

CURRICULUM COMMITTEE REPORT

The Curriculum Committee recommends the following courses to the Graduate Board for approval at its December 14th, 2017 meeting.

New Courses:

AVS 546 Forage Science and Range Management

AVS 577 Zoonoses and Animal Health

HTY 665 Digital and Spatial History

MEE 559 Engineering Optimization

SMS 563 Fisheries Policy and Management

Modifications:

BUA 601 Data Analysis for Business

SFR 545 Adhesion and Adhesives Technology

November 1, 2017

To: Curriculum Committee:
Scott Delcourt
Jim Artesani
Grant Miles
Joshua Kelley
Stuart Marrs
Deborah Rollins
Jack Campbell
Qian Xue

Fr: Erin Twitchell, Administrative Specialist

Re: **Curriculum Committee, November 7th, 2017 Stodder Hall, Room #48**

The following courses will be presented on **Tuesday, November 7th at 2:00 p.m.** in the Graduate School's Conference Room, 48 Stodder Hall.

1. 2:05-2:10 SFR 545
No Presentation
2. 2:10-2:25 MEE 559
Masoud Rais-Rohani
3. 2:25-2:40 HTY 665
Anne Knowles
4. 2:40-2:55 SMS 563
Joshua Stoll
5. 2:55-3:10 AVS 546
Juan Romero

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 erin.twitchell@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT Forest Resources
COURSE DESIGNATOR SFR COURSE NUMBER 545 EFFECTIVE SEMESTER Spring 2018
COURSE TITLE Adhesion and Adhesives Technology

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) Dropping lab portion of the course
☐ Title Change ☒ Credit Change

ELIMINATION:

- ☐ Course Elimination

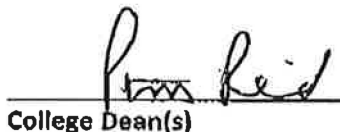
ENDORSEMENTS

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)

 17 Oct 17

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

 10/18/17

College Dean(s)

Graduate School [sign and date]

1. Courses cross-listed below 400-level require the permission of the Graduate School.

SECTION 2 (FOR COURSE MODIFICATIONS)

Current catalog description (include designator, number, title, prerequisites, credit hours):

Fundamentals of adhesion and adhesives including surface science, chemistry and properties of adhesives, adhesive bond evaluation and applications in composite materials. (SFR 440 and SFR 545 are identical courses. Because of course overlap, students cannot earn credit for both SFR 440 and SFR 545.) Lec 3, Lab 3.

Prerequisites & Notes

Senior standing or permission.

Credits: 4

Proposed catalog description (include designator, number, title, prerequisites, credit hours):

Fundamentals of adhesion and adhesives including surface science, chemistry and properties of adhesives, adhesive bond evaluation and applications in composite materials. Lec 3.

Prerequisites & Notes

Senior standing or permission.

Credits: 3

Reason for course modification:

Dropping the laboratory portion of the course since the laboratory material is now covered in SFR 453 Biocomposites

SECTION 3 FOR COURSE ELIMINATIONS

Reason for Elimination

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 erln.twitchell@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.



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 erin.twitchell@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT Mechanical Engineering

COURSE DESIGNATOR MEE COURSE NUMBER 559 EFFECTIVE SEMESTER Spring 2018

COURSE TITLE Engineering Optimization

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)

Masoud Rais-Rohani

Digitally signed by Masoud Rais-Rohani

Date: 2017.10.27 12:29:47 -04'00'

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

Moham a d MUSARI 10-30-17

Dana Humphrey 10-30-17

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):

MEE 559 Engineering Optimization: (Credits 3) Introduction to mathematical optimization theory. Analytical, graphical, and numerical approaches for solving unconstrained or constrained optimization problems involving linear or nonlinear functions. Application of optimality criteria and mathematical programming techniques to problems involving multiple design variables.

Students who have completed MEE 459 with a passing grade are not eligible to take MEE 559 or vice versa.

Prerequisites: MAT 228 (Calculus III), MAT 258 (Introduction to Differential Equations with Linear Algebra)

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

- | | | | | |
|----------------------------------------|-----------------------------------------------------|------------------------------------------------------|--------------------------------------------|---------------------------------|
| <input type="checkbox"/> Applied Music | <input type="checkbox"/> Clinical | <input type="checkbox"/> Field Experience/Internship | <input type="checkbox"/> Research | <input type="checkbox"/> Studio |
| <input type="checkbox"/> Laboratory | <input checked="" type="checkbox"/> Lecture/Seminar | <input type="checkbox"/> Recitation | <input type="checkbox"/> Independent Study | <input type="checkbox"/> Thesis |

Text(s) planned for use:

None required in lieu of extensive handouts. However, it is strongly recommended for each student to borrow or purchase a book on design optimization for reference.

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

Masoud Rais-Rohani, Richard C. Hill Profess and Department Chair, Mechanical Engineering, 25%

Reason for new course:

No matter the system, engineers are always concerned with efficiency or increasing performance while reducing cost. This course will provide students in mechanical engineering and other disciplines an opportunity to learn the theory of optimization and the mathematical framework that enables one to optimize a system of varying degrees of complexity.

There is no course in the mechanical engineering curriculum that covers this topic in any significant depth. There are several courses in mechanical engineering and other engineering disciplines that deal with capstone/system design, but there is none that specifically covers myriad methods used for optimizing a system.

The proposed course is suited for senior-level and graduate students. A 400 level version of this course (MEE 459 Engineering Optimization) has already been approved and is scheduled to be taught for the first time in spring 2018.

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 topics covered in this course do not overlap with materials covered in any other course taught in mechanical engineering. A survey of undergraduate and graduate course catalogs did not reveal any significant overlap with other courses taught in the college of engineering or the math department.

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?

Once per year. There will be no overload.

MEE 459/559: ENGINEERING OPTIMIZATION
Spring 2018 (Tuesday, Thursday 8:00 AM – 9:15 PM)

Instructor: Dr. Masoud Rais-Rohani, Richard C. Hill Prof. of Mechanical Engineering
Office: 219 A Boardman Hall; 581-4120; masoud.raisrohani@maine.edu

Office Hours: 9:30 – 11:30 AM (Monday), 3:00 – 5:00 PM (Wednesday)

Course Description: (Credits 3) Introduction to mathematical optimization theory. Analytical, graphical, and numerical approaches for solving unconstrained or constrained optimization problems involving linear or nonlinear functions. Application of optimality criteria and mathematical programming techniques to problems involving multiple design variables.

Prerequisite: MAT 228 and MAT 258

Textbook: None required in lieu of extensive handouts. However, it is strongly recommended for each student to borrow or purchase a book on design optimization for reference.

Recommended References: (Check Fogler Library for additional references)

1. Engineering Optimization – Theory and Practice, 3rd Ed., S.S. Rao, John Wiley & Sons, 1996.
2. Practical Optimization Methods with Mathematica Applications, M.A. Bhatti, Springer, 2000.
3. Optimization in Practice with MATLAB, A. Messac, Cambridge Univ. Press, 2015.

Software: Mathematica, Matlab, and Microsoft Excel (Solver)

Course Goal: Develop the necessary skills for formulating and solving design optimization problems encountered in mechanical engineering or other disciplines.

Instructional Objectives:

1. Introduce students to the general concepts in engineering design optimization.
2. Teach a variety of methods that can be used in solving unconstrained or constrained optimization problems of varying complexity.

Learning Outcomes: By the end of the course, students will be able to

1. Formulate an optimization problem in standard mathematical form based on a written description of a design problem and the associated requirements.
2. Solve graphically two-dimensional optimization problems involving multiple linear or nonlinear constraints.
3. Describe mathematically the necessary and sufficient conditions for optimality for both unconstrained and constrained optimization problems of various dimensions.
4. Set up and solve unconstrained optimization problems using any of the analytical and numerical methods learned in the course.
5. Set up and solve linear and nonlinear constrained optimization problems with one or more objectives using an appropriate analytical or numerical method from the list of those learned in the course.

Assessment: Assignments* (30%), Tests (45%), Final Exam (25%)

* Students enrolled in MEE 559 will be required to write a report on a topic of relevance to engineering design optimization. The grade for the project report will be counted toward the student's overall homework average.

