AGENDA

1. Review/approval of the September 27, 2018 Graduate Board minutes

2. Review/approval of the October 9, 2018 Curriculum Committee report

3. Announcements:
   - Introduction of new Graduate School staff members
   - Enrollment Management update
   - Reminder regarding 4+1 admissions process
   - Syllabus language for holiday observances
   - Update on regulations for H1B visas
   - DOE Scholars program
   - Switzer Environmental fellowships

4. Round 2 of UMaineGOLD proposals

5. Review of MA proposal in Intermedia

6. Continued discussion of Graduate Advisor-Advisee Handbook

7. Items arising
Graduate Board
Room 57, Stodder Hall
Thursday, September 27, 2018
Refreshments: 3:00pm
Meeting: 3:15pm


Meeting Minutes

1. Welcome/introductions
   VP Kody Varahramyan & Associate VP Scott Delcourt
   Graduate Board self- introductions
   2 omissions on the Graduate Board nametags – (kh will update)

2. Approval of May 2018 Graduate Board minutes
   Motion to approve minutes – Deborah Rooks-Ellis
   Unanimous vote to approve

3. September 2018 Curriculum Committee report
   The Curriculum Committee met on October 9, 2018 and recommends the following courses to the Graduate Board for approval.

   Associate VP Scott Delcourt – short curriculum committee agenda
   1. Economics course – awaiting approval with Deans’ office
   2. SED566 – Exec Function and Learning - approved
   3. EDT 515 - approved
   4. SED 543 - approved

   Motion to accept Curriculum Committee report – Owen Smith
   Unanimous vote to approve

4. Announcements – Scott Delcourt
a. UMaineGOLD – informational meeting October 17
   2nd round of UMaine Gold proposals; meeting Oct 17: 2-3PM in 57 Stodder Hall.
   S. Delcourt explained UMaineGOLD (Graduate Online Degrees).
   Goals - High quality of education & to increase enrollment.
   Revenue sharing model - $200 goes back to the department for each approved 3 credit course per student enrolled. Resources may be used for administrative support, instructional costs for GAs or other staffing, professional development, etc.

   umaine.edu/gold has information on the 15 standards for online graduate programs to be considered as UMaineGOLD programs.

   UMaineGOLD currently has 6 approved programs: 3 are in Education: Special Education, Curriculum Assessment and Instruction, and Instructional Technology PSM in Bioinformatics Graduate Certificate in Surveying Engineering MBA

b. Charlotte Newcombe Dissertation Fellowships

c. October – free transportation on October 5

5. OVPRDGS Report from Vice President and Dean Varahramyan
   VP Kody Varahramyan- goals – growth & modern research university.
   Growth in quality & quantity – Umaine Gold is a great example of this.
   Recruitment improvements – there is room for improvement.
   We had ½ of one persons’ time previously; we now have 5 people.
   Optimizing Operations of Graduate School –
   Addition of: Kathleen Harding-Heber, Executive Office Manager to help with day to day management of staff.
   We have grown by 189 students in 2018 vs 2017.
   We are also increasing efforts in retention – Student Success Manager
   We have been able to grow the research aspects in graduate studies.

6. Enrollment Management update
   Scott Delcourt – increase in overall number of graduate students nearly 10%
   (see Powerpoint slide handout)
   Increase in applications, admissions and confirmations / enrollments.
   2044 enrolled students as of this morning – highest number in many years.
   One of the areas of growth = online graduate programs. Many folks are looking for accessible graduate education & are working full time jobs – many located geographically far from campus.
There are about 500 students in online courses currently – almost 25% of our total number of our graduate students are enrolled in online courses. Non-thesis options are becoming more popular & increasing demand – especially in Masters level programs. Small numbers add up – increasing by 6 students in each of UMaine’s 85 programs would make a significant impact.

Improving the graduate program websites- Tilan Copson has been hired as a GA to assist programs in improving their websites. Approximately half of those in attendance had worked with her. Jamie Ballinger had purchased +30,000 names through GRE last year – and only about 2% of those folks moved beyond the message to the website. This seemed to suggest that there was a problem with some of the websites.

Tim Bowden - question for Scott: Is there promotional material or other funds available for promoting our program? (ie for Open House) Tim suggested promotional materials to promote the program effectively. Scott responded that there are folks to help with design in the graduate school – staff support. Kody suggested that we meet to see how we can help each other.

Staff Changes in the Graduate School – Lauren Dupee left to go to EMCC. Crystal Burgess – has been promoted to Communications Director for the Graduate School. Kathryn Rossignol – new Student Success Manager – starting on Monday. We are increasing our recruitment – new strategic recruiter – we are in the final hiring stages now. Ashlie Crabtree – digital media specialist hired through UMaine GOLD initiative has helped us to create Facebook ads in India – around the 12 cities where Jill is traveling. So far 4 million impressions and over 5000 people have clicked on the links within the ad. The Graduate School Open House on October 16 – will also be promoted through Facebook. James McClymer asked about what the impact of UMaine GOLD could have on ongoing UMS discussion with Academic Partnerships. Scott acknowledged that it is a concern and that we are aware of it.

Mehdi Tajvidi – (Graduate Board representative from Forestry) asked a question about graduate student growth plans and noted that Forestry admitted 11 more students this year and now needs space to accommodate them.

VP Kody Varahramyan - When things grow – revenue sharing is needed. One of the programs expressed concern about growing space for the academic units on campus. VP Varahramyan requested a 1-2 page statement from Forestry to help explain the need and offered to bring it to the folks who allocate space.

Scott Delcourt noted that UMaine has many professional programs where students do not have dedicated office space. However, the Stodder Graduate Center has wireless internet, desks/chairs, and more comfortable lounge furniture.
that may be used by any graduate student and is accessible with a MaineCard 24/7.

Jacques Ferland – Asked if we know the potential impact of impact of online education vs. on campus education moving forward. Scott Delcourt recommended that Associate Provost Monique LaRocque might provide an overview of the landscape for online education.

Mehdi Tajvidi asked if we can see where our applicants are sending their GRE scores. Conducting an Entrance survey was suggested as a way to find out why students select UMaine.

James McClymer suggested having a dedicated space for graduate students to study & get coffee stating that it may help to recruit students.

Space vs. building community on campus may be important to consider – especially for on-line students.

7. Review of program/curricular changes

These 3 programmatic changes are included to be recorded in the Graduate Board minutes – no formal approval from the Board is required.

a. Revised EdD in Educational Leadership – Ian Mette explained the need for change. None of the people graduating with doctorates were planning to go into research; these are school administrators. This program is in line with what is going on nationally. Instead of offering one class every semester, EDL decided to offer 1 class every 8 weeks to accelerate the program. We have 12 new EdD students $370,000 in revenue following these students to graduation. We are supporting students through their “live time” taking courses, and then as they move to the dissertation research/writing.

Scott Delcourt noted that this approach to dissertation support has many similar models, stating that when Dylan Dryer was the Stodder faculty member in residence, he started a dissertation-writing studio in this room for the graduate community.

b. New Concentrations in Forest Resources – Mehdi Tajvidi explained these new concentrations. Scott Delcourt noted that more guidance may be necessary in making sure that students select appropriate courses within each concentration since each includes a list of all the courses that might be included in the concentration without any prioritization of the courses.
c. New Climate Change Concentration in Global Policy Cindy Isenhour had to leave the Graduate Board meeting; however, Scott explained that this new concentration has been put on hold until new faculty hire is made to help teach the courses.

8. *UMaine's Role as a Modern 21st Research University:* Discussion of Graduate Board priorities for AY 2018-19

Scott Delcourt posed the question regarding how new developments in graduate studies would help support the goal of a modern 21st Century Research University. As an example, NSF is conducting a contest to generate the next 10 big ideas in research. Anyone over the age of 14 can submit ideas on the NSF website.

VP Kody Varahramyan asked if we should have new graduate programs to respond to the 21st century research. Hamish Greig suggested interdisciplinary studies.

Creating a skilled work force - Is there a call for graduates in any programs we don’t currently offer? James McClymer asked what the local area needs are or who is looking to hire. Scott Delcourt suggested the Maine Development Foundation and Bangor Region Chamber as potential resources.

Michael Kinnison asked: How do we bring students back to Maine? Some type of incentive / tuition rebate, etc. to get students to stay and work in Maine after graduation.

Deborah Rooks-Ellis stated that there is a trend in K12 schools to have students do internships in the state of Maine. School system around the state of Maine use our interns – however, our students often leave the state to find work.

Jim Artesani agreed that this is a challenge we will have to tackle to try to employ Maine grads.

9. Items arising

   James McClymer – Concern about our students having to pay fees to Bursar’s Office to have payments deducted for pay. It is currently costing them $30 a year to be able to pay their bills with an installment plan.

Scott offered to follow up with Bursar’s Office again and see if there is anything that can be done to reduce / eliminate fee.

Meeting adjourned 4:35pm.
CURRICULUM COMMITTEE REPORT

The Curriculum Committee met on October 9th, 2018 and recommends the following courses to the Graduate Board for approval at its November 1st, 2018 meeting.

New Courses:

- **EDT 570** Leveraging Crowd-Based Knowledge in K-12 Classrooms
- **SMS 564** Marine Resource Management
- **ERS 501** Paleoceanography
- **BIO 501** Evolutionary Theory and Application

* **ECO 532** Applied Time Series Econometrics: discussed at September's Curriculum Committee – pending College Dean's signature
October 2, 2018

To: Curriculum Committee:
Scott Delcourt
Qian Xue
Stuart Marrs
Craig Mason
Grant Miles
Josh Kelley
Deborah Rollins
Lisa Stilley

Fr: Kacey Beckwith, Administrative Specialist

Re: Curriculum Committee, October 9, 2018 Stodder Hall, Room #48

The following courses will be presented on Tuesday, October 9th at 2:15 p.m. in the Graduate School's Conference Room, 48 Stodder Hall.

1. 2:20-2:30 EDT 570
   Justin Dimmel
2. 2:30-2:40 BMS 605
   lan-Meng
3. 2:40-2:50 SMS 551 564
   Keith Evans
4. 2:50-3:00 ERS 501
   Katherine Allen
5. 3:00-3:10 BIO 501
   Brian Olsen
NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM FOR GRADUATE COURSES

Graduate course proposals, modifications, or eliminations must be submitted to the Graduate School no later than the 3rd of each month. Please refer to the Graduate School website for the Curriculum Committee meetings schedule. Electronic signatures and submission is required.

Please return the completed e-form with appropriate signatures and documentation to the Graduate School by saving the form to your desktop and sending as an attachment to graduate@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT  Master of Education - Instructional Technology

COURSE DESIGNATOR  EDT  COURSE NUMBER  570  EFFECTIVE SEMESTER  Spring 2019

COURSE TITLE  Leveraging Crowd-Based Knowledge in K-12 Classrooms

REQUESTED ACTION

NEW COURSE (check all that apply, complete Section 1, and submit a complete syllabus):

[ ] New Course
[ ] New Course with Electronic Learning
[ ] Experimental

MODIFICATION  (Check all that apply and complete Section 2):

[ ] Designator Change  [ ] Description Change  [ ] Cross Listing (must be at least 400-level)†
[ ] Number Change  [ ] Prerequisite Change  [ ] Other (specify)
[ ] Title Change  [ ] Credit Change

ELIMINATION:

[ ] Course Elimination

ENDORSEMENTS

Please sign using electronic signatures. If you do not already have a digital signature, please click within the correct box below and follow the on-screen instructions.

