents expressed interest in the topic of critical biodiversity issues, demonstrating interest and need for such a course.

Upon approval for this Graduate Certificate proposal, we will then seek approval of these courses with an experimental course number for their first offering. Course proposals will include evidence for interest, and modifications based on student evaluation and feedback from the first offering. We intend to follow all formal course proposal processes within the appropriate teaching units, with the Graduate School, and with the Curriculum Committee.

6. Program Resources

Courses will be taught by CCI faculty, according to interest and expertise. CCI has several postdocs and soft money research affiliates that would be available to teach courses, depending on scheduling and demand. ESC 556 is offered biennially by School of Learning and Teaching faculty as a semester-length course. As space in the ESC 556 permits, students pursuing this Certificate can take it for credit towards the practical application requirement (Table 3).

CITL is available to assist with course adaptation and module building on BrightSpace, as well as offering regular training on best practices for online pedagogy. All enrolled students have access to extensive electronic resources and databases through Fogler Library, and we do not anticipate additional requirements for library resources. DLL will fund courses taught as overload for tenure-track faculty.

7. Program Evaluation

Program evaluation will occur annually to ensure that the Certificate program:

1) is financially solvent;

- 2) is meeting its stated educational objectives based upon syllabi and student work;
- 3) meets faculty capacity to teach courses;
- 4) leveraging potential partnerships with other campus units and programs;
- 5) meeting student needs for rigor, content, and scheduling, as expressed in course evaluations and targeted surveys.

If enrollment declines or the program is deemed to not be meeting its stated objectives, the planning committee will discuss future adaptation or discontinuation of the Certificate.

8. References

- Loftus, Sawyer. November 23, 2021. "Officials say adult education is growing in Maine, despite COVID." Bangor Daily News. Retrieved December 2, 2021 from:
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- "Resolve, To Establish a Pilot Program To Encourage Climate Education in Maine Public Schools."
HP 1409, L.D. 1902, 130th Maine Legislature, 2022.
http://www.mainelegislature.org/legis/bills/display_ps.asp?id=1902&PID=1456&snum=130&sec3#

Proposed Graduate School policy on the inclusion of a land acknowledgment in graduate student theses and dissertations

(updated March 24, 2022)

University of Maine graduate students are **expected** to include a statement in their final thesis or dissertation which acknowledges that their graduate study has taken place on the ancestral lands of the Wabanaki Tribal Nations. The Graduate School acting through the Graduate Board recommends 2 nonexclusive options for a tribal land acknowledgement. The first option is to include the statement that was developed by the President's Council on Diversity, Equity and Inclusion and adopted by the University of Maine in the acknowledgements section of the thesis/dissertation:

The University of Maine recognizes that it is located on Marsh Island in the homeland of Penobscot people, where issues of water and territorial rights, and encroachment upon sacred sites, are ongoing. Penobscot homeland is connected to the other Wabanaki Tribal Nations—the Passamaquoddy, Maliseet, and Micmac—through kinship, alliances, and diplomacy. The University also recognizes that the Penobscot Nation and the other Wabanaki Tribal Nations are distinct, sovereign, legal and political entities with their own powers of self-governance and self-determination.

UMaine President's Council on DEI

The second option, which may be especially relevant to graduate students undertaking qualitative research studies is to include a researcher positionality statement in the thesis/dissertation:

Masters and PhD student researchers in the social sciences are often required to explore and explain their positionality, as, in the social world, it is recognized that their ontological and epistemological beliefs influence their research.

<https://files.eric.ed.gov/fulltext/EJ1268044.pdf>

The positionality statement could include an acknowledgement of the land:

Articulating your positionality means locating yourself in your familial history, discerning where your knowledge comes from, and addressing the lived experiences that guide your perspective in your life, research, and teaching roles. We all inhabit intersectional identity groups that connote varying levels of power and privilege such as race, socioeconomic class, ability, religion, gender, and sexual orientation.

<https://inthearts.arts.ubc.ca/renewed-project/discussion-topics-prompts/discussion-prompts-positionality/>

Graduate programs **supporting** option 2 should provide resources to graduate students electing this option. Development of a researcher positionality statement which acknowledges the land may be used to complement the formal University land acknowledgment statement or may be used as an alternative to this statement.

Current Recommendation Form

● crystal.burgess@maine.edu

Phone Number

Relationship to Student

●



On a scale of 1-5 (5 being the highest), please indicate the student's academic ability and potential to succeed in graduate level coursework

● Please select an option



On a scale of 1-5 (5 being the highest), please indicate the student's motivation for the proposed program of study

● Please select an option



This recommendation may be used for:

● Please select an option



Please include the reasons for your recommendation of this student, or attach a document below. Examples of recommendation topics include: What is your estimate of the applicant's promise as a graduate student and professional success? What are the applicant's greatest strengths and weaknesses? What is the extent of your acquaintance with the applicant?

If you are attaching a letter of recommendation, please write "See attached letter" below.

Proposed Recommendation Form

Add question requesting the reference to rank the applicant compared to other students at their institution with options to indicate top 1%, top 5%, top 5%, etc.

Language of question and rank options to be determined by Graduate Board.

● Email Address

Phone Number

Relationship to Student

● ▼

On a scale of 1-5 (5 being the highest), please indicate the student's academic ability and potential to succeed in graduate level coursework

● Please select an option ▼

On a scale of 1-5 (5 being the highest), please indicate the student's motivation for the proposed program of study

● Please select an option ▼

How does this applicant compare to other students at your university?

Please select an option ▼

Please select an option

- Top 1%
- Top 5%
- Top 10%
- Top 25%
- 25-50%
- 50-75%
- Below 75%

student, or attach a document below. Examples of recommendation topics include: What is your estimate of the applicant's promise as a graduate student and