Grading Scale:	$94 \leq A < 100$	$90 \leq A^- < 94$	$87 \leq B^+ < 90$
	$83 \leq B < 87$	$80 \leq B^- < 83$	$77 \leq C^+ < 80$
	$73 \leq C < 77$	$70 \leq C^- < 73$	$67 \leq D^+ < 70$
	$63 \leq D < 67$	$60 \leq D^- < 63$	$F < 60$

Attendance: Students are responsible for signing the attendance sheet in each class.

Make-up Test: There is no make-up test. If a test is missed for a valid reason with the instructor's consent, the average of the other test and the final exam will be used for the missed test. Else, a grade of zero is assigned.

Electronics: The use of electronic devices, such as cell phone, tablet, or computer, during each lecture is prohibited unless authorized by the instructor.

Course Schedule Disclaimer: 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.

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 with Disabilities Statement: If you have a disability for which you may be requesting an accommodation, please contact disabilities services, 121 East Annex, 581-2319, as early as possible in the term.

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 Spruce Run: 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/>.

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GRADUATE PROGRAM/UNIT

History

COURSE DESIGNATOR

HTY

COURSE NUMBER

665

EFFECTIVE SEMESTER

Spring 2018

COURSE TITLE

Digital and Spatial History

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

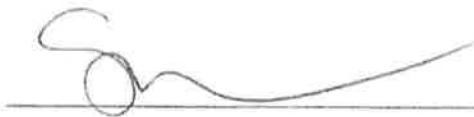
ELIMINATION:

☐ Course Elimination

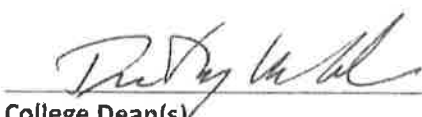
ENDORSEMENTS

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Leader, Initiating Department/Unit(s)



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):

HTY 665 Digital and Spatial History The digital revolution has transformed historical scholarship and teaching by enabling access to a wealth of research material and instructional resources. Many historians, however, have been hesitant to adopt digital methods of empirical analysis. This seminar will examine the challenges and opportunities of digital scholarship, including how digital methods affect the process of research, the questions historians ask, the sources they use, and the answers they find. We will particularly consider spatial history, where GIS (geographic information systems), digital mapping, and other visual approaches to data analysis and representation push the boundaries of traditionally text-centric, narrative history. Over-arching themes of the course are the costs and benefits of digital methods and the impact of methodological choices on historical research. This course can be taken remotely through teleconferencing. Prerequisites: graduate standing, or permission of the instructor for qualified undergraduate seniors. 3 credits.

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

- | | | | | |
|----------------------------------------|-----------------------------------------------------|------------------------------------------------------|--------------------------------------------|---------------------------------|
| <input type="checkbox"/> Applied Music | <input type="checkbox"/> Clinical | <input type="checkbox"/> Field Experience/Internship | <input type="checkbox"/> Research | <input type="checkbox"/> Studio |
| <input type="checkbox"/> Laboratory | <input checked="" type="checkbox"/> Lecture/Seminar | <input type="checkbox"/> Recitation | <input type="checkbox"/> Independent Study | <input type="checkbox"/> Thesis |

Text(s) planned for use:

David Bodenhamer, et al., eds., Deep Maps and Spatial Narrative (Indiana University Press, 2015). Ian Gregory, A Place in History (ESRC, 2005). Franco Moretti, Graphs, Maps, Trees: Abstract Models for Literary History (London: Verso, 2005). Todd Presner, et al., HyperCities (Harvard 2014). Susan Schulten, Mapping the Nation: History and Cartography in Nineteenth-Century America (Chicago: University of Chicago Press, 2012). Other readings on eres.

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

Anne Kelly Knowles, Professor, 2/2.

Reason for new course:

Although historians have been centrally involved in the emergence of the Digital Humanities for more than twenty years, disciplinary acceptance of digital methods of research and publication has become widespread only recently. This course will be the first at UMaine to provide History graduate students an overview of how digital innovations are changing the field, as well as practical instruction in key methods that are increasingly in demand on the job market. It is crucial that UMaine graduate students understand the advantages and potential pitfalls of digital scholarship. This seminar will give them foundational knowledge for deciding whether, and how, to include digital methods in their own research, how to assess other scholars' use of such methods, and how to use digital resources critically and creatively in their teaching.

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.

1. Expert assistance to teach the GIS labs. I am covering much of the cost this fall (teaching the course experimentally as HTY 599) from my McBride Professor funds. In future, I hope this modest cost can be covered by funds from History, CLAS, and/or the University.
2. Subscription to Social Explorer Professional. The Library's trial subscription will need renewal for future use.

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

None.

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 two or three years. No overload.

HTY 599/665 Digital and Spatial History
Fall 2017

Tuesdays 4:00-5:50pm Stevens Hall 370

Prof. Anne Knowles, Stevens Hall 145

Hours: AK Wed. 2:00-4:00pm, or by appointment Email: anne.knowles@maine.edu

Ben Meader: Mon. 2:00-4:00pm, or by appointment (207)350-5626 ben@rhumblinemap.com

Description

The digital revolution has transformed historical scholarship and teaching by enabling access to a wealth of research material and instructional resources. Many historians, however, have been hesitant to adopt digital methods of empirical analysis and data visualization. This seminar will examine the challenges and opportunities of digital scholarship, including how digital methods affect the process of research, the questions historians ask, the sources they use, the answers they find, and how the resulting work engages various publics. We will particularly consider spatial history, where GIS (geographic information systems), digital mapping, and other visual approaches to data analysis and representation push the boundaries of traditionally text-centric, narrative history. Over-arching themes of the course are the costs and benefits of digital methods and the impact of methodological choices on historical research.

Class sessions will be a mixture of lecture, student-led discussion, methods instruction, and peer critique of research in progress. Lab sessions will introduce students to historical GIS and other digital methods. In their major assignment, a substantial research project, students will apply what they have learned about digital and spatial history to a topic of their choice, including some form of explicit visualization of historical data. While the course requires considerable writing, as is appropriate in a graduate seminar, it also emphasizes the diverse forms of historical thinking and expression available to scholars, including visual thinking, cartography, conceptual modeling, information design, and spatial narrative.

Credit hours: 3

Prerequisites: Graduate standing, or permission of the instructor for qualified undergraduate seniors. 3 credits.

Assigned work

Lead class

Weekly writing and/or lab exercises 50%

Participation

Final project presentation 50%

Final project

I will comment on your weekly submitted work, and on the developing stages of your final project, but I will not assign a letter grade to these assignments. I will be monitoring your effort, creativity, and timely submission. In a graduate seminar, I assume that you will all start out with a

100% grade, which will fall only if you fail to demonstrate seriousness of effort to engage with course material and apply what you've learned to class assignments. Please feel free to talk with me any time during the semester if you are not sure where you stand.

Lead class

Each student will present material and guide discussion once during the semester. For some, this will be guiding discussion of one or more assigned readings. Others will guide discussion of online projects or digital archives. In either case, a good seminar leader's presentation:

- Occupies the first 15 minutes or so of class time.
- Includes an overview of the assigned material and its main conclusions or positions, draws connections between this and previous assigned readings, provides an overview of the argument and conclusions of the assigned material, and relates the material to over-arching class goals and themes.
- Poses questions or highlights examples, grounded in the assigned material and exercises, to spark lively discussion, and shapes the discussion to develop significant ideas.
- Often includes a limited number of well-designed visuals to make the presentation more comprehensible.

Weekly responses and exercises

Each week, in addition to finishing all assigned reading, you will complete one or two activities prior to class, as detailed on the weekly schedule. This will be a varying combination of short reading responses, lab exercises, and preparatory work toward your final project. All of your work is due on Tuesdays at 9:00 a.m. so that I have time to review it before class. Please deliver your work, on paper, to my office, unless requested otherwise. Since your work is intended to inform class discussion, no late assignments will be accepted without prior approval.

Participation

This part of your grade is meant to remind you that your performance in class has ramifications for the seminar's intellectual community and for your career beyond the classroom. To participate successfully, you must be consistently involved in all aspects of class, which means that you attend class every week, complete work when it is assigned, and actively join in insightful discussion of course concepts. Students who participate successfully are those for whom I would agree to sit on a committee, write a letter of recommendation, or be willing to serve as a reference at the end of class. It is okay to come to class without having understood everything in the assigned material. One of the best ways to participate is to draw attention to something you find confusing, though you should be prepared to specify what confuses you. Identifying problems in others' work is essential in graduate study.