Leader, Initiating Department/Unit(s)

Johanna Prince

Digitally signed by Johanna Prince
DigiSigner: adobeSigner, 0, you,
email: johanna.prince@maine.edu, cn=US
Date: 2018.04.27 10:17:48 -04'00'

College(s) Curriculum Committee Chair(s) [If applicable]

College Dean(s)

Graduate School [sign and date]

1. Courses cross-listed below 400-level require the permission of the Graduate School.
SECTION 1 (FOR NEW COURSE PROPOSALS)

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours):

Course: EDT 570
Course Title: Leveraging Crowd-Based Knowledge in K-12 Classrooms
Catalog Description: This course is an inquiry into crowd-based knowledge and the affordances and challenges of such knowledge for K-12 teachers. We will consider different interfaces (e.g., wiki, question and answer, discussion forum) that manage interactions between large groups of users and examine questions of reliability, access, and participation. The course will be project and discussion oriented.
Credits: 3
Prerequisites: None

Components (type of course/used by Student Records for MainStreet) – Multiple selections are possible for courses with multiple non-graded components:

☐ Applied Music  ☐ Clinical  ☐ Field Experience/Internship  ☐ Research  ☐ Studio
☐ Laboratory  ☐ Lecture/Seminar  ☐ Recitation  ☐ Independent Study  ☐ Thesis

Text(s) planned for use:

Course Instructor (include name, position, teaching load):

Justin Dimmel, Assistant Professor COEHD, 1 course per

Reason for new course:

This course was taught Spring 2017 as a special topics course. There was very positive feedback for the content of the course as relevant and timely for those working with educational technology in K-12 classrooms. We would like to transition this course to a standing course now.

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

☐ No. The department will not request additional resources for this course.
☐ Yes. Please list additional resources required and note how they will be funded or supported.

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

We will offer this course 1 time every other year.
Date: April 27, 2018

From: College of Education of Education & Human Development

Course Proposals (Write in Course Designator & Title of Course)

Course Prefix and Number: EDT 570
Course Title: Leveraging Crowd-Based Knowledge in K-12 Classrooms

Please forward to the next person or department on the list below.

<table>
<thead>
<tr>
<th>Date</th>
<th>Initials/Signature</th>
<th>Name</th>
<th>Role</th>
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</thead>
<tbody>
<tr>
<td>4/18/18</td>
<td></td>
<td>Johanna Prince</td>
<td>EDT Program Coordinator</td>
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<tr>
<td>7/19/18</td>
<td></td>
<td>Mary Ellin Logue</td>
<td>Chair, School of Learning and Teaching</td>
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<tr>
<td>9/18/18</td>
<td></td>
<td>Sherri Weeks</td>
<td>Chair, COEHD Curriculum Committee</td>
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<tr>
<td>9/18/18</td>
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<td>Jim Artesani</td>
<td>Associate Dean of Graduate Education, Research, &amp; Outreach</td>
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<td>Tim Reagan</td>
<td>Dean</td>
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Sent to (who) ____________________________________________________________________ in Graduate School on (date) _______________ for Graduate Curriculum Committee Review
Course: EDT 570
Course Title: Leveraging Crowd-Based Knowledge in K-12 Classrooms
Credit Hours: This is a three credit hour course
Catalog Description: This course is an inquiry into crowd-based knowledge and the affordances and challenges of such knowledge for K-12 teachers. We will consider different interfaces (e.g., wiki, question and answer, discussion forum) that manage interactions between large groups of users and examine questions of reliability, access, and participation. The course will be project and discussion oriented.
Prerequisites: None
Date Approved for 680 Endorsement: as 598 via Janet Gallagher 4/7/16 via email to JRP

Program Vision
The University of Maine Master's program in Instructional Technology is offered fully online and is designed to help students become leaders in effective and innovative uses of current and emerging technology. The required coursework, research, and clinical experiences are designed for educators working in a variety of contexts. Students will engage in inquiry-based curriculum and build capacity to continually assess their local context; implement technology to enhance teaching, learning and assessment; build professional learning networks to support ongoing professional development; and develop expertise in current and emerging instructional technologies. Essential to this program is a commitment to local community, advocacy for accessibility, and social justice, especially in the context of the potential for new technology to influence local educational settings.

Course Objectives: Students will:
1. Examine how crowds of people generate knowledge.
2. Investigate micro credentials, badges, and social reputation, and specifically consider how these markers of progress and participation affect learner experiences within crowd-based knowledge communities.
3. Develop strategies for integrating crowd-based knowledge into their work as educators. For classroom teachers, this could mean planning activities or units that would guide how students draw on crowd-based knowledge to further their learning. For technology educators that work with teachers, this could mean planning professional development activities to help teachers learn about crowd-based knowledge and incorporate it into their teaching.

How does the course explore the central questions?

<table>
<thead>
<tr>
<th>Question</th>
<th>Depth of Engagement</th>
</tr>
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<tbody>
<tr>
<td><strong>Learning Environments</strong>: How do educators leverage technology to create environments that support the development of diverse skills, and emphasize challenging learning experiences?</td>
<td>3</td>
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<td><strong>Teaching and Learning</strong>: How can technology enhance teaching and learning partnerships that support and promote innovative models of deeper learning?</td>
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<td><strong>Digital Citizenship</strong>: How can educators promote an understanding of the social, ethical and legal issues and responsibilities related to a globally connected society?</td>
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</tr>
<tr>
<td><strong>Professional Practice</strong>: How can educators develop and model pedagogical and andragogical principles of learning to promote professional growth and practice in a globally connected society?</td>
<td>2</td>
</tr>
<tr>
<td><strong>Leadership</strong>: How can educators align vision, implementation, and practice to foster learning enhanced by technology?</td>
<td>1</td>
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</tbody>
</table>

Computational Thinking
<table>
<thead>
<tr>
<th>Category</th>
<th>Form of Data/Method</th>
<th>Depth of Engagement</th>
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</thead>
<tbody>
<tr>
<td>Collecting and Creating Data</td>
<td>Textual and Numerical</td>
<td>2</td>
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<tr>
<td></td>
<td>Images and Graphics</td>
<td>1</td>
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<td>Video</td>
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<td>Audio</td>
<td>1</td>
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<tr>
<td>Analysis and Presentation</td>
<td>Written narrative</td>
<td>3</td>
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<td>Website</td>
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<td>Graphs and Charts</td>
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<td>Database</td>
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<td>Content Collaboration</td>
<td>3</td>
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<tr>
<td></td>
<td>Discussion Collaboration</td>
<td>3</td>
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<tr>
<td>Potential Other Topics</td>
<td>Collecting and Creating Data</td>
<td>Geo-Spatial</td>
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<tr>
<td>Analysis and Presentation</td>
<td>Geographic Information Systems</td>
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<tr>
<td></td>
<td>Statistics</td>
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<td></td>
<td>Textual analysis Stats Plugin</td>
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**Potential Course Outline**

<table>
<thead>
<tr>
<th>Module</th>
<th>Example Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epistemology</td>
<td>What is knowledge? How do we know when a claim is true? How can we be certain of the things we think we know?</td>
</tr>
<tr>
<td>Introduction to Crowd-based learning</td>
<td>Students will identify a source of crowd-based knowledge and use that source of knowledge teach themselves something new.</td>
</tr>
<tr>
<td>When the crowd becomes a mob...</td>
<td>Students consider the life-long implications of being the subject of a viral social media posting and reflect on how their schools are preparing children or this fact of digital life.</td>
</tr>
<tr>
<td>Bringing the crowd into the classroom</td>
<td>Students will review and reflect on various crowd-based knowledge platforms and weigh the opportunities and risks of using those resources with students in K-12 schools.</td>
</tr>
</tbody>
</table>

**Potential Course Readings and Other Materials:**
Students read a mixture of academic research papers and more diverse content that is available on crowd-based learning platforms (e.g., Reddit, StackExchange, SwarmAI, Citizen Science). Students are also responsible for researching, identifying, and analyzing their own potential sources for crowd-based knowledge. They participate in crowd-based learning communities and track their participation through platform-specific microcredentials. These tools provide valuable contexts or students to consider how crowd-based communities could be used in schools. Examples of recently used academic readings include

Bonney et al., (2016): Can Citizen Science Enhance Public Understanding of Science?

Kobori et al., (2016): Citizen Science: a new approach to advance, ecology, education, and conservation; and

Sauerman and Franzoni (2014): Crowd science user contribution patterns and their implications. As the academic literature on crowd-based knowledge matures, new readings will be incorporated into the course.

**Potential Activities and Assignments:**
40% of your grade (100/250 points) will be based on participation on the blog and completion of the discussion assignments. There will be a total of 10 discussion assignments, which means these will occur not quite weekly. Assignments will be posted to the course blog on Tuesdays. Assignments will be due at 23:59:59 on the ensuing Monday. Discussion assignments will be
graded on a 1-10 scale. I will provide comments on your work both through the blog and also through email.

60% of your grade (150/250 points) will be based on your completion of the 3 course projects. Each course project is worth 50 points. Projects will be assigned on the course blog.

University of Maine Policies. Please visit: https://umaine.edu/citl/teaching-resources-2/required-syllabus-information/
NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM FOR GRADUATE COURSES
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Please return the completed e-form with appropriate signatures and documentation to the Graduate School by saving the form to your desktop and sending as an attachment to graduate@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT School of Marine Sciences
COURSE DESIGNATOR SMS COURSE NUMBER 564 EFFECTIVE SEMESTER Fall 2019
COURSE TITLE Marine Resource Management

REQUESTED ACTION

NEW COURSE (check all that apply, complete Section 1, and submit a complete syllabus):
■ New Course
■ New Course with Electronic Learning
■ Experimental

MODIFICATION (Check all that apply and complete Section 2):
■ Designator Change ■ Description Change ■ Cross Listing (must be at least 400-level)\(^1\)
■ Number Change ■ Prerequisite Change ■ Other (specify)
■ Title Change ■ Credit Change

ELIMINATION:
■ Course Elimination

ENDORSEMENTS
Please sign using electronic signatures. If you do not already have a digital signature, please click within the correct box below and follow the on-screen instructions.
Leader, Initiating Department/Unit(s)

[Signature]
College(s) Curriculum Committee Chair(s) (if applicable)

[Signature] 9/25/18
College Dean(s)

Graduate School [sign and date]

1. Courses cross-listed below 400-level require the permission of the Graduate School.
SECTION 1 (FOR NEW COURSE PROPOSALS)

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours):

SMS-564 Marine Resource Management.
This course uses the economic lens to explore issues related to the use and management of the oceans. Traditional biological/economic approaches to resource management are addressed. Frontier approaches, challenging traditional methods, are also discussed. This course draws on game theory and natural resource economics to explore topics, such as drawing lines in the sea, the management of wild capture fish stocks, recreation, tourism, aquaculture and pollution from land-water interactions. Prerequisite: none.
Credits: 3

Components (type of course/used by Student Records for MaineStreet) - Multiple selections are possible for courses with multiple non-graded components:

- Applied Music
- Clinical
- Field Experience/Internship
- Research
- Studio
- Laboratory
- Lecture/Seminar
- Recitation
- Independent Study
- Thesis

Text(s) planned for use:

This course will draw on readings from various journal articles (see attached reading list) as well as excerpts from books such as Economics of the Oceans: Rights, Rents and Resources by Paul Hallwood (2014) and Coastal Governance by Richard Burroughs (2011).