Open, probing discussion is one of the most important practices in the humanities and social sciences. Through discussion you gain practice in thinking through problems and concepts, formulating arguments and counterarguments, assessing evidence for your own and others' positions, testing your ideas in a public setting, and responding thoughtfully and critically to

diverse points of view. A successful seminar becomes a fellowship of minds, a community whose members feel enabled by one another to explore difficult and complex ideas through thoughtful discourse. In particular, good discussion requires that you:

- Listen to others.
- Be specific and focus on particular passages or concepts in readings.
- Keep your remarks succinct, so that all students can join the conversation.
- Assume that everyone is acting with an open mind and in good faith.
- Freely admit what you do not know, and respect that everyone in the class has much to learn.
- Be prepared to rethink your convictions and customary ways of seeing things.
- Ask questions that enhance dialogue and deepen understanding.

Final Project

Your final assignment for this class is an individual or group spatial history project. I will accept diverse approaches and topics, so long as your work embodies spatial thinking and is about an era or place or set of events in the past (or how the subject changed over time). If the project involves more than one person, all team members must contribute equal effort. The project should have a written component, some form of geovisualization, and an explanation of your methodology. I will not accept only raw data, such as ArcMap layers or an Access database. You need to provide historical context, rationale, and draw some conclusions from your spatial analysis. Possible genres include:

- Term paper that reflects significant spatial thinking and includes two or more maps of your creation.
- A printed atlas on a theme of your choice, with more maps and other visuals (of your own and others' making) and more condensed text than a term paper.
- A map essay, in which the text comments extensively on a series of historical maps that you have analyzed, including at least two visualizations that guide the reader's understanding of the maps.
- A course syllabus, readings, and assignments for a course in your area of historical study that centrally includes spatial concepts and digital tools or resources.

I will work closely with everyone to ensure that projects are feasible. I also hope that you will find them satisfying expressions of your new knowledge.

Late Policy: I am very unlikely to grant extensions except in cases of serious illness or personal difficulty. Let me know as soon as you foresee a problem.

Students with disabilities statement: If you have a disability for which you may wish to request an accommodation, please contact Disabilities Services, 121 East Annex, 581-2319, as early as possible in the term.

Acknowledgement: Thanks to Ruth Mostern for sharing her graduate seminar syllabus with me, portions of which I have borrowed or adapted here.

Session topics, readings, and assignments

Required texts

NB: Because of our small class size, I have not ordered these books for the UMaine Bookstore. I suggest you order your copies through your local bookstore or Amazon or a used books clearinghouse such as Alibris or ABE.

David Bodenhamer, John Corrigan, and Trevor Harris, eds., *Deep Maps and Spatial Narratives* (Bloomington: Indiana University Press, 2015).

Jennifer Bonnell and Marcel Fortin, eds., *Historical GIS Research in Canada* (Calgary: University of Calgary Press, 2014). [ebook on Ursus]

Ian N. Gregory, *A Place in History: A Guide to Using GIS in Historical Research*, 2nd ed. (ESRC, 2005). Available online at https://www.researchgate.net/publication/228725974_A_place_in_history_A_guide_to_using_GIS_in_historical_research.

Franco Moretti, *Graphs, Maps, Trees: Abstract Models for Literary History* (London: Verso, 2005).

Todd Presner, David Shepard, and Yoh Kawano, *HyperCities: Deep Mapping in the Digital Humanities* (Cambridge, Mass.: Harvard University Press, 2014).

Susan Schulten, *Mapping the Nation: History and Cartography in Nineteenth-Century America* (Chicago: University of Chicago Press, 2012).

For all other readings, see the full course bibliography. Readings are referred to in abbreviated form for each class session, below.

Week 1 (Aug. 29) What are digital and spatial history? (lecture)

AK lecture will give an overview of the goals and problems of these branches of history; distinguish between digital history, spatial history, historical GIS, the digital humanities, and spatial humanities; and provide examples of the basic kinds of methods that we will look at more closely in future sessions, including computer databases, GIS, cartography, and corpus linguistics.

At the end of this session, students will choose the discussions they wish to lead in upcoming sessions.

Read: White, "Spatial History"

Homework 1.1: Write a 2-3 page response paper on the differences you see at this point between digital and spatial history and conventional or traditional history. Does anything about your first exposure to this kind of history excite or concern you?

Homework 1.2: In addition to reviewing the historical websites set as readings for week 2, spend an hour with another historical website of your own choosing, from the course bibliography or one you find online. Make a list of what you find appealing or useful and what you find difficult, off-putting, or simply bad – that is, what works well, what does not? Be prepared to discuss your list.

Homework 1.3: Download QGIS to your laptop. See email from Ben Meader (coming a little later this week) for the download procedure.

Week 2 (Sept. 5) Online historical projects (discussion & lab)

Discussion will focus on the content, design, and effectiveness of leading online historical projects. Lab will provide an overview of geographic information, the architecture of GIS, raster and vector data structures, and query functions.

Read: Thomas & Ayers, “An Overview: The Differences Slavery Made”

AHR Forum: *Mapping the Republic of Letters* – read the first three essays, and the fourth if possible.

Gregory, chs. 1 & 2 in *A Place in History*

Meader online videos:

- What is GIS?
- Raster and Vector Data
- Optional: Spatial Data Structure and Data Science Jargon

Lab: Introduction to GIS (AK & Ben Meader) Kinds of spatial data, data formats/structure, layers, and metadata; basic navigation in QGIS; making a basemap.

Homework 2.1: Watch Ben’s “Build a basemap of Europe” video to review what you learned in lab. Then make a basemap of your own for Europe with at least three (3) layers.

Homework 2.2: Write a 2-3 page response to week 3 readings. What themes emerge from this material? What kind of methods are common across the examples of historical GIS in these readings?

Homework 2.3: Download Geoff Megargee, ed., *Encyclopedia of Camps and Ghettos*, vol. 1 (<https://www.ushmm.org/research/publications/encyclopedia-camps-ghettos/> – complete the information form to enable download). Although Fogler Library has an ebook of this 2-part book, you may find it more convenient to work with a copy on your own laptop.

Week 3 (Sept. 12) Introduction to historical GIS (discussion & lab)

Discussion will draw out the core thematic areas and methodologies of historical GIS (HGIS). Lab will introduce the basics of flat-file database structures, showing how to translate historical, textual information into categorical, quantitative, and textual fields in a database.

Read: Blevins, “Space, Nation, and the Triumph of the Region”

Bonnell & Fortin, *Historical GIS Research in Canada* [ebook] – read one chapter, your

choice
Knowles, et al., "Mapping the SS Concentration Camps"
Orth, "The Genesis and Structure"

Lab: Tracing map to table to text and back again (AK & Ben) Work with textual source behind the HGIS in Knowles, et al., "Camps," to learn data extraction, database structure, and field definition.

Homework 3.1: Design a simple database for capturing data from the USHMM *Encyclopedia of Camps and Ghettos*, vol. 1. You may sketch, type, or draw the design using PowerPoint or graphics software, whatever you find easiest.

Revised Homework 3.1: Creating fields and entering attribute data. Select any **six** entries in sequence (i.e., six in a row) from the Auschwitz subcamp section of the *Encyclopedia of Camps and Ghettos*, vol. 1 (pp. 221-276). Read the entries, referring back to Orth for help to understand the general context of the camps system. The introductory essay on the Auschwitz system in the *Encyclopedia* is also very good.

Then decide what kind of information you would like to add to the skeletal Auschwitz database in the Lab 2 folder. Include at least one field related to time. Parse the variable(s) of interest into a total of six fields and create the fields, setting their data type as you do. Then enter the corresponding information for each camp into your prototype attribute table.

Keep notes on the process, including what you found interesting, why you chose your particular variable(s), what problems you encountered while setting up your fields and entering data, and how the process of translating entries into database form affected your thinking about the history of the SS camps.

To turn in: Send Anne & Ben a written summary of your experience creating fields and entering attribute data. Include a list of your fields, noting their data type, and list the names of the camps you worked with.

Homework 3.2: Write a 2-3 page response to Schulten, *Mapping the Nation*, including the book's companion website. Focus your response on how you might use the book (in whole or part) and the website in a lesson plan for a course.

Week 4 (Sept. 19) Historical maps in spatial and digital history (discussion [30] & lab [75]) Zach
This session will focus on how maps have been used as sources for historical research and have themselves been the subject of research in the history of cartography. We will also demonstrate and practice the basic methods to bring historical maps into GIS and then extract spatial information from them.

Read: Schulten, *Mapping the Nation* and the book's companion website,
<http://www.mappingthenation.com/>

Rumsey & Williams, "Historical Maps in GIS"
Knowles, "What Could Lee See at Gettysburg?"

Lab: Creating spatial data – Georeferencing and data extraction (Ben) Working with scanned historical maps related to WWII and the Holocaust; practice georeferencing one map and methods of digital data extraction.

Homework 4.1: Georeference another map from the Lab 4 file and extract one or more shapefile layers of data from it. Then add your new layer(s) to your basemap. Print your compilation with a paragraph explaining what you learned using this technique (easy or difficult) and reflect on what questions your compilation raises that might be interesting to research.

Homework 4.2: Write a 2-3 page response to Moretti's *Graphs Maps Trees*.

Week 5 (Sept. 26) HGIS and corpus methods (Ian Gregory, guest lecture & discussion)

Ian Gregory is one of the pioneers in combining HGIS with computer methods of textual analysis (corpus linguistics and natural language processing) and geoparsing (tagging place names with geographic coordinates). We will consider the various dimensions of his work, with Ian taking us behind the scenes to explain how he and his collaborators have worked with textual sources and geospatial information.

Read: Moretti, *Graphs Maps Trees*
Cooper & Gregory, "Lake District"
Berman, et al., "Introduction" [eres]
Mostern & Southall, "Gazetteers Past" [eres]

Lab: Explore geoparsing and mapping with Ian's data

Homework 5.1: Write a 2-3 page response to *HyperCities*, the book and its companion website.

Optional: Dinner out with Ian Gregory (Dutch treat)

Week 6 (Oct. 3) Hypertext, digital platforms, and the ethics of the algorithm (Todd Presner, guest lecture & discussion)

Todd Presner has been a leader in the Digital Humanities for much of his career. We will focus on his flagship project, *HyperCities*, which was born digital, then captured in print with a companion website. Todd will give us his inside view of the development of digital scholarship. Discussion

will focus on the issues and affordances that digital research and presentation raise for scholars and their audiences.

Read: Presner, et al., *HyperCities*

Presner, et al., *HyperCities* website <http://www.hypercities.com/>

Presner, "Ethics of the Algorithm"

Homework exercise: Write a 4-5 page prospectus for your term project. (NB: This paper may be emailed to AK.)

Optional: Dinner with Todd Presner (sign up)

Week 7 (Oct. 11, 12, or 13) Fall Break

Week 8 (Oct. 17) Project ideas and visualizing historical data (discussion & lab)

Discussion will be a round-table lightning review of students' term project ideas. Lab will introduce concepts and practices for basic map-making, including recognizing data of different kinds and formats; working with map layers to create a map compilation; and how to visualize quantitative vs. qualitative variables.

At the end of the class period, students will schedule individual consultations with AK and Ben for next week, Oct. 26 & 27. [NB: *No class* on Oct. 24.]

Lab 6: Visualizing variables in space (Ben) Using the spatial and attribute data they have developed in previous labs and homework, students will learn and practice querying data, creating data layers, and methods for symbolizing data.

Handout and online resource: AK summary of the principles of expository cartography, including rules of thumb for making legible, attractive maps for history.

Homework 8.1: Sketch or write a plan for two visualizations for your term project, including sources, any transformations, and work flow. Do you want to work manually or digitally?

Homework 8.2: Further develop your project prospectus for next week's consultation.

Week 9 (Oct. 26 & 27) Individual consultations: sources, methods, research design

AK will be away at a digital conference at USC during our regular class time. Upon her return, AK will meet with students individually to discuss their term project ideas. Come prepared to explain your idea, including your core research question, possible primary sources from digital archives and other repositories, and related secondary literature. If you want to do an empirical

digital project, bring examples of your source material and ideas about which digital method will best suit the sources and your questions. Students are also encouraged to sign up for a Skype or phone session with Ben.

Homework 9.1: Write a 2-3 page response comparing the spatial histories in week 10's readings.

Week 10 (Oct. 31) The Spatial Turn in Environmental History & Holocaust Studies (discussion)

Alex

These two subfields make an interesting contrast as examples of the spatial turn in historical scholarship over the past 10-15 years. One commonality between them is the importance of scale in historical interpretation. Another is scholars' use of mapping as an empirical method of data analysis and visual argument.

Read: Cunfer and Krausmann, "Adaptation on an Agricultural Frontier"

Donahue, "Mapping Husbandry in Concord: GIS as a Tool for Environmental History"

Jaskot, et al., "Visualizing the Archive"

Gigliotti, et al., "From the Camp to the Road"

Week 11 (Nov. 7) Research in progress: Digital consultations and in-class discussion

Week 12 (Nov. 14) "Visualizations are not illustrations": Method, argument, critique (discussion)

Discussion will engage with historical geographical visual methodologies – how map-making, graphing, and other visual techniques can be used as historical research methods and as visual argument. Our critique of published examples will help us adapt Edward Tufte's guidelines to historical visualizations.

Read: Tufte, books on reserve in Fogler Library

Bodenhamer, et al., *Deep Maps and Spatial Narratives*

Sample Neatline projects (online)

Week 13 (Nov. 21) Digital archives & curation (discussion)

Digital archives and curated exhibitions are among the most common digital humanities projects. In this session we will particularly discuss literary projects (which are also deeply historical) and look at alternatives to GIS that enable mapping of different kinds.

At the end of the session, students will sign up for individual consultations with AK next week during our regular class period. AK must have any draft research material by today's session to be able to return comments by next week's consultation.

Assignment: Prepare a formal oral presentation of your research, including visuals (digital or otherwise). You will have 15 minutes to explain your core research question, its historical context and historiographic significance, your sources and methods, and your findings. Presentations will take place in a seminar symposium on Dec. 5.

Week 14 (Nov. 28)

Individual research consultations. You and AK and Ben will discuss your draft and any other questions or challenges remaining in your research project.

Week 15 (Dec. 5)

Final project presentations

Final project due to AK mailbox by 12 noon on Dec. 11, or sooner if you wish. Please let AK know in advance if you must submit your project by email.

HTY 599 Digital and Spatial History Course Bibliography (Fall 2017)

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 [This should be customized to include the instructor's name]: 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 me (the instructor of the course) 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.

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 Spruce Run: 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/>

Required texts

- David Bodenhamer, John Corrigan, and Trevor Harris, eds., *Deep Maps and Spatial Narratives* (Bloomington: Indiana University Press, 2015).
- Jennifer Bonnell and Marcel Fortin, eds., *Historical GIS Research in Canada* (Calgary: University of Calgary Press, 2014). [ebook in Ursus]
- Ian Gregory, *A Place in History: A Guide to Using GIS in Historical Research*, 2nd ed. (ESRC, 2005). Available online at https://www.researchgate.net/publication/228725974_A_place_in_history_A_guide_to_using_GIS_in_historical_research.
- Franco Moretti, *Graphs, Maps, Trees: Abstract Models for Literary History* (London: Verso, 2005).
- Todd Presner, David Shepard, and Yoh Kawano, *HyperCities: Deep Mapping in the Digital Humanities* (Cambridge, Mass.: Harvard University Press, 2014).
- Susan Schulten, *Mapping the Nation: History and Cartography in Nineteenth-Century America* (Chicago: University of Chicago Press, 2012).

Full course bibliography

AHR Forum: *Mapping the Republic of Letters*, *American Historical Review* 122:2 (2017). (Find journal on Ursus.) This special issues contains four essays:

- "Introduction" (very short)
- Dan Edelstein, et al., "Historical Research in a Digital Age: Reflections from the Mapping of the Republic of Letters Project," pp. 400-424
- Giovanna Ceserani, et al., "British Travelers in Eighteenth-Century Italy: The Grand Tour and the Profession of Architecture," pp. 425-450
- Jason M. Kelly, "Reading the Grand Tour at a Distance: Archives and Datasets in Digital History," pp. 451-463.

Atkinson, Niall, "Seeing Sound: Mapping the Florentine Soundscape," in *Mapping Space, Sense, and Movement in Florence: Historical GIS and the Early Modern City*, eds. Nicholas Terpstra and Colin Rose (London: Routledge, 2016): 149-168.