Course Instructor (include name, position, teaching load):

Keith S. Evans, Assistant Professor of Marine Resource Economics
Current teaching load: 50%

Reason for new course:

A similar graduate-level course (SMS-551 Fisheries Management) was taught in the past, but has not been offered for several years (approximately 10) and is no longer on the books. Reintroducing this course and broadening its focus to the management of marine resources will fill a gap in the marine policy graduate program.

I have taught a special topics version of this course and received strong interest among graduate students inside marine sciences (across all four programs) as well as in other schools/departments (e.g., economics, anthropology, and communications).

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

☐ No. The department will not request additional resources for this course.

☐ Yes. Please list additional resources required and note how they will be funded or supported.

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

This class does not adversely affect any other departments; rather, it positively affects them, as graduate students and senior undergraduates from departments other than SMS (e.g., SOE), may choose to enroll.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the Instructor of this course or to anyone else as a result of rearranging teaching assignments?

This course will be offered once per year and become part of my regular course load. This will not result in overload salary payments.
Instructor. Dr. Keith S. Evans, keith.evans@maine.edu
SMS Office. Libby Hall 210-A, 207-581-4324
SOE Office. Winslow Hall 302-B, 207-581-3178
Office hours. By appointment.
Class Meeting. XXXday XX:XX X.m. - XX:XX X.m., XXX XXXXX Hall
Class website. Google classroom. [class code: XXXXX]

Course Description. This course uses the economic lens to explore issues related to the use and management of the oceans. Traditional biological/economic approaches to resource management are addressed. Frontier approaches, challenging traditional methods, are also discussed. This course draws on game theory and natural resource economics to explore topics, such as drawing lines in the sea, the management of wild capture fish stocks, recreation, tourism, aquaculture and pollution from land-water interactions.

Texts. This course will draw on readings from various journal articles as well as excerpts from books (see Reading List posted to the Google classroom). Readings will be updated throughout the semester – see the course website for updates to this list.

Here are some helpful texts (not required)

• Ola Flaaten, Fisheries Economics and Management, Available online

Prerequisite Knowledge. There is no formal pre-requisite for this course, other than having graduate or senior undergraduate standing. This course is primarily designed for graduate students (either first-year or advanced) interested in the challenges of managing human behavior in our oceans. This course emphasizes the role of intuition over mechanical calculation. Despite this fact, we may use algebra, geometry, and basic calculus to illustrate key concepts. If you are concerned with this, please make an appointment to meet with me to discuss options.

Learning outcomes. Students will be able to:

• Develop an appreciation of the challenges and policy issues related to managing human behavior in marine ecosystems.
• Illustrate the constraints faced in developing and applying marine policy in both domestic and international waters.
• Analyze and evaluate the tradeoffs inherent in designing policy to manage resources.
• Identify the strengths and limitations of different policy tools for the management of marine and coastal resources.
• Integrate, synthesize and communicate different ideas and concepts gained from:
  – Course readings, discussion and lectures; Other courses from your graduate program or previous training; and Personal and professional experiences.

Grading. Your final grade is based on the weighted average of points earned from homework, case-studies, participation, and class projects (weights provided below). The corresponding percentage points are mapped to letter grades as follows: A [94-100], A- [90-93], B+ [87-89], B [83-86], B- [80-82], C+ [77-79], C [73-76], C- [70-72], D+ [67-69], D [63-66], D- [60-62], F [<60].

Homework. (20%) There are 3 homework assignments in Part 1 (9/4 – 10/16) of the course. These assignments offer an opportunity to connect readings or videos to class concepts. Timely and thoughtful completion of homework assignments is expected. All homework assignments will be written in a Google document and submitted through the Google classroom. Homework will be graded using a √− (marginal, 70% of points), √ (acceptable, 80% of points), √+ (excellent, 100% of points) system.

Case studies. (20%) Students will research and present 1-2 “case studies” in Part 2 (10/23 – 12/10) of the course. These assignments offer an opportunity to connect class concepts with real-world examples and issues. Case studies will include a brief write-up (approx. 2 pages) and presentation, followed by a student-led discussion of the case study and class readings; this will take up one hour of the class session. To ensure success, students are expected to come to class with a written plan for how to steer group discussion, a list of key prompts/questions and perhaps a planned activity (be creative and have fun). Case study material (write-up and slides) will be posted to the class website for access by the rest of the class. Details for case study assignments will be provided later in the course.

Class projects. (40%) A significant portion of a scientist’s time is spent on communication (whether or not the scientist is in academia). Unfortunately, as noted by economist Deirdre N. McClosky, this is a skill that is underdeveloped during our undergraduate (and even into graduate) studies. To provide an opportunity to develop this skill (among others), this course includes two empirical projects that will be incorporated into the content of the course.

Project #1. (partner project - 20%) (Due 10/16) In the first project, you will work with a partner (pseudo-randomly assigned) and prepare a brief management report on a marine policy issue of your choice. This report should include a basic description of the resource, an analysis of the policy issue(s) (including the property rights, externalities, etc.), a discussion of relevant policy tools, and preliminary recommendations (with justification). Project #1 will produce two main outputs:

• Poster (digital)
• Report (≤1,500 words)
Project #2. (individual project - 20%) (Due 12/11 and 12/18) In the second project, you will be asked to imagine that you work as a marine resource manager and must prepare a management report for a selected marine resource issue (or species). Your management report will include an analysis of the status of the marine resource, the related environment, human dimensions, historical management practices, and a recommendation for future management (with justification). Project #2 will produce two main outputs:

- Video presentation (digital)
- Report (≤2,000 words)

Progress on students' individual project (Project #2) will be incorporated into class discussion (or at the start of class). Be prepared to present updates on your work. At the end of the semester, each student will present their policy recommendation to the class and justify their position. Details regarding the format of the management report and presentation will be provided in class.

Participation. (20%) This is a mixed lecture-seminar style course. Each course will feature a short lecture, a series of activities, e.g., games, structured debates, tool development, and/or a group discussion of the readings. This means that student participation is vital to the success of this class. As such, participation is worth 20% of your final grade and will be calculated according to your engagement in (1) class discussion, (2) class games/experiments, (3) assigned readings, and (4) presentations. Please note, the quality of participation is as important as the quantity. Specifically, students are responsible for:

1. Reading ALL of the assigned material BEFORE and AFTER class.
2. Attending class – you cannot participate if you are not here.
3. Actively engaging in class discussion.
   a. Participating in conversation led by another student or the instructor.
   b. Leading class discussion on an assigned topic.

Email: I will answer your emails as quickly as possible (within 48 hours during the workweek). Long, involved questions are best left for in-person conversations. Class announcements will be posted on the course website. It is your responsibility to frequently check your university email and class website.

Additional information: University policies toward academic honesty, student accessibility services, observance of religious holidays/events, sexual discrimination reporting, and course schedule disruptions can be found on the Center for Innovation in Teaching and Learning website: https://umaine.edu/citl/teaching-resources-2/required-syllabus-information/

This is a living course. That is, it is designed to be adaptive to the needs and interests of the students. As such, it is each student's responsibility to actively engage in class and introduce new topics for the course. All policies and material outlined in this syllabus, including the lecture and assignment schedule are subject to change at my discretion to accommodate the flow of the course.
## Example lecture schedule.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Theme</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9/4</td>
<td>Marine institutions and policy</td>
<td>The nature and management of marine resources. Course overview; how</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>economist view the environment; what is marine policy; what are marine</td>
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<td></td>
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<td></td>
<td>resources; levels of management (local, state, federal, international)</td>
</tr>
<tr>
<td>2</td>
<td>9/11</td>
<td></td>
<td>Property rights, externalities, and the ocean. Nature of the resource</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>(characteristics); tragedy of the commons; property rights (defn.,</td>
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<tr>
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<td></td>
<td></td>
<td>holders, regimes, quality of rights); externalities.</td>
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<tr>
<td>3</td>
<td>9/18</td>
<td></td>
<td>Enclosure of the ocean. Brief history; UNCLOS 1-III; defining marine</td>
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<tr>
<td></td>
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<td></td>
<td>boundaries; why enclosure; enclosure vs. international governance;</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>disputes; joint development zones.</td>
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<tr>
<td>4</td>
<td>9/25</td>
<td></td>
<td>Benefit-cost analysis in marine resource management. Valuing the marine</td>
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<tr>
<td></td>
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<td></td>
<td>environment; why use money; total vs. economic values; direct and</td>
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<td></td>
<td></td>
<td>indirect elicitation; benefit-cost analysis; cost effectiveness;</td>
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<td>tradeoff analysis; discount rates.</td>
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<tr>
<td>5</td>
<td>10/2</td>
<td>Tools for managing marine resources</td>
<td>Policy tools for regulating marine activities. Catch share programs;</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>command and control methods; performance standards; market</td>
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<td>mechanisms; voluntary approaches.</td>
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<tr>
<td>6</td>
<td>10/9</td>
<td></td>
<td>Guest panel discussion: marine resource manager (e.g., Maine DMR),</td>
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<td>non-governmental organization (e.g., Maine Center for Coastal Fisheries,</td>
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<td></td>
<td>and marine resource user (e.g., Maine Lobsterman)</td>
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<tr>
<td>7</td>
<td>10/16</td>
<td></td>
<td>Posters session. Students will present their project.</td>
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<tr>
<td>8</td>
<td>10/23</td>
<td>Sector-based management</td>
<td>Wild-capture fisheries: the economics of fisheries management. Social</td>
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<tr>
<td></td>
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<td></td>
<td>trap; fishery objectives; externalities; management; mixed fisheries</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>and multiple fleets; valuing commercial and recreation fisheries;</td>
</tr>
<tr>
<td>9</td>
<td>10/30</td>
<td></td>
<td>Wild-capture fisheries: the political economics of high seas fisheries</td>
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<td></td>
<td>management. The last open access resource; IUU fishing; prospects in</td>
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<td></td>
<td></td>
<td>the absence of effective governance; subsidies, incentives, and</td>
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<td></td>
<td>property rights.</td>
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<tr>
<td>10</td>
<td>11/6</td>
<td></td>
<td>Marine farms. Degree of control, production decisions, and site choice;</td>
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<td></td>
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<td>production in the US and abroad; dual nature of externalities; fish</td>
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<td>meal markets; pollution.</td>
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<tr>
<td>11</td>
<td>11/13</td>
<td></td>
<td>NO CLASS</td>
</tr>
<tr>
<td>12</td>
<td>11/20</td>
<td>Recreation and tourism</td>
<td>Importance of coastal and marine tourism and recreation; valuing</td>
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<td></td>
<td>non-consumptive uses of marine and coastal systems; tourism and</td>
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<td>working waterfronts.</td>
</tr>
<tr>
<td>13</td>
<td>12/4</td>
<td>Wastewater and pollution</td>
<td>Point and non-point source pollution; land and water-based pollution;</td>
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<tr>
<td></td>
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<td>invasive species; dredging; benefits and costs of regulating</td>
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<td></td>
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<td></td>
<td>marine pollution.</td>
</tr>
<tr>
<td>14</td>
<td>12/11</td>
<td>Spatial management</td>
<td>Coastal zones and marine spatial planning. Nature of interactions among</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>uses; spatial management; conflicts; coastal zones; Coastal Zone</td>
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<td></td>
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<td></td>
<td>Management Act of 1972.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ecosystem-based management</td>
<td>Ecosystem governance. Ecosystem-based management (defn., types);</td>
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<td></td>
<td></td>
<td></td>
<td>cumulative impacts; ecosystem services; operationalizing management;</td>
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<td>the coastal economy; the coastal ocean economy.</td>
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<tr>
<td></td>
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<td></td>
<td>Digital presentations. Students will present their project.</td>
</tr>
<tr>
<td></td>
<td>12/18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Example assignment deadlines.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Theme</th>
<th>Assignments</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9/4</td>
<td>Marine institutions and policy</td>
<td>HW#1 (due 9/11)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>9/11</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>9/18</td>
<td></td>
<td>HW#2 (due 9/25)</td>
<td>Project #1 proposal (due 9/18)</td>
</tr>
<tr>
<td>4</td>
<td>9/25</td>
<td></td>
<td></td>
<td>Project #2 meeting (due 9/28)</td>
</tr>
<tr>
<td>5</td>
<td>10/2</td>
<td>Tools for managing marine resources</td>
<td>HW #3 (due 10/16)</td>
<td>Case studies (sign-up for dates)</td>
</tr>
<tr>
<td>6</td>
<td>10/9</td>
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<tr>
<td>7</td>
<td>10/16</td>
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<td>Project #1 report, poster, and</td>
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<td></td>
<td>flash presentation (due 10/16)</td>
</tr>
<tr>
<td>8</td>
<td>10/23</td>
<td></td>
<td></td>
<td>Case study #1: Fishery management</td>
</tr>
<tr>
<td>9</td>
<td>10/30</td>
<td>Sector-based management</td>
<td>Case study #2: High seas</td>
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<tr>
<td>10</td>
<td>11/6</td>
<td></td>
<td>Case study #3: Aquaculture</td>
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<tr>
<td></td>
<td>11/13</td>
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<td></td>
<td>NO CLASS</td>
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<tr>
<td>11</td>
<td>11/20</td>
<td></td>
<td>Case study #4: Recreation/Tourism</td>
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<tr>
<td>12</td>
<td>11/27</td>
<td></td>
<td>Case study #5: Pollution</td>
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<tr>
<td>13</td>
<td>12/4</td>
<td>Spatial management</td>
<td>Case study #6: Spatial management</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>12/11</td>
<td>Ecosystem-based management</td>
<td>Case study #7: Ecosystem-based management</td>
<td>Project #2 paper (due 12/11)</td>
</tr>
<tr>
<td>F</td>
<td>12/18</td>
<td></td>
<td></td>
<td>Project #2 video (due 12/18)</td>
</tr>
</tbody>
</table>
SMS 564: MARINE RESOURCE MANAGEMENT  Readings (F19)