Bailyn, Bernard, "Searching for the Facts: The Origin and Character of the Register of Emigrants," in *Voyagers to the West: A Passage in the Peopling of America on the Eve of the Revolution* (New York: Vintage, 1986): 67-84.

Berman, Merrick Lex, Ruth Mostern, and Humphrey Southall, "Introduction," in Merrick Lex Berman, Ruth Mostern, and Humphrey Southall, eds., *Placing Names: Enriching and Integrating Gazetteers* (Bloomington: Indiana University Press, 2016): 1-11.

Blevins, Cameron, "Space, Nation, and the Triumph of the Region: A View of the World from Houston," *Journal of American History* 101:1 (2014): 122-147. The digital companion to this article, "Mining and Mapping the Production of Space: A View of the World from Houston," is available at <http://web.stanford.edu/group/spatialhistory/cgi-bin/site/pub.php?id=93>.

Bodenhamer, David J., John Corrigan, and Trevor M. Harris, eds., *Deep Maps and Spatial Narratives* (Bloomington: Indiana University Press, 2014).

Bodenhamer, David J., John Corrigan, and Trevor M. Harris, eds., *The Spatial Humanities: GIS and the Future of Humanities Scholarship* (Bloomington: Indiana University Press, 2010).

Bonnell, Jennifer, and Marcel Fortin, *Historical GIS Research in Canada* (Calgary: University of Calgary Press, 2014).

Boyd, Douglas A., and Mary A. Larson, *Oral History and Digital Humanities: Voice, Access, and Engagement* (New York, NY: Palgrave Macmillan, 2014).

Burdick, Anne, et al., *Digital Humanities* (Cambridge, MA: MIT Press, 2012). Pbk ISBN 978-0-2625-2886-3, for \$22.95; ebook ISBN 978-0-2623-1209-7, \$16.95. Open access edition: https://mitpress.mit.edu/sites/default/files/9780262018470_Open_Access_Edition.pdf.

Carter, Paul, *Road to Botany Bay: An Essay in Spatial History* (London: Faber & Faber, 1987).

Cohen, Daniel J., and Roy Rosenzweig, *Digital History: A Guide to Gathering, Preserving, and Presenting the Past on the Web* (Philadelphia: University of Pennsylvania Press, 2006).

Cooper, David, and Ian N. Gregory, "Mapping the English Lake District: A Literary GIS," *Transactions of the Institute of British Geographers*, new ser., 36 (2010): 89-108.

Cunfer, Geoff, and Fridolin Krausmann, "Adaptation on an Agricultural Frontier: Socio-Ecological Profiles of Great Plains Settlement, 1870-1940," *Journal of Interdisciplinary History* 46 (Winter 2016): 1-38.

Eltis, David, et al., "Introduction," in *Slavery in the Development of the Americas*, eds. David Eltis, Frank Lewis, and Kenneth Sokoloff (West Nyack, NY: Cambridge University Press, 2004): 1-27. EBOOK through Fogler Library.

Flanders, Julia, "The Productive Unease of 21st Century Digital Scholarship," *Digital Humanities Quarterly* 3:3 (summer 2009). Open access: <http://digitalhumanities.org/dhq/vol/3/3/000055/000055.html>

Fogel, Robert W., Stanley L. Engerman, and James Trussell, "Exploring the Uses of Data on Height: The Analysis of Long-Term Trends in Nutrition, Labor Welfare, and Labor Productivity," *Social Science History* 6:4 (1982): 401-421.

Gigliotti, Simone, et al., "From the Camp to the Road," in Anne Kelly Knowles, et al., eds., *Geographies of the Holocaust* (Bloomington: Indiana University Press, 2014): 192-225.

Gregory, Ian N., *A Place in History: A Guide to Using GIS in Historical Research*, 2nd ed. (ESRC, 2005). Available online at

https://www.researchgate.net/publication/228725974_A_place_in_history_A_guide_to_using_GIS_in_historical_research.

Gregory, Ian N., and Alistair Geddes, eds., *Toward Spatial Humanities: Historical GIS and Spatial History* (Bloomington: Indiana University Press, 2014). EBOOK through Fogler Library.

Knowles, Anne Kelly, "A More Humane Approach to Digital Scholarship," *Parameters: Knowledge Under Digital Conditions*, Social Science Research Council, posted August 3, 2016. <http://parameters.ssrc.org/2016/08/a-more-humane-approach-to-digital-scholarship/>.

Knowles, Anne Kelly, ed., *Placing History: How Maps, Spatial Data, and GIS Are Changing Historical Scholarship*, digital supplement edited by Amy Hillier (Redlands, CA: ESRI Press, 2008).

Laslett, Peter, "The Comparative History of Household and Family," *Journal of Social History* 4:1 (1970): 75-87.

McCants, Anne E. C., "History and the Social Sciences: Past Imperfect, Future Promising," *Social Science History* 40:3 (forthcoming 2016). Typescript courtesy of Anne McCants.

McEnery, Tony, and Andrew Hardie, *Corpus Linguistics: Method, Theory, and Practice* (Cambridge: Cambridge University Press, 2011).

Mostern, Ruth, and Humphrey Southall, "Gazetteers Past: Placing Names from Antiquity to the Internet," in Merrick Lex Berman, Ruth Mostern, and Humphrey Southall, eds., *Placing Names: Enriching and Integrating Gazetteers* (Bloomington: Indiana University Press, 2016): 15-25.

Nowviskie, Bethany, "Everywhere, Every When," blog post, April 29, 2016. <http://nowviskie.org/2016/everywhere-every-when/#more-2894>

Orth, Karin, "The Genesis and Structure of the National Socialist Concentration Camps," trans. By Stephen Pallavicini, in Geoffrey P. Megargee, ed., *The United States Holocaust Memorial Museum Encyclopedia of Camps and Ghettos, 1933-1945*, vol. 1, *Early Camps, Youth Camps, and Concentration Camps and Subcamps under the SS-Business Administration Main Office (WVHA)* (Bloomington: Indiana University Press, 2008): 183-196. (ebook on Ursus)

Presner, Todd, ed., *HyperCities: Thick Mapping in the Digital Humanities* (Cambridge, MA: Harvard University Press, 2014).

Presner, Todd, "How to Evaluate Digital Scholarship," *Journal of Digital Humanities* 1:4 (fall 2012). Published online at <http://journalofdigitalhumanities.org/1-4/how-to-evaluate-digital-scholarship-by-todd-presner/>.

Presner, Todd, "The Ethics of the Algorithm: Close and Distant Listening to the Shoah Foundation Visual History Archive," in Claudio Fogu, Wolf Kansteiner, and Todd Presner, eds.,

Probing the Ethics of Holocaust Culture (Cambridge, Mass.: Harvard University Press, 2016): 175-202. Made available for this class by the author in final manuscript, as the book was not published in time to provide a PDF of the published pages.

Putnam, Lara, "The Transnational and the Text-Searchable: Digitized Sources and the Shadows They Cast," *American Historical Review* 121:2 (2016): 377-402.

Ray, Benjamin C., "Geography of Accusations in 1692 Salem Village," *William & Mary Quarterly*, 3rd ser., 65:3 (2008): 449-478.

Ray, Benjamin C., "Tituba's Confession," in *Satan & Salem: The Witch-Hunt Crisis of 1692* (Charlottesville: University of Virginia Press, 2015): 33-43.

Renear, Allen H., "Text Encoding," in *A Companion to Digital Humanities*.
<http://www.digitalhumanities.org/companion/>

Rosenzweig, Roy, "Can History be Open Source? Wikipedia and the Future of the Past?"
<http://chnm.gmu.edu/essays-on-history-new-media/essays/?essayid=42/>

Rumsey, David, and Meredith Williams, "Historical Maps in GIS," in Anne Kelly Knowles, ed., *Past Time, Past Place: GIS for History* (Redlands, Cal.: ESRI Press, 2002): 1-18.

Solana, Ana Crespo, ed., *Spatio-Temporal Narratives: Historical GIS and the Study of Global Trading Networks, 1500-1800* (Newcastle upon Tyne: Cambridge Scholars Publishing, 2014).

Social Science History, "Editors' Foreword," *Social Science History* 1:1 (1976): i-ii.

Terpstra, Nicholas, and Colin Rose, eds., *Mapping Space, Sense, and Movement in Florence: Historical GIS and the Early Modern City* (London: Routledge, 2016).

Thomas, William G., III, and Edward L. Ayers, "An Overview: The Differences Slavery Made: A Close Analysis of Two American Communities," *American Historical Review* 108:5 (2003): 1299-1307.

Tufte, Edward R.

Beautiful Evidence (Cheshire, CT: Graphics Press, 2006).

"The Cognitive Style of PowerPoint" (Cheshire, CT: Graphic Press, 2003).

Envisioning Information (Cheshire, CT: Graphics Press, 1990).

The Visual Display of Quantitative Information (Cheshire, CT: Graphics Press, 1983).

Visual Explanations: Images and Quantities, Evidence and Narrative (Cheshire, CT: Graphics Press, 1997).

Von Lünen, Alexander, and Charles Travis, eds., *History and GIS: Epistemologies, Considerations, and Reflections* (Dordrecht: Springer, 2013).

White, Richard, "What Is Spatial History?" (Stanford, CA: Stanford University Spatial History Lab, 2010). http://www.stanford.edu/group/spatialhistory/cgi-bin/site/pub_toc.php/

Websites (we will add to this during the semester)

Digital Roman Forum <http://dlib.etc.ucla.edu/projects/Forum/>

Google Ngrams Viewer <https://books.google.com/ngrams/info>

HyperCities <http://www.hypercities.com/>

Pleiades and the Ancient World Mapping Center <http://pleiades.stoa.org/>

Rossetti Archive <http://www.rossettiarchive.org/>

Salem Witch Trials Documentary Archive <http://salem.lib.virginia.edu/home.html>

Text-Encoding-Initiative (TEI): <http://www.tei-c.org/index.xml>

Trans-Atlantic Slave Trade Database <http://www.slavevoyages.org/>

The Valley of the Shadow: Two Communities in the American Civil War
<http://valley.lib.virginia.edu/>

Women Writers Project: <http://www.wwp.northeastern.edu/>

Maps websites

National Library of Scotland – maps.nls.uk. High-res scans of the Survey of Scotland and many other military mapping ventures, as well as some maps from WWI (such as trenches maps from northea

RECEIVED
OCT 16 2017
GRADUATE SCHOOL



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 erin.twitchell@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT School of Marine Sciences / NSFA

COURSE DESIGNATOR SMS COURSE NUMBER 563 EFFECTIVE SEMESTER Spring 2018

COURSE TITLE Fisherles Policy & 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)

David Townsend 9/22/2017

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

James C. [Signature] 10/13/17
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 563 3 Credits Title: Fisheries Policy & Management

This graduate course aims to provide a foundation in the theory and practice of contemporary fisheries policy and management. Students that participate in this class will learn about the key policy frameworks that guide fisheries management and the contemporary strategies being deployed to balance conservation and resource use. This course starts with a primer on the institutional architecture of fisheries management and a description of federal, state, and local management and how these complex systems are interrelated. The second part of this course will focus on contemporary policy tools in fisheries management and the seminal and emerging scholarship that shapes their use and refinement. In this course, students will also engage with policymakers, managers, and fishers first-hand through fieldtrips and guest lectures that are designed to provide a greater understanding of the complexity and nuance of the decision-making process. Students that take this class will deepen their understanding of fisheries management and policy and hone their written and analytical skills in the process.

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

- | | | | | |
|----------------------------------------|-----------------------------------------------------|------------------------------------------------------|--------------------------------------------|---------------------------------|
| <input type="checkbox"/> Applied Music | <input type="checkbox"/> Clinical | <input type="checkbox"/> Field Experience/Internship | <input type="checkbox"/> Research | <input type="checkbox"/> Studio |
| <input type="checkbox"/> Laboratory | <input checked="" type="checkbox"/> Lecture/Seminar | <input type="checkbox"/> Recitation | <input type="checkbox"/> Independent Study | <input type="checkbox"/> Thesis |

Text(s) planned for use:

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

Joshua Stoll, Assistant Research Professor
50% teaching

Reason for new course:

This course aims to fill a gap in the marine policy curriculum in the School of Marine Sciences. In particular, there are no graduate level courses that focus directly on fisheries policy and management, even though many of our graduates end up working with (or being) policymakers and/or managers.

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 course will not directly impact any other department/program. Rather, the course aims to complement existing class offerings. In particular, there are several courses in the School of Marine Sciences, Economics, and Anthropology that touch on fisheries policy and related theories. These include: ANT 550, 553, 555; ECO 477, 581; SMS 598, 552, 557, 562, 576, 598.

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 yearly. The course will not overload salary payments.

FISHERIES POLICY (598)

Instructor: Joshua Stoll, Assistant Research Professor of Marine Policy

Contact Information: (207)581-4307 | joshua.stoll@maine.edu

Class Time: Tuesday & Thursday 12:30-1:45 AM | **Class Location:** Aubert 464

Credits: 3 | **Prerequisites:** None

Office: 210B Libby Hall | **Office Hours:** By appointment

COURSE DESCRIPTION

This course will give graduate students a foundation in the theory and practice of contemporary fisheries policy and management. Students that participate in this class will learn about the key policy frameworks that guide fisheries management and the contemporary strategies being deployed to balance conservation and resource use. This course starts with a primer on the institutional architecture of fisheries management and a description of federal, state, and local management and how these complex systems are interrelated. The second part of this course will focus on contemporary policy tools being deployed in fisheries management and the seminal and emerging scholarship that has shaped their use and refinement. In this course, students will also engage with policymakers and managers first-hand to provide a greater understanding of the complexity and nuance of the decision-making process. Students that take this class will deepen their understanding of fisheries management and policy and hone their written and analytical skills in the process.

COURSE OBJECTIVES

By the end of this course, students will be able to: **(1)** have informed conversations with fisheries management practitioners, fishers, and conservationists about the key policies since the 1970s that have shaped fisheries conservation and management and synthesize their record of implementation, **(2)** critically evaluate how new and emerging scholarship (including their own) supports (or conflicts with) existing fisheries policy and management paradigms, and **(3)** describe the fundamental challenges inherent in building robust institutions to sustainably manage complex and dynamic marine systems. Students that participate in this course will also improve their written and oral presentation skills.

GRADING

- *Marine Policy Journal Briefs* (35%): Part 1 (10%): One of the primary goals of this course is to be able to situate (and critically evaluate) new and emerging scholarship within the broader fisheries management and policy context. Towards this objective, each week one student in the class will be responsible for preparing a succinct brief (10 minutes) that summarizes key insights from one recent volume in *Marine Policy* (Note: You will sign-up for a particular volume at the start of the semester) and present it in one of the seven marine policy salons during the semester. The purpose of these briefs are twofold: (1) to increase our collective understanding of the issues/topics being written about in the leading journal of ocean policy studies; and (2) to critically evaluate how the research is related to the material presented in this course. You will

then be responsible for using this brief to kick-start a group discussion about some aspect of the materials. Part 2 (25%): In preparation for each marine policy salon (except the one that you lead), you will be responsible for preparing a 1-page reflection, that links at least 3 of the journal articles in the designated volume to the course materials.

Marine Policy is the leading journal of ocean policy studies. It offers researchers, analysts and policy makers a unique combination of analyses in the principal social science disciplines relevant to the formulation of marine policy. Major articles are contributed by specialists in marine affairs, including marine economists and marine resource managers, political scientists, marine scientists, international lawyers, geographers and anthropologists. Drawing on their expertise and research, the journal covers: international, regional and national marine policies; institutional arrangements for the management and regulation of marine activities, including fisheries and shipping; conflict resolution; marine pollution and environment; conservation and use of marine resources. Regular features of *Marine Policy* include research reports, conference reports and reports on current developments to keep readers up-to-date with the latest developments and research in ocean affairs.

Final Paper – (50%): Each of you will be responsible for writing a paper (structured in the [style of a manuscript](#) for *Marine Policy*) relating the materials from this course to your own research or one of the topics that emerged from the *Marine Policy* Journal briefings. Please do not exceed 7,000 words. Paper topics are due by February 15, 2018 and should be submitted to me in the form of a 1-page description. This assignment will be accompanied by a brief in-class student presentation at the end of the semester. Further information will be provided later in the semester.