I. Marine institutions and policy.

Week #1: The Nature and Management of Marine Resources


Week #2: Property Rights, Externalities, and the Ocean


Week #3: Drawing Lines in the Sea


II. Tools for managing marine resources.

Week #4: Benefit-cost analysis in marine resource activities


Week #5: Policy tools for regulating marine activities


III. Sector-based management.

Week #7: Wild-capture fisheries: the economics of fisheries management


**Week #8: Wild-capture fisheries: the political economics of high seas fisheries management


**Week #9: Marine farms


**Week #10: Recreation, Tourism, and Coastal Development**


**Week #11: Wastewater and Pollution**


**IV. Spatial management.**

**Week #12: Managing Coastal and Ocean Spaces**


V. Ecosystem-based management.

**Week #18: Ecosystem Governance**


**Note.** * denotes a required reading. † denotes a recommended reading. ‡ denotes an advanced or technical reading.

Last updated September 10, 2018
NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM FOR GRADUATE COURSES

Graduate course proposals, modifications, or eliminations must be submitted to the Graduate School no later than the 3rd of each month. Please refer to the Graduate School website for the Curriculum Committee meetings schedule. Electronic signatures and submission is required.

Please return the completed e-form with appropriate signatures and documentation to the Graduate School by saving the form to your desktop and sending as an attachment to graduate@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT School of Earth and Climate Sciences
COURSE DESIGNATOR ERS COURSE NUMBER 501 EFFECTIVE SEMESTER SPRING 2019
COURSE TITLE Paleoceanography

REQUESTED ACTION

NEW COURSE (check all that apply, complete Section 1, and submit a complete syllabus):
- [ ] New Course
- [x] New Course with Electronic Learning
- [ ] Experimental

MODIFICATION (Check all that apply and complete Section 2):
- [ ] Designator Change
- [x] Description Change
- [ ] Cross Listing (must be at least 400-level) ¹
- [ ] Number Change
- [ ] Prerequisite Change
- [ ] Other (specify)
- [ ] Title Change
- [ ] Credit Change

ELIMINATION:
- [ ] Course Elimination

ENDORSEMENTS

Please sign using electronic signatures. If you do not already have a digital signature, please click within the correct box below and follow the on-screen instructions.

Leader, Initiating Department/Unit(s)

Scott E. Johnson
Digitally signed by Scott E. Johnson
Date: 2018.09.17 10:48:45 -04'00'

College(s) Curriculum Committee Chair(s) [if applicable]

College Dean(s)

Graduate School [sign and date]

1. Courses cross-listed below 400-level require the permission of the Graduate School.
SECTION 1 (FOR NEW COURSE PROPOSALS)

Proposed Catalog Description (Include designator, number, title, prerequisites, credit hours):

ERS 501: Paleoceanography (3 credit hours)
No prerequisites

The ocean plays a central role in regulating climate and supporting life on our planet, and it has not always operated as it does today. Throughout Earth history the ocean has undergone dramatic changes in circulation, temperature, chemical composition, and more. In this course, students will explore our ocean’s dynamic past, which provides insight into its present and future behavior. We will discuss key research techniques, major discoveries, and emerging frontiers in the field of paleoceanography. Students will read and discuss key research articles each week that complement lecture material. They will also work with both modern and paleo-datasets to enhance their skills and deepen their understanding of how scientists infer past ocean conditions from geologic archives. ERS 401 and ERS 501 cannot both be taken for credit. This course will typically be offered in the Spring semester of odd years.

Components (type of course/used by Student Records for MaineStreet) – Multiple selections are possible for courses with multiple non-graded components:

- Applied Music
- Clinical
- Field Experience/Internship
- Research
- Studio
- Laboratory
- Lecture/Seminar
- Recitation
- Independent Study
- Thesis

Text(s) planned for use:

Earth’s Climate: Past and Present by William F. Ruddiman

Course Instructor (Include name, position, teaching load):

Katherine Allen, Assistant Professor, 50% teaching

Reason for new course:

Our department offers courses that explore Earth’s past, but none of these focuses on the ocean, which covers most of the planet and has existed for most of Earth history. To close this knowledge gap, we propose to offer a course in paleoceanography that also immerses students in the primary scientific literature and enhances their data exploration skills. In the past we offered a related course, but is has been long absent from our offerings due to retirement of that course’s instructor.

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

- No. The department will not request additional resources for this course.
- Yes. Please list additional resources required and note how they will be funded or supported.

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

The School of Marine Sciences has expressed interest in this course and may add it as an elective for SMS degrees in the future, similar to ERS 460/560. This has not been confirmed and will be discussed further after the course has been established.

There is some minor topical overlap with ERS 460/560 Marine Geology, which primarily deals with modern ocean processes and long-term processes that shape the morphology of the sea floor. Marine Geology covers ocean sedimentation in great depth; the proposed course will merely provide a brief overview of this topic before delving into novel material. Unlike Marine Geology, the proposed paleoceanography course focuses on ocean circulation, chemistry, and climate.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

Every 2 years. No overload.
Paleoceanography (ERS 401/501)

Spring 2019

Instructor: Prof. Katherine Allen, katherine.a.allen@maine.edu
217 Bryand Global Sciences Center, (207) 581-2163
Office hours: I have an open-door policy; stop by any time. However, making an appointment ensures we will connect and promotes the most efficient use of our time.

Course description: The ocean plays a central role in regulating climate and supporting life on our planet, but it has not always operated as it does today. Throughout Earth history the ocean has undergone dramatic changes in circulation, temperature, chemical composition, and more. In this course, students will explore our ocean’s dynamic past, which provides insight into its present and future behavior. We will discuss key research techniques, major discoveries, and emerging frontiers in the field of paleoceanography (the study of the global ocean’s circulation, chemistry, biology, and geology through geologic time). Students will read and discuss key research articles each week that complement lecture material. They will also work with both modern and paleo datasets to enhance their skills and deepen their understanding of how scientists infer past ocean conditions from geologic archives.

Prerequisites: Any 100-level ERS course

Course typically offered: Spring of alternating years

Credits: 3

Meeting time and place: 203 BGSC, Tuesday/Thursday X:XX – X:XX


Class communication: Announcements will be posted in Blackboard and emailed to the class. Please check your email and the Blackboard course page frequently.

Course Goals:

To examine the key physical, biological, and chemical processes that have driven major changes in ocean conditions during Earth history, with a particular focus on the past 5 million years.

To investigate the long-term dynamics of Earth’s linked ocean and climate system by examining past trends and events.

Course Learning Outcomes:
After successful completion of the course, students will be able to:

- Explain how past ocean conditions can be inferred from the sediment record.
- Assess strengths and weaknesses of paleo proxies and identify steps for proxy improvement.
- Describe the roles that precession, obliquity, and eccentricity of Earth’s orbit play in modulating the delivery of solar energy to Earth’s surface.
- Graph solar insolation curves using Analyses curves software.
- Create maps and bathymetry profiles using GeoMapApp software.
- Describe the environmental controls on the $\delta^{18}O$ composition of marine carbonates and explain the utility (and limitations) of $\delta^{18}O$ records for understanding paleoclimate.
- Identify important planktonic and benthic foraminifera using the microscope.
- Explain the key “problems” of ice ages that drive current research.
- List the major factors involved in ocean-climate dynamics.
- Communicate ideas verbally to an audience, lead an in-depth discussion.
- Manipulate data in Excel and create clear, informative graphs that support/enhance arguments.

**Learning assessment**

Assessment of course learning outcomes will be based on the following items:

**Topic discussion (verbal and written):** Each week, students will read assigned scientific articles and/or book chapters. One weekly class period will be devoted to in-depth discussion of these readings. Prior to each discussion session, students will be required to submit a short paragraph to the class Blackboard site in response to the weekly question. Students will be expected to participate in both small-group and whole-class discussions. Each discussion session will include the following components: 1) An overview of the major question/motivation driving the research, 2) Review of methods applied, including strengths and weaknesses of techniques, 3) Highlights of major outcomes of the work, 4) Assessment of uncertainties and remaining unknowns, 5) Discussion of future work that could move the field forward. Occasionally, small in-class groups will be asked to produce either a written statement or a map/graph to support an argument. Each week, 2-3 students will be designated as discussion leaders, which will involve giving an initial summary of articles’ relevant background and context (why is it important and how does it fit into the big picture?) and providing a list of discussion questions for the class. Grades for discussion participation will be based primarily on students’ preparation and performance as discussion leaders, and will be assessed using a rubric that will be provided at the beginning of the course. Written responses will be graded on their content (90%) and clarity of writing (10%). Graduate students (enrolled in 501, not 401) will be required to respond to an additional, advanced question each week.
Class participation: On class days not dedicated to article discussion, there will be a mixture of lectures and in-class activities. Activities will include working with software programs such as GeoMapApp and Analyseries. Both are free and can be downloaded to students' personal computers or accessed using an adjacent computer lab. Any products (graphics, maps) to be shared or used in discussion will be uploaded to Blackboard for discussion as a whole class. Students will be graded on the completeness, thoughtfulness, clarity, and overall quality of submitted materials (e.g., axes and maps are all labeled; everything is legible; answers are complete).

Exams: There will be a mid-term and a final exam on material from lectures and readings. Exams will consist of a mixture of short-answer and essay questions. Students will be graded on the completeness and clarity of responses, and will be expected to include examples and insights from lecture, readings, and class activities.

Debate: Near the end of the semester, we will hold a debate on a statement bearing on a key concept or controversy, for example: "Variations in solar insolation (energy from the sun) drove Pleistocene ice age cycles." The class will be divided into two teams and given detailed instructions on debate format. Some class time will be dedicated to preparation of arguments. Students should draw upon class material and also seek outside resources (e.g., through the university library). Grading will be based on: 1) Clarity and relevance of opening statements (must also be submitted in writing beforehand), 2) Depth and breadth of resources used to build arguments, 3) Ability to respond to other team's statements, 4) General oral presentation (clear, audible, articulate speech). Each student will be graded on their individual contribution to the debate by the instructor, and the outcome of the debate will be decided by a guest ocean-climate expert, who will attend the debate and serve as an impartial judge.

Grading summary:
Mid-term exam 30%
Final exam 30%
Weekly article discussion: 10%
Weekly written response: 15%
Weekly class participation: 5%
Debate: 10%

Rubric:
A  90 – 100
B  80 – 89
C  70 – 79
D  60 – 69

Course policies:
Attendance is key to success in this course. A significant proportion of the course grade depends on active participation in discussions and class activities. However, if you are ill, you are strongly encouraged to stay home. I will be glad to help you catch up. A doctor’s note excusing the absence is preferred. Students must take exams during the designated exam period OR make arrangements with the instructor in advance. Exceptions may be made to accommodate an emergency situation or unexpected illness.

Weekly written responses must be submitted on time in Blackboard for full credit. Late responses will be penalized 10% per day.

University policies:

- **Academic Honesty Statement:** Academic honesty is very important. It is dishonest to cheat on exams, to copy term papers, to submit papers written by another person, to fake experimental results, or to copy or reword parts of books or articles into your own papers without appropriately citing the source. Students committing or aiding in any of these violations may be given failing grades for an assignment or for an entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University.

- **Students Accessibility Services Statement:** If you have a disability for which you may be requesting an accommodation, please contact Student Accessibility Services, 121 East Annex, 581.2319, as early as possible in the term. Students who have already been approved for accommodations by SAS and have a current accommodation letter should meet with the course instructor privately as soon as possible.

- **Course Schedule Disclaimer (Disruption Clause):** In the event of an extended disruption of normal classroom activities, the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

- **Observance of Religious Holidays/Events:** The University of Maine recognizes that when students are observing significant religious holidays, some may be unable to attend classes or labs, study, take tests, or work on other assignments. If they provide adequate notice (at least one week and longer if at all possible), these students are allowed to make up course requirements as long as this effort does not create an unreasonable burden upon the instructor, department or University. At the discretion of the instructor, such coursework could be due before or after the examination or assignment. No adverse or prejudicial effects shall result to a student’s grade for the examination, study, or course requirement on the day of religious observance. The student shall not be marked absent from the class due to observing a significant religious holiday. In the case of an internship or clinical, students should refer to the applicable policy in place by the employer or site.

**Sexual Discrimination Reporting**

The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell a teacher about an experience of sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct or
any form of gender discrimination involving members of the campus, your teacher is required to report this information to the campus Office of Sexual Assault & Violence Prevention or the Office of Equal Opportunity.

If you want to talk in confidence to someone about an experience of sexual discrimination, please contact these resources:

For confidential resources on campus: Counseling Center: 207-581-1392 or Cutler Health Center: at 207-581-4000.

For confidential resources off campus: Rape Response Services: 1-800-310-0000 or Partners for Peace: 1-800-863-9909.

Other resources: The resources listed below can offer support but may have to report the incident to others who can help:

For support services on campus: Office of Sexual Assault & Violence Prevention: 207-581-1406, Office of Community Standards: 207-581-1409, University of Maine Police: 207-581-4040 or 911. Or see the OSAVP website for a complete list of services at http://www.umaine.edu/osavp/
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/22/19</td>
<td>Introduction to course themes</td>
<td>Lecture &amp; In-class activity: Micropaleontology</td>
</tr>
<tr>
<td></td>
<td>1/24/19</td>
<td>Paleo proxies</td>
<td>Lecture &amp; In-class activity: Micropaleontology, continued</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DISCUSSION: Paleotemperature and paleo CO2</td>
</tr>
<tr>
<td></td>
<td>1/31/19</td>
<td></td>
<td>Lecture</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DISCUSSION: Cenozoic cooling</td>
</tr>
<tr>
<td></td>
<td>2/5/19</td>
<td>Carbon dioxide (CO2) and Climate</td>
<td>Lecture &amp; In-class activity: GeoMapApp</td>
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<tr>
<td></td>
<td>2/7/19</td>
<td></td>
<td>DISCUSSION: What controls ocean carbon storage?</td>
</tr>
<tr>
<td></td>
<td>2/12/19</td>
<td>CO2 in Seawater</td>
<td>DISCUSSION: Ocean Data View</td>
</tr>
<tr>
<td></td>
<td>2/14/19</td>
<td></td>
<td>DISCUSSION: What drives ocean circulation?</td>
</tr>
<tr>
<td></td>
<td>2/19/19</td>
<td>Ocean circulation: Fundamentals</td>
<td>Lecture &amp; In-class activity: GeoMapApp</td>
</tr>
<tr>
<td></td>
<td>2/21/19</td>
<td></td>
<td>DISCUSSION: Where do marine sediments come from?</td>
</tr>
<tr>
<td></td>
<td>2/26/19</td>
<td>Marine sediments</td>
<td>Lecture</td>
</tr>
<tr>
<td></td>
<td>3/5/19</td>
<td>The Pliocene</td>
<td>DISCUSSION: What creates a warmer world?</td>
</tr>
<tr>
<td></td>
<td>3/7/19</td>
<td></td>
<td>REVIEW for exam</td>
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<tr>
<td></td>
<td>3/12/19</td>
<td>MID-TERM EXAM</td>
<td></td>
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<tr>
<td>9</td>
<td>3/14/19</td>
<td>SPRING BREAK</td>
<td></td>
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<td></td>
<td>3/18/19</td>
<td>SPRING BREAK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3/26/19</td>
<td>Solar Insolation</td>
<td>Lecture &amp; In-class activity: Analyses</td>
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<tr>
<td></td>
<td>3/28/19</td>
<td></td>
<td>DISCUSSION: Solar Insolation in time and space</td>
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<tr>
<td></td>
<td>4/2/19</td>
<td>The Plio-Pleistocene Transition</td>
<td>Lecture</td>
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<tr>
<td></td>
<td>4/4/19</td>
<td></td>
<td>DISCUSSION: What makes ice sheets grow?</td>
</tr>
<tr>
<td></td>
<td>4/9/19</td>
<td>The Mid-Pleistocene Transition</td>
<td>Lecture &amp; In-class activity: Analyses</td>
</tr>
<tr>
<td></td>
<td>4/11/19</td>
<td></td>
<td>DISCUSSION: Why the pacing change?</td>
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<tr>
<td></td>
<td>4/16/19</td>
<td>Late Pleistocene Ice Age Cycles</td>
<td>Lecture</td>
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<td></td>
<td>4/18/19</td>
<td></td>
<td>DISCUSSION: The 100 ky problem</td>
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<tr>
<td></td>
<td>4/23/19</td>
<td>The Last Glacial Termination</td>
<td>In-class team workshop</td>
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<tr>
<td></td>
<td>4/25/19</td>
<td>Debate preparation</td>
<td>In-class team workshop</td>
</tr>
<tr>
<td></td>
<td>4/30/19</td>
<td>Debate preparation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5/2/19</td>
<td>DEBATE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5/6/19</td>
<td>FINAL EXAM</td>
<td></td>
</tr>
</tbody>
</table>

Reading

Ruddiman text - Chapters 1 and 2: Overview of Climate Science and Earth's Climate System Today
Ruddiman text, Chapter 3: Climate archives, data, and models; introduction to foraminifera
Oxygen isotope papers (Ravelo and Hilgen-Marcel 2007)
Royer (2014) Atmospheric CO2 and O2 during the Phanerozoic
Ruddiman text, Chapter 4: CO2 and Long-term Climate
Zachos et al. (2001) and (2008)
Müller (2013) The Carbonate System
Pallandt et al. (2012) A Cenozoic Record of equatorial Pacific Carbonate Compensation Depth
Talley text - Chapter 5: Mass, Salt, and Heat budgets and wind forcing
Talley (2013), Closure of the Global Overturning Circulation
Chamberlin and Dickson, Exploring the World Ocean, Chapter 5 "Ocean Sediments"
TBD
Ruddiman text - Chapter 6: Greenhouse Climate
TBD

Ruddiman text - Chapter 7: Astronomical control of insolation
TBD
Ruddiman text - Chapter 10: Insolation Control of Ice Sheets
TBD
Ruddiman text - Chapter 11: Orbital-scale Changes in Carbon Dioxide and Methane
Hönisch et al. (2009)
Ruddiman text - Chapter 12: Orbital-scale interactions, feedbacks, and unsolved mysteries
Ruddiman text - Chapters 13 and 14: The Last Glacial Maximum; Climate During and Since the Last Glacial Maximum
NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM FOR GRADUATE COURSES

Graduate course proposals, modifications, or eliminations must be submitted to the Graduate School no later than the 3rd of each month. Please refer to the Graduate School website for the Curriculum Committee meetings schedule. Electronic signatures and submission is required.