Participation (15%): This course will be structured as a series of lectures paired with readings and seminar-style discussions. In addition, there will also be several opportunities to interact with policymakers and practitioners. These activities will occur outside the designated class times (see schedule below). All students are expected to actively participate in this class. Active participation in the classroom involves thinking critically about the material presented and sharing your thoughts with your peers. Participation grades will be based on the following rubric:

	15%	14-10%	9-5%	<5%
Frequency and Quality	Attends class regularly and <i>always contributes</i> to the discussion by raising thoughtful questions, analyzing relevant issues, building on others' ideas, synthesizing across readings and discussions, expanding the class' perspective,	Attends class regularly and <i>sometimes contributes</i> to the discussion in the aforementioned ways.	Attends class regularly but <i>rarely contributes</i> to the discussion in the aforementioned ways.	Attends class regularly but <i>never contributes</i> to the discussion in the aforementioned ways.

	and appropriately challenging assumptions and perspectives			
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Note: Source: <https://www.cmu.edu/>

GRADING SCALE

Letter Grade	Percentage	GPA
A	90%-100%	4
B	80%-89%	3
C	70%-79%	2
D	60%-69%	1
F	0%-59%	0

UNIVERSITY POLICIES

University of Maine Policy on Academic Dishonesty: According to the university, “students of the University are expected to be honest and forthright in their academic endeavors. To falsify the result of one’s research, to steal the words of another, or to cheat on an examination corrupts the essential process by which knowledge is advanced. Such cheating and plagiarism are violations of the Student Conduct Code. Although disciplinary action under this Code is independent of the awarding of grades (an academic matter) and provisions of this Code cannot be used for changing awarded grades, an instructor who has probable cause or reason to believe that a student has cheated may act upon such evidence. The instructor may refer the case to the department chairperson, the academic dean, or the Judicial Officer for appropriate disciplinary action. The maximum possible sanction which may be imposed, and which will necessarily depend on the degree of seriousness of the case, is dismissal from the University.” Link: <http://umaine.edu/studentlife/jad/academic-honesty-and-dishonesty/>.

Course disclaimer: 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.

Student Accessibility Services: If you have a disability for which you may be requesting an accommodation, please contact Student Accessibility Services, 121 East Annex, 207-581-2319, 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.

Writing Center: The University of Maine Writing Center offers free writing tutoring with a trained reader who will help you with focus, development, coherence, mechanics, and style. The tutors are University of Maine students (undergraduate and graduate levels) who have been selected by faculty and have successfully undergone a semester-long internship program. They will work on any piece of writing you have at any stage in the process, from developing your

ideas or tackling a difficult project to fine tuning a paper at the graduate level. The center (402 Neville Hall) accepts walk-ins per tutor availability, but you can also schedule an appointment at <http://umaine.edu/wcenter/>.

Counseling Center: The University of Maine Counseling Center provides services and programs that promote the personal development and psychological well being for University of Maine students. Students seek counseling for a number of reasons, including: academic issues, relationship troubles, feeling stressed, anxious, or depressed, financial stress, concerns with family or friends. You can schedule a counseling appointment at <http://umaine.edu/counseling/>

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, I am 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 Spruce Run: 1-800-863-9909.

The following on campus services can offer support but may have to report the incident to others who can help: 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.

A complete list of services is available on the OSAVP website at <http://www.umaine.edu/osavp/>.

COURSE SCHEDULE & ASSIGNMENTS

Class	Date	Topic
1	1/30/18	Introduction: What is policy?
	Focus	In this class we will review the course syllabus and objectives and define what we mean by policy.
	Readings	Pew Oceans Commission. 2003. America's Living Oceans: Charting a Course for Sea Change. Summary Report (pp.1-35) http://www.pewtrusts.org/pdf/env_pew_oceans_final_report_summary.pdf
		US Commission on Ocean Policy. 2004. An Ocean Blueprint for the 21st Century. Executive Summary (pp. 1-29) http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/Protecting_ocean_life/POC_Summary.pdf
2	2/1/18	Setting the context in a sea of conflict
	Focus	The aim of this class is to provide the context for this class, highlighting key challenges and concepts that have driven fisheries policy and

		management for the past few decades, including: public trust doctrine, user conflict, non-linearity, capacity/market/technology shifts.
	Readings	McGoodwin, J.R. 1990. Crisis in the World's Fisheries: People, Problems, and Policies. Stanford University Press. (Chapters 1, 2, 10, pp 7-46, 162-181).
		Crowder, L.B., G. Osherenko, O.R. Young, S. Airamé, E.A. Norse, N. Baron, J.C. Day, F. Douvère, C.N. Ehler, B.S. Halpern, S.J. Langdon, K.L. McLeod, J.C. Ogden, R.E. Peach, A.A. Rosenberg, and J.A. Wilson. 2006. Resolving mismatches in U.S. ocean governance. Science 313:617-618.
		Turnipseed, M., L.B. Crowder, R.D. Sagarin, and S.E. Roady. 2009. Legal bedrock for rebuilding America's ocean ecosystems. Science 324:183-184.
		Pauly, D., Christensen, V., Dalsgaard, J., Froese, R., & Torres, F. (1998). Fishing down marine food webs. Science, 279(5352), 860-863.
		Essington, T. E., Beaudreau, A. H., & Wiedenmann, J. (2006). Fishing through marine food webs. Proceedings of the National Academy of Sciences of the United States of America, 103(9), 3171-3175.
		Jackson, J. B., Kirby, M. X., Berger, W. H., Bjorndal, K. A., Botsford, L. W., Bourque, B. J., ... & Hughes, T. P. (2001). Historical overfishing and the recent collapse of coastal ecosystems. science, 293(5530), 629-637.
		Berkes, F., Hughes, T. P., Steneck, R. S., Wilson, J. A., Bellwood, D. R., Crona, B., ... & Nyström, M. (2006). Globalization, roving bandits, and marine resources. Science, 311(5767), 1557-1558.
3	2/6/18	Fisheries management (Part I) - Structure, process, and authority
	Focus	This class provides primer on fisheries management, with a focus on the structure of the regulatory/science system, delegation of authority, interplay between federal/state/local authorities, and dynamics between Regional Fisheries Management Organizations, inter-state management bodies, and non-fisheries entities such as the Regional Planning Bodies.
	Readings	Cicin-Sain, B. and R. Knecht. 2000. The Future of U.S. Ocean Policy. Washington, DC: Island Press (pp. 1-103)
4	2/8/18	Fisheries management (Part II) - Magnuson-Stevens Act
	Focus	Building on Part I (above) the focus of this class is on the history of the Magnuson-Stevens Conservation and Management Act and its key legislative components. Note: we will return to these components throughout the course, reflecting on their relative performance.
	Readings	Magnuson-Stevens Fisheries Conservation and Management Act (2007). Department of Commerce. (pp. 1-178) http://www.nmfs.noaa.gov/sfa/laws_policies/msa/documents/msa_amended_2007.pdf
5	2/13/18	Maine Fisheries Policy Fieldtrip
		This field trip will take students to meet Maine State Legislative representatives in the Marine Resources Committee and Department of Marine Resources policy staff. Note: This fieldtrip will be an all-day affair. If you cannot attend, please let the instructor know as soon as

		possible.
6	2/15/18	No class
	Assignment	** 1-page paper topic proposals due (9 AM) **
7	2/20/18	Translation >> Policy to implementation
	Focus	What does the process of translating policy to practice look like? What are the on-the-group outcomes? Using the New England Multispecies Groundfish Sector Program as a case study, this class explores the concept of translation.
	Readings	NOAA Catch Share Policy (pp. 1-25) http://www.nmfs.noaa.gov/sfa/management/catch_shares/about/documents/noaa_cs_policy.pdf
		Costello, C., Gaines, S. D., & Lynham, J. (2008). Can catch shares prevent fisheries collapse?. Science, 321(5896), 1678-1681.
		Clay, P. M., Kitts, A., & da Silva, P. P. (2014). Measuring the social and economic performance of catch share programs: Definition of metrics and application to the US Northeast Region groundfish fishery. Marine Policy, 44, 27-36.
8	2/22/18	Salon # 1
	Assignment	Marine Policy Journal Brief # 1
		Each discussion session will be structured around the brief prepared by the Salon lead. The goal of these discussions will be to give students a space to reflect, raise questions, and be critical of what they are learning.
9	2/27/18	Evolution >> Policy in a changing environment
	Focus	Policy is anything but stagnant. Yet relative to the pace of social-ecological change, it is often slow. This class focuses on the evolution of policy in a rapidly changing world and both the consequences of this slowness and (of the flip side) the cumulative effects of this evolutionary process.
	Readings	Pinsky, M. L., Worm, B., Fogarty, M. J., Sarmiento, J. L., & Levin, S. A. (2013). Marine taxa track local climate velocities. Science, 341(6151), 1239-1242.
		Stoll, J. S., Beitzel, C. M., & Wilson, J. A. (2016). How access to Maine's fisheries has changed over a quarter century: The cumulative effects of licensing on resilience. Global Environmental Change, 37, 79-91.
9	3/1/18	Salon # 2
	Assignment	Marine Policy Journal Brief # 2
		Each discussion session will be structured around the brief prepared by the Salon lead. The goal of these discussions will be to give students a space to reflect, raise questions, and be critical of what they are learning.
10	3/6/18	Completing interests >> Policy in the face of conflict
	Focus	Who benefits from policymaking? This class focuses on completing interests and how policies are crafted to balance (or not) different stakeholder groups' preferences. To provide depth to this topic, we focus on the allocation struggle between recreational and commercial fishermen.
	Readings	Daly, H. E. (1992). Allocation, distribution, and scale: towards an