Please return the completed e-form with appropriate signatures and documentation to the Graduate School by saving the form to your desktop and sending as an attachment to graduate@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT: School of Biology & Ecology

COURSE DESIGNATOR: BIO   COURSE NUMBER: 501   EFFECTIVE SEMESTER: sp 2019

COURSE TITLE: Evolutionary Theory and Application

REQUESTED ACTION

NEW COURSE (check all that apply, complete Section 1, and submit a complete syllabus):

[ ] New Course
[ ] New Course with Electronic Learning
[ ] Experimental

MODIFICATION (Check all that apply and complete Section 2):

[ ] Designator Change
[ ] Description Change
[ ] Cross Listing (must be at least 400-level)\(^1\)
[ ] Number Change
[ ] Prerequisite Change
[ ] Other (specify)

[ ] Title Change
[ ] Credit Change

ELIMINATION:

[ ] Course Elimination

ENDORSEMENTS

Please sign using electronic signatures. If you do not already have a digital signature, please click within the correct box below and follow the on-screen instructions.

Leader, Initiating Department/Unit(s)

Farahad Dastoor

College(s) Curriculum Committee Chair(s) (if applicable)

George Cremer, Assoc. Dean

College Dean(s)

Graduate School [sign and date]

---

1. Courses cross-listed below 400-level require the permission of the Graduate School.
SECTION 1 (FOR NEW COURSE PROPOSALS)

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours): 

BIO 501, Evolutionary Theory & Application, 3 credits (no pre-requisites):
This course is a graduate-level survey of modern evolutionary theory. The course emphasizes an understanding of the interplay between different evolutionary forces in wild populations. Through lecture, student-led discussion, and problem sets students will gain a working familiarity with modern evolutionary theory and practice many of the quantitative approaches used to study evolution in wild populations.

Components (type of course/used by Student Records for MainStreet) – Multiple selections are possible for courses with multiple non-graded components:

☐ Applied Music ☐ Clinical ☐ Field Experience/Internship ☐ Research ☐ Studio
☐ Laboratory ☐ Lecture/Seminar ☐ Recitation ☐ Independent Study ☐ Thesis

Text(s) planned for use:

selections from the primary literature

Course Instructor (include name, position, teaching load):

Brian Olsen, Associate Professor, 20% teaching appointment in the School of Biology & Ecology

Reason for new course:

This course has been offered twice before (with enrollments of 4 and 12 students) under a special topics designator. It serves as a basic, graduate-level evolution course that benefits a wide variety of programs across NSFA and CLAS (e.g., DoA, EES, SBE, SFA, SFR, SMS, SoE, and WFCB).

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

☐ No. The department will not request additional resources for this course.
☐ Yes. Please list additional resources required and note how they will be funded or supported.

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

There are no other basic graduate evolution courses offered on campus.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

The course will be offered every other year and will result in no overload payments.
EVOLUTIONARY THEORY & APPLICATION
BIO 501
SPRING 2019
3 CREDITS

INSTRUCTOR
Dr. Brian Olsen
Contact: 200 Roger Clapp Greenhouse, p: 581-2542, e: brian.olsen@maine.edu
Office Hours: by appointment (please email)

MEETING TIMES
1 hour and 15 minutes, Tuesdays & Thursdays, in a room on campus with video conferencing capabilities and the ability to discuss in the round (e.g., 101 or 105 Norman Smith Hall)

COURSE DESCRIPTION
This course is a graduate-level survey of modern evolutionary theory. The course emphasizes an understanding of the interplay between different evolutionary forces in wild populations. Through lecture, student-led discussion, and problem sets students will gain a working familiarity with modern evolutionary theory and practice many of the quantitative approaches used to study evolution in wild populations.

COURSE GOALS
The overall goal of this course is to give students a working knowledge of evolutionary theory and its application to real-world problems.

STUDENT LEARNING OUTCOMES
By the end of the semester students will increase their skills in:
1. Discussing and explaining prominent evolutionary theory to others
2. Interpreting primary literature on the evolution of wild populations
3. Applying standard quantitative approaches used in the study of evolution in wild populations

INSTRUCTIONAL OBJECTIVES
More specifically, students should be able to:
1. Describe the interplay between selection, immigration, mutation, and drift in wild populations
2. Measure the strength of selection from multiple sources on a wild population
3. Partition variation in a trait among genetic and environmental sources and calculate heredity
4. Calculate the degree of differentiation among subpopulations at multiple loci using $F_{ST}$ and $G_{ST}$
5. Interpret phylogenetic trees and test hypotheses regarding trait evolution using them
6. Interpret genomic data for two taxa in the process of differentiation and discuss the environmental changes that would alter the probability of speciation
7. Hypothesize systems where evolution alters population, community and ecosystem dynamics and describe how those changes could feedback to shape further evolution
8. Explain potential evolutionary outcomes for a trait under multi-level selection
9. Compare and contrast the similarities between genetic and cultural evolution
PREREQUISITES
No formal prerequisites are required. A bachelor’s degree in a field of the life sciences will be sufficient in almost all cases. A basic understanding of genetics and evolution will be assumed. If you are interested in taking this course, however, and you are concerned about your preparation, please come see me, and I will provide more information or some preliminary readings to get you up to speed.

COURSE FORMAT
Classes will be generally of two types:

Lecture Classes – At the beginning of each new topic, I will assign a reading to be completed before the first day we discuss it (usually a foundational paper from the literature, a good review article, or a book chapter). During these “Lecture Classes”, I will lead a discussion-based lecture to make sure that everyone has the major points of theory under their belts. The “lecture” will be question driven, so it is important that you do the reading. I will then focus the lecture on portions of the reading that were the most confusing to folks and spend time filling in background for topics that need it.

Discussion Classes – On the other days, we will discuss a more contemporary article from the primary literature on the same topic as the previous class. The idea is to talk through an application of the theory in a real system. These discussions will be run almost entirely by students, and I expect you to come to class 1) having read the article and 2) with at least two questions or comments prepared to spur discussion. I will mostly try to keep my mouth shut (a task at which I do not excel), unless there are misconceptions that need to be addressed.

GRADING
Grades will be based on six problem sets, which each count for 10% of your grade, and participation in class during both the lecture and discussion classes (the remaining 40%). A full grade for participation can be expected if you have good attendance, have clearly come to class having done the reading with prepared questions, and you engage in the discussions. You do not need to demonstrate a perfect understanding of the concepts. That is what the problem sets are for. Participation is about making a good faith effort to engage the material and speaking up when you are confused. Poor attendance and/or clear signs that you are not doing the reading will impact our grade negatively. You are welcome to ask the instructor for your current progress at any point during the semester.

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentage</th>
<th>Letter Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93-100</td>
<td>C</td>
<td>73-76</td>
</tr>
<tr>
<td>A-</td>
<td>90-92</td>
<td>C-</td>
<td>70-72</td>
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<tr>
<td>B+</td>
<td>87-89</td>
<td>D+</td>
<td>67-69</td>
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<tr>
<td>B</td>
<td>83-86</td>
<td>D</td>
<td>63-66</td>
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<tr>
<td>B-</td>
<td>80-82</td>
<td>D-</td>
<td>60-62</td>
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<tr>
<td>C+</td>
<td>77-79</td>
<td>F</td>
<td>&lt;60</td>
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</tbody>
</table>

ONLINE COURSE CONTENT
Readings and any updates to the course schedule will be emailed directly to the class and posted in a Google Classroom (access code XXXXXX). If you would like me to use an email address other than the one listed in MaineStreet (generally your “maine.edu” address), please let me know immediately. You will receive an invitation to join the Google Classroom. Please watch your email.

Online Attendance: If you are off campus for all or part of the semester, we can set up remote-access for class periods, provided you have reliable internet access and a computer capable of running video conferencing software (e.g., Zoom, Google Hangouts).
ACCOMMODATIONS
If you have a disability for which you may be requesting an accommodation, please contact Student Accessibility Services (SAS), 121 East Annex, 581-2319, as early as possible in the term. Students who have already been approved for accommodations by SAS and have a current accommodation letter should meet with me privately as soon as possible.

ACADEMIC HONESTY DISCLAIMER
All of your problem sets need to be your own, and any indication that they are plagiarized from any source is a violation of the Academic Honesty Code. That being said, I have no problem with you working in groups to do the problem sets. You should make sure that you go through all of the steps yourself, however, and do not (obviously, I hope) just copy someone else’s work to turn in. It should be clear that you worked through your own problems and can explain the work you did.

Academic honesty is very important. It is dishonest to copy work or submit work written by another person. Students committing or aiding in any of these violations may be given failing grades for an assignment or for the entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University.

So yeah, ultimately, do your own work. But brainstorming as a group and talking through your approach with someone else sounds awesome. That’s increasingly called Science. And if you have any questions about what is appropriate in this class in terms of collaboration, or where the line between collaboration and cheating is, please just ask me. I’m happy to discuss it in more detail. Here’s the link to the Conduct Code, if you want to know what happens when things go horribly awry: https://umaine.edu/handbook/policies-regulations/student-conduct-code/

EPIDEMIOLOGICAL & END-OF-DAYS DISCLAIMER
In the event of campus-wide disruptions in classroom activities due to any unforeseen, large-scale disturbance (swine flu, bird flu, monkey pox, whirling disease, meteors, zombies, etc.), the format of this course may be modified to enable its completion. In that event, you will be provided an addendum to this syllabus that will supersede this version. You are on your own for the zombies.

OTHER UMMAINE REQUIRED STATEMENTS
This course follows the required policies of the University of Maine in regards to academic honesty, student accessibility, course disruptions, observance of religious holidays/events, and sexual discrimination reporting. For more details on all of these polices please see: https://umaine.edu/citl/teaching-resources-2/required-syllabus-information/
**TENTATIVE SCHEDULE**

**UNIT 1: Mechanisms of Evolution**

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Deadlines</th>
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<tbody>
<tr>
<td>1</td>
<td>Tenets of Evolution</td>
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</tr>
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<td>2</td>
<td>Selection</td>
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**UNIT 2: Measuring Evolution**

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Prob. Set #1 Due: Prob. Set #2 Due: Prob. Set #3 Due:</th>
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</thead>
<tbody>
<tr>
<td>3</td>
<td>Quantitative Genetics</td>
<td>Measuring Selection</td>
</tr>
<tr>
<td>4</td>
<td>Gene Flow</td>
<td>Heritability</td>
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<tr>
<td>5</td>
<td>Population Structure</td>
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<tr>
<td>6</td>
<td>Metapops &amp; Landscape Genetics</td>
<td>Structure</td>
</tr>
<tr>
<td>7</td>
<td>Phylogenetics: Using Trees</td>
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**UNIT 3: Effects of Evolution**

<table>
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<tr>
<th>Week</th>
<th>Topic</th>
<th>Problem Set #4 Due:</th>
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<tbody>
<tr>
<td>8</td>
<td>Speciation I (Reproductive Isolation)</td>
<td>Phylogenetics</td>
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<tr>
<td>9</td>
<td>Speciation I (Geographic Modes)</td>
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<tr>
<td>10</td>
<td>SPRING BREAK</td>
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<tr>
<td>11</td>
<td>Speciation II (Ecological Speciation)</td>
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<td>Speciation II (Sexual vs. Natural Selection)</td>
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<td>13</td>
<td>Evolutionary Ecology I</td>
<td></td>
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<td>14</td>
<td>Evolutionary Ecology II</td>
<td></td>
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<td>15</td>
<td>Eco-Evolutionary Dynamics</td>
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<tr>
<td>16</td>
<td>Multi-level Selection</td>
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<td>17</td>
<td>Cultural Evolution</td>
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</tr>
</tbody>
</table>

*All readings should be done before class*
NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM FOR GRADUATE COURSES

Graduate course proposals, modifications, or eliminations must be submitted to the Graduate School no later than the 3rd of each month. Please refer to the Graduate School website for the Curriculum Committee meetings schedule. Electronic signatures and submission is required.

Please return the completed e-form with appropriate signatures and documentation to the Graduate School by saving the form to your desktop and sending as an attachment to graduate@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT School of Economics

COURSE DESIGNATOR ECO COURSE NUMBER 532 EFFECTIVE SEMESTER Spring 2019

COURSE TITLE Applied Time Series Econometrics

REQUESTED ACTION

NEW COURSE (check all that apply, complete Section 1, and submit a complete syllabus):

☐ New Course
☐ New Course with Electronic Learning
☐ Experimental

MODIFICATION (Check all that apply and complete Section 2):

☐ Designator Change ☐ Description Change ☐ Cross Listing (must be at least 400-level)\(^1\)
☐ Number Change ☐ Prerequisite Change ☐ Other (specify)
☐ Title Change ☐ Credit Change

ELIMINATION:

☐ Course Elimination

ENDORSEMENTS

Please sign using electronic signatures. If you do not already have a digital signature, please click within the correct box below and follow the on-screen instructions.

Leader, Initiating Department/Unit(s)

[Signature]

College(s) Curriculum Committee Chair(s) [if applicable]

[Signature] George Criner, Assoc. Dean 10/17/18

College Dean(s)

[Signature] Graduate School [sign and date]

---

1. Courses cross-listed below 400-level require the permission of the Graduate School.
SECTION 1 (FOR NEW COURSE PROPOSALS)

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours):

ECO 532, Applied Time Series Econometrics
This is a graduate course in applied <me series econometrics. Theorems and proofs will not be emphasized in this course. Instead, we will work to develop both a significant understanding of the role of <me series econometrics in empirical economics and a strong ability to execute applied <me series econometrics in the development of economic models and in the analysis of economic policy. Identi<on, es<ma<on, evalua<on, hypothes<as<ng, fore<as<ng, and simula<on will be emphasized. Both univariate and mul<<ate <me series processes will be covered and applica<ons will include both microecono<nic and macroecono<nic models. 3 credit hours.

Prerequisites: ECO 530, or instructor permission

Components (type of course/used by Student Records for MaineStreet) – Multiple selections are possible for courses with multiple non-graded components:

☐ Applied Music    ☐ Clinical    ☐ Field Experience/Internship    ☐ Research    ☐ Studio
☐ Laboratory    ☐ Lecture/Seminar    ☐ Recitation    ☐ Independent Study    ☐ Thesis

Text(s) planned for use:


Course Instructor (include name, position, teaching load):

Gary L. Hunt, Professor, 3 fall courses, 3 summer courses.

Reason for new course:

Although technically a new course, it is not new in the sense that Professor Hunt has taught this course as part of the new MS in Economics. Here we seek to make this course more official by giving it a unique identified to highlight it within the degree. It is a key requirement of that MS degree.

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

☐ No. The department will not request additional resources for this course.
☐ Yes. Please list additional resources required and note how they will be funded or supported.

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

No.

No other departments offer time series analysis or econometrics courses or are affected in other ways.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CEO, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

The course will be offered every other year, starting in the spring of 2019. We do not plan this course for overload teaching of any time.
ECO 532
Applied Time Series Econometrics
Spring 2020

Gary L. Hunt
Suite 200 Winslow Hall
Office Hours: by appointment
Email: gary.hunt@maine.edu

Course Description:
This is a graduate course in applied time series econometrics. Theorems and proofs will not be emphasized in this course. Instead, we will work to develop both a significant understanding of the role of time series econometrics in empirical economics and a strong ability to execute applied time series econometrics in the development of economic models and in the analysis of economic policy. Identification, estimation, evaluation, hypothesis testing, forecasting, and simulation will be emphasized. Both univariate and multivariate time series processes will be covered, and applications will include both microeconomic and macroeconomic models. 3 credit hours

Class Meetings: Tuesdays and Thursdays, 3:30PM – 4:45PM; Winslow Hall Room 201

Prerequisites: ECO 530 or permission


Software: The student version of the econometric software, EVViews, is required. It is expected that students complete all econometric work for assignments with EVViews. The instructor will support only EVViews. EVViews for PC and Mac is available for purchase and downloading from: http://www.eviews.com/EVViews9/EVViews9SV/evstud9.html ($39.95)

Grading: The overall grade for the course will be determined by the following weights:

- Homework problem sets 50%
- Univariate project 20%
- Multivariate project 30%

Final grades will be assigned as follows: A (90+); B (80-89); C (65-79); D (50-64); F (< 50). Incompletes will be given only in well-documented and extraordinary cases.

Required Syllabus Information:
Please read the policies on academic honesty, student accessibility, course scheduling, religious holidays, and sexual discrimination reporting: https://umaine.edu/citl/teaching-resources-2/required-syllabus-information
Proposed Draft Language for Mandatory Inclusion on all UMaine Syllabi Regarding Religious Holiday Observance

Proposed by: Judaic Studies Advisory Board
Contacts: Melissa Ladenheim and Mark Brewer
Date: Oct. 12, 2017

The University of Maine recognizes that when they are observing significant religious holidays, some students may be unable to attend classes or labs, study, take tests, or work on other assignments. If they provide adequate notice (at least one week and longer if at all possible), these students are allowed to make up course requirements as long as this effort does not create an unreasonable burden upon the instructor, department or University. At the discretion of the instructor, such coursework could be due before or after the examination or assignment. No adverse or prejudicial effects shall result to a student’s grade for the examination, study, or course requirement on the day of religious observance. The student shall not be marked absent from the class due to observing a significant religious holiday. In the case of an internship or clinical, students should refer to the applicable policy in place by the employer or site.
Recent Updates Regarding Immigration Processing for Foreign National Employees

On 4/18/2017 President Trump signed an Executive Order entitled “Buy American, Hire American” and directed the Secretary of Homeland Security to propose new rules and issue new guidance to protect the interests of US workers in the administration of our immigration system. H1b visa processing for UMaine’s international employees is impacted by these changes. If you have questions regarding these policy changes, please do not hesitate to contact Sarah Joughin in the Office of International Programs at 580-3425 or at joughin@maine.edu.

More stringent interpretation of “specialty occupation”: USCIS defines a “specialty occupation” as an occupation that requires (a) theoretical and practical application of a body of highly specialized knowledge and (b) attainment of a bachelor’s or higher degree in the specific specialty (or its equivalent) as a minimum for entry into the occupation in the United States.”

A position advertised as requiring a bachelor’s or master’s degree without listing a specified degree or degrees, will NOT qualify as a specialty occupation under USCIS regulation. A foreign national applicant will not be able to obtain an H1b if hired for such a position.

Stricter review of evidence showing the applicant is qualified to perform the specialty occupation: USCIS regulation also requires that the applicant has the degree specified in the job description and posting. If the applicant does not have the degree listed in the job posting they will not be eligible for an H1b visa. USCIS is applying a narrow interpretation of “or related field” when reviewing I-129 petitions. If the applicant does not have the degree specified in the position posting but was hired because the degree falls under a related field, please contact Sarah Joughin at 581-3425 to discuss the candidate’s eligibility for an H1b.

Change in policy guidance impacting extension petitions: In the last year USCIS rescinded guidance to adjudicators regarding giving deference to prior determinations of eligibility of nonimmigrant status. This means that extension petitions must contain all evidence required for the initial petition and the adjudicator may question the employee’s eligibility even though they have been in the position for the last 3 years.

Increase in issuance of Requests for Further Evidence (RFEs): OIP has seen an increase in the number of RFEs issued by USCIS for petitions filed by the University of Maine. The types of requests range from the relatively simple to highly complex. It is important to understand that the receipt of an RFE may significantly delay the start date of the employee even if the Premium Processing service was requested. Information submitted in response to an RFE must be accurate and complete to avoid denial of the petition. In some cases, assistance from an outside attorney may be required.

Greater discretion for adjudicators to issue Notices of Intent to Deny (NOIDs) for applications filed after 9/11/2018: Adjudicators have greater discretion to deny an H1b petition without issuing an RFE if the required initial evidence is not submitted or if the evidence on record does not establish eligibility. OIP will be taking great care to establish that the position qualifies as a specialty occupation and that the applicant has the necessary degree. In some cases, this may slow down processing and may require additional evidence from the hiring department.

Increase in Premium Processing fee effective 10/1/2018: The fee for Premium Processing will increase from $1225 to $1410.

OIP recommends Premium Processing for most H1b petitions: Due to the policy changes listed above, in most cases OIP will recommend that the petition be filed using the Premium Processing service. In the past for H1b extension petitions or in cases where the employee had a current H1b for another institution we advised that the employee could continue or begin employment while the UMaine petition was pending. We will no longer advise this because of the increase risk of a petition denial. To avoid paying the expedite fee the employee and the department should contact OIP 8 months prior to the expiration of the current H1b or the start date of a new position.

A note about applications for sponsorship for Legal Permanent Residence (Green Card): Many of the policy changes above also impact Green Card applications for faculty and staff which are filed by the law firm of Landis, Arn &
DOE Scholars Program – Accepting Applications

1 message

DOE Scholars <doescholars@orau.org>
Reply-To: doescholars@orau.org
To: delcourt@maine.edu

Mon, Oct 29, 2018 at 8:05 AM

Now accepting applications for:
DOE Scholars Program

The DOE Scholars Program introduces students and recent college graduates to the U.S. Department of Energy (DOE) mission and operations.

Why should I apply?

Being selected as a DOE Scholar offers the following benefits:

- Stipends starting at $600 per week for undergraduates and $650 per week for graduate students and post graduates during the internship period
- Limited travel reimbursement to/from assigned location
- Direct exposure to and participation in projects and activities in DOE mission-relevant research areas
- Identification of career goals and opportunities
- Development of professional networks with leading scientists and subject matter experts

Eligibility

- Be a U.S. citizenship
- Be an undergraduate, graduate student, or recent graduate of an accredited institution of higher education majoring in science, technology, engineering, mathematics, and related areas.
- Must be pursuing a degree or have received a degree within 5 years of their starting date in a science, technology, engineering or mathematics (STEM) discipline or have demonstrated interest or experience in a STEM field that supports the DOE mission.

Veterans are encouraged to apply. DOE Scholars selected by the Federal Energy Management Program (FEMP) are given a Veteran’s Preference. Selected veterans will be placed at various federal agencies in Washington, D.C. Veteran candidates who have received a college degree in an appropriate science, technology, engineering or math discipline within ten years of their starting date are eligible for appointments.
Reminder: Switzer Environmental Fellowships
1 message

Robert and Patricia Switzer Foundation <don@switzernetwork.org>
Reply-To: don@switzernetwork.org
To: delcourt@maine.edu

Mon, Dec 11, 2017 at 3:40 PM

2018 Switzer Environmental Fellowships - Apply Now!

Dear Colleagues,

The January 8, 2018 deadline for 2018 Switzer Environmental Fellowships is fast approaching! If you know of qualified candidates for the Fellowship who have not yet applied, please refer them to the Fellowship program guidelines on our website. The guidelines contain the links to the online application form, instructions for recommenders, and Frequently Asked Questions.

If you have any questions about the program guidelines or the online application process, please do not hesitate to contact Switzer Foundation staff, below. Thank you!

- For program-related questions: Erin Lloyd, Program Director (erin@switzernetwork.org)
- For technical support with online applications: Don Brackett, Administrative Director (don@switzernetwork.org)
- Office: (207) 338-5654 (office hours Monday-Thursday, 8:30 am - 5 p.m. Eastern time, other hours available by appointment)

A vibrant community of environmental leaders

Contact Us
1. **Title:** Intermedia Arts Degree: M.A.  
**Area:** Interdisciplinary/Graduate School

2. **Person Responsible for Planning:**  
Owen Smith  
**Address:** 129 IMRC Center  
Stewart Hall  
University of Maine, Orono, Maine 04469

3. **General Objective of Proposal:**

Building on the success and strength of the Intermedia MFA our objective is to develop a 2 year master’s level interdisciplinary and creative focused degree program (MA) within the Graduate School for graduate students interested in pursuing advanced, interdisciplinary creative work and research studies in areas of inquiry pertaining to arts praxis, fine arts, media arts and technologies, creative studies and applied arts. As in the MFA, the aim of this work in the MA is to learn by doing and making, emphasizing hands-on projects with a practical concern for outcomes and engagements. The Proposed MA Program will make use of MFA offerings and, as a result, not require the initial development of any new courses.

Building on the academic strengths of the existing Intermedia MFA and the cutting edge facilities and programing of the Innovative Media, Research and Commercialization Center (hereafter IMRC Center) this program will help to establish a multifaceted set of opportunities for expanding graduate education in the arts and creative fields. Like the MFA in Intermedia, the overarching goal of the MA in Intermedia program is to re-envision creative teaching/learning/research models with an aim to resituate creative practice within larger
4. Documented Evidence of Need:

Currently, there are no interdisciplinary and Intermedial arts full residency MA programs in Northern New England. There is one low residency program at the Maine College of Art, an MFA in Painting at UNH, and USM’s Stonecoast Writers MFA. There are undergraduate art programs at University of Maine System campuses, the University of Vermont, Keene State, Bowdoin, Bates, and Colby Colleges. Low-residency MFA programs fill a need for working professionals to attain their terminal degree, however, they lack the benefits of concentrated professional development afforded by a full residency studio art program such as the proposed MA in Intermedia Arts, including but not limited to having studio space and access to technical labs (such as the sculpture studio, mArtLab print lab, video editing suites, and printmaking facilities), and visiting artists, critics and guest lecturers. The MFA programs at USM and UNH are discipline specific and thus do not cover the same areas of focus as the proposed MA, specifically intermedia practice-based research. After ascertaining the lack of equivalent programming through these schools (and in the region in general), and given the interdisciplinary nature of professional artistic research proposed in this new MA in Intermedia, it is strongly evidenced that this unique program fills a defined need for the State of Maine and the University of Maine System as a whole.

The MFA Program routinely receives two to three requests a month for information pertaining to MFA graduate study at the University of Maine. Many of these students, however, are looking for a two year MA option and thus the MFA does not meet their needs. In the last few months, as word began to circulate about this proposed program, requests and interest has increased including from as far away as Oregon, California and even Germany and Slovenia.

The creation of this degree has a two-fold benefit to the State. First, as a part the global business market, students in the Intermedia MA will be required to complete a field experience, typically in an international environment, near the end of the program. This aspect of the program gives students broader, practical or applied work in the global economy. The field experience gives the University a competitive recruiting edge, giving students another reason to venture to the far north for their education. Second, this program is an essential component of Maine’s Creative Economy Initiative. A healthy economy starts with a strong base of well-educated, well-trained, talented and globally aware students. The graduates of this program will gain research experiences, interdisciplinary approaches and creative thinking skills that will prepare them for taking an active role in the economies of the future. These types of “design thinkers” are, as indicated in an article in Business Week, in increasing demand:
C. How?
Involvement will consist of assisting in course delivery/teaching, program planning and delivery, development, and cooperation with faculty in these University of Maine System campuses through joint programming, research projects and enrollment in the proposed M.A., as well as through the planned 4+1. We will also continue making courses from our program available to interested students from these other campus through expanded on line and distance courses.

6. What type and/or extent of support is presently available?

A. Personnel
The core of the program is already in place under the Intermedia MFA. It consists of a group of internationally recognized program personnel, extremely active in creative production, presentations, exhibitions and research. In addition the core Intermedia faculty numerous cooperating faculty in arts areas across the University of Maine System campus will be involved including areas such as English, Music, Theater, Art and New Media as well as faculty from UMA, UMFK, UMMA, and UMPI.

B. Facilities
This program does not require additional teaching or production spaces. With the support of the IMRC Center and other spaces allotted to the Intermedia Program, we anticipate few, if any, difficulties in accommodating additional students for the immediate future.

C. Equipment
Equipment needs for this program are either in place at the IMRC Center, mArt Labs, or can be acquired through MFA Equipment funding or normal grant channels.
state of Maine by expanding the alumni base in a field of increasing import to Maine.

G. Additional new costs are required in any or all of the above categories:

We do not anticipate additional costs for this program. All of the pieces are already in place and funded through our MFA program. Initially, this program will just serve students in the funded MEMA program and students who are intending to enter into the MA through the 4+1 program. Once established, we intend to open the program to all interested masters students who would bring revenue rather than create additional costs.

7. **Briefly describe preliminary plans for regular program evaluations, formative and summative.**

The program will undergo a full program review along with the MFA by the National Academy of Schools of Art and Design. This as a required part of the NASAD accreditation review that is periodically conducted on the Art Department and other Arts degrees/units at the University of Maine. The MFA program has already been successfully reviewed and is fully accredited by the leading accrediting body of schools of art and design and will require periodic reviews as part of this accreditation (every 10 years). The program itself will conduct an internal budgetary and curricular review in years 2 and 5 as well.

Formative: Since this program will be initially small by national standards for graduate programs in the arts, special care will be taken to have ongoing yearly reviews and people from across the involved campuses review our plans to assess potential weaknesses and strengths.

Summative: We plan to have an initial 2 year review and then ongoing evaluations of the program at 5 year intervals jointly with the MFA program. The MFA just had its first full 5 year review, consequently, the MA’s first full review will occur in tandem the MFA’s next program’s review in 4 years.

8. **Time Frame:**

*Estimated Planning Time: 0 for MA*
*Estimated Implementation Time: A Y 18 (in spring of 2019)*
*Estimate of Program Lifetime: Indefinite*

9. **COMPLETE FOR GRADUATE PROGRAM ONLY:**

On what other campus, if any, will this program be available? What plans are there to insure transferability from other campuses into this program or to deliver this program to other campuses?
Year 2 - 18 credits

- Fall: IMD 560; Elective 2
- Spring: IMD 561; IMD 562; Final Project
- Summer: Final Project

11. Submitted By:

[Signature]

Owen Smith
Professor of Art and Director of Intermedia MFA and IMRC Center

Approved By:
Guidelines for advisor-advisee relationships in thesis programs

Notes: CAS, Doctoral instead of PhD

This document is intended to serve as reference for standard procedures at the University of Maine Graduate School pertaining to Masters and PhD students. Additional items and specific details can be negotiated between the student and advisor. The purpose of establishing a dialogue of advisor-advisee expectations and obligations is to foster open and clear communication between parties and reaffirm that this is a mutually beneficial relationship. These guidelines should act as a stimulus for advisor-advisee dialogue.

Student expectations and obligations

Expectations of the graduate student beyond class work and their specific research should be discussed at the time of acceptance into a program of study and revisited before the beginning of each academic year. This includes mentoring undergraduates, assisting on other grants, field work beyond a student’s project, facilitating lab meetings, engaging in professional development and service activities, etc. This also includes the student’s expectation to be mentored by the advisor(s), receive constructive criticism on performance and be periodically evaluated on progress of research.

Advisor expectations and obligations

The advisor’s expectations of the advisee should be clearly stated at the beginning of the mentoring relationship. These will differ depending on program of study, but should include responsibilities of the advisee with respect to research, teaching, and training. In exchange the advisor should aim to provide a supportive work environment, be available and open to communication and advisee feedback, and be willing to compromise. In most cases, the advisor’s expectations of the advisee will change as the student progresses through the program. Therefore, it is important that discussions about expectations occur frequently.

The purpose of establishing a dialogue of advisor-advisee expectations and obligations is to foster open and clear communication between parties and reaffirm that this is a mutually beneficial relationship.

Degree Requirements

Before the beginning of the first year of a student’s graduate work, a timeline for completion should be agreed upon by both parties. While this is subject to change, yearly conversations around progress, goals and requirements are important. Additionally, stipulations around how quickly work should be completed should be discussed before the start of a student’s first year. Advisors should provide written or verbal assessments of a constructive nature at least yearly.
semester of graduate work, and continue iteratively throughout progression through the graduate program. The topic should be revisited with every new collaboration. It is strongly recommended that graduate students contributing over 20% of work on a grant should be included in authorship.

**Conduct**

Civil and professional conduct is expected of both the advisor and the advisee at all times. Any need for conflict resolution can be facilitated by the department head and the graduate school to support both parties. To this end, the Vice Dean of the Graduate School is the first point of contact for any questions related to conduct. Yelling, use of explicative, or nonconsensual touching is not ever acceptable, and should be reported immediately to the graduate school. In the case that a conflict is unresolvable, the student will be notified, or a co-advisor/new advisor will be appointed by the graduate school in conjunction with the student’s department.

All advisers have a duty to report incidents of sexual discrimination, sexual harassment and sexual assault. Because domestic violence, dating violence, stalking and sexual misconduct can also constitute sex discrimination, information received by University employees about such incidents must also be reported. If you would like to speak to someone privately regarding your adviser, another faculty, staff, or student community members please contact the OSAVP office at 207-581-1406.

**Grievance Procedure**

Recognizing the highly individualized nature of graduate programs, a student filing an academic appeal is encouraged to request that his/her thesis advisor or other faculty member of his/her choice act as a counselor and/or representative at any level of the appeal process which is as follows:

1. The student should discuss the concern with the appropriate faculty member(s);
2. If the concern persists, the student should follow the department’s written appeal procedures if they exist, or if not, consult with the graduate program coordinator or chairperson/school director, (or the college dean, if there is no department);
3. If the complaint remains unresolved, the student should write to the Dean of the Graduate School, outlining the situation, and requesting a review. The Dean of the Graduate School or his/her designee will discuss the situation with the college dean and/or appropriate members of the department or graduate program. The Dean of the Graduate School or his/her designee will then meet with the student and attempt to resolve the problem;
4. If this resolution is not satisfactory, the Dean of the Graduate School will refer the appeal to the Executive Committee of the Graduate Board for one final review. After hearing from the student and the faculty member(s) involved, the Executive Committee will render its decision, which shall be considered binding. The decision will be communicated to the student by the Dean of the Graduate School.