		economics that is efficient, just, and sustainable. Ecological economics, 6(3), 185-193.
		Bower, S. D., Nguyen, V. M., Danylchuk, A. J., Beard Jr, T. D., & Cooke, S. J. (2014). Inter-sectoral conflict and recreational fisheries of the developing world: Opportunities and challenges for co-operation. Enhancing Stewardship in Small-Scale Fisheries: Practices and Perspectives, 88-97.
		National Saltwater Recreational Fishing Policy (2015), 1-8. http://www.nmfs.noaa.gov/sfa/management/recreational/documents/noaa_recfish_policy.pdf
11	3/8/18	Salon # 3
	Assignment	Marine Policy Journal Brief # 3
		Each discussion session will be structured around the brief prepared by the Salon lead. The goal of these discussions will be to give students a space to reflect, raise questions, and be critical of what they are learning.
12	3/13/18	Complexity >> Policy for complexity
	Focus	There is growing recognition that marine systems are complex and non-linear. This course focuses on how this complexity (and the uncertainty that it causes) is reflected in fisheries policy and management.
	Readings	Wilson, J. (2017). Learning, adaptation, and the complexity of human and natural interactions in the ocean. Ecology and Society, 22(2).
		Frank, K. T., Petrie, B., Choi, J. S., & Leggett, W. C. (2005). Trophic cascades in a formerly cod-dominated ecosystem. Science, 308(5728), 1621-1623.
		Fuller, E. M., Samhouri, J. F., Stoll, J. S., Levin, S. A., & Watson, J. R. Characterizing fisheries connectivity in marine social-ecological systems. ICES Journal of Marine Science.
13	3/15/18	Salon # 4
	Assignment	Marine Policy Journal Brief # 4
		Each discussion session will be structured around the brief prepared by the Salon lead. The goal of these discussions will be to give students a space to reflect, raise questions, and be critical of what they are learning.
14	3/20/18	Fisheries management (Part III) - Enclosure
	Focus	This class focuses on the use of market-based approaches to fisheries management and conservation, with a particular focus on individual-based allocation schemes.
	Readings	Costello, C., Gaines, S. D., & Lynham, J. (2008). Can catch shares prevent fisheries collapse?. Science, 321
		Pinkerton, E., & Edwards, D. N. (2009). The elephant in the room: the hidden costs of leasing individual transferable fishing quotas. Marine Policy, 33(4), 707-713.
		Essington, T. E., Melnychuk, M. C., Branch, T. A., Heppell, S. S., Jensen, O. P., Link, J. S., ... & Smith, A. D. (2012). Catch shares, fisheries, and ecological stewardship: a comparative analysis of resource responses to a rights-based policy instrument. Conservation Letters, 5(3), 186-195.

15	3/22/18	Salon # 5
	Assignment	Marine Policy Journal Brief # 5
		Each discussion session will be structured around the brief prepared by the Salon lead. The goal of these discussions will be to give students a space to reflect, raise questions, and be critical of what they are learning.
16	3/27/18	Fisheries management (Part VI) - Seafood certifications, fisheries markets, and globalization
	Focus	Fisheries exist largely because there is market demand, yet rarely do we think about seafood distribution as being related to policy, management, or governance. This class focuses on the interplay between what happens on the water and after seafood is landed.
	Readings	Liu, Jianguo, et al. "Framing sustainability in a telecoupled world." Ecology and Society 18.2 (2013)
		Galaz, V., Österblom, H., Bodin, Ö., & Crona, B. (2016). Global networks and global change-induced tipping points. International Environmental Agreements: Politics, Law and Economics, 16(2), 189-221.
		The State of World Fisheries and Aquaculture 2016 (http://www.fao.org/3/a-i5555e.pdf)
17	3/29/18	Salon # 6
	Assignment	Marine Policy Journal Brief # 6
		Each discussion session will be structured around the brief prepared by the Salon lead. The goal of these discussions will be to give students a space to reflect, raise questions, and be critical of what they are learning.
18	4/3/18	Fisheries management (Part V) - Co-management
	Assignment	** Paper drafts due **
	Focus	This class focuses on the role of co- and cooperative management in fisheries.
19	Readings	Jentoft, Svein, Bonnie J. McCay, and Douglas C. Wilson. "Social theory and fisheries co-management." Marine policy 22.4-5 (1998): 423-436.
		Jentoft, Svein. 2005. Fisheries co-management as empowerment. Marine Policy 29: 1-7.
20	4/5/18	Salon # 7
	Assignment	Marine Policy Journal Brief # 7
		Each discussion session will be structured around the brief prepared by the Salon lead. The goal of these discussions will be to give students a space to reflect, raise questions, and be critical of what they are learning.
21	4/10/18	Draft paper review and feedback
	Assignment	In advance of class you will be assigned 1-2 drafts to read and review.
		Peer-to-peer breakout sessions to discuss paper drafts.
22	4/12/18	Policy horizon: Where are we going?
	Focus	Building on the materials presented in this course, this class focuses on fisheries policy in the future. Where will we be in the next 5, 10, 50 years? What policy innovations are on the horizon, what are the major challenges that students will grapple with in the careers?
	Readings	TBD

23	4/17/19	No classes
24	4/19/18	Spring Break (No classes)
25	4/24/18	Spring Break (No classes)
26	4/26/18	Student presentations
27	5/1/18	Student presentations
Finals Week	5/7/18	Final Paper
	Assignment	Final Paper Due on May 7 (5 PM)



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 erln.twitchell@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT School of Food and Agriculture
COURSE DESIGNATOR AVS COURSE NUMBER 546 EFFECTIVE SEMESTER Spring 2018
COURSE TITLE Forage Science and Range 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)

M Susan Erich

Digitally signed by Sue Erich
DN: cn=Sue Erich, o=ou,
email=erich@maine.edu, c=US
Date: 2017.09.15 08:21:28
-04'00'

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

John A. [Signature]

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):

AVS 546 Forage Science and Range Management

Prerequisites: None

Credit Hours: 3

Description: Participants will be introduced to the biological fundamentals needed for understanding and managing forage and grassland resources used to feed livestock and wildlife.

AVS 446 and 546 cannot both be taken for credit.

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

- | | | | | |
|----------------------------------------|-----------------------------------------------------|------------------------------------------------------|--------------------------------------------|---------------------------------|
| <input type="checkbox"/> Applied Music | <input type="checkbox"/> Clinical | <input type="checkbox"/> Field Experience/Internship | <input type="checkbox"/> Research | <input type="checkbox"/> Studio |
| <input type="checkbox"/> Laboratory | <input checked="" type="checkbox"/> Lecture/Seminar | <input type="checkbox"/> Recitation | <input type="checkbox"/> Independent Study | <input type="checkbox"/> Thesis |

Text(s) planned for use:

Forages: An Introduction to Grassland Agriculture, 2017, Volume I. M. Collins, C. J. Nelson, K. J. Moore, and R. F. Barnes, ed. Wiley-Blackwell, Hoboken, NJ.

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

Juan J. Romero, Assistant Professor. Teaching load: Fall: Introduction to Animal Science (AVS 145, 3 credits) and Introduction to Animal Science Lab (AV146, 1 credit). Spring: This course.

Reason for new course:

Forages are the main feed source for herbivore animals, including livestock species of great economic importance such as dairy and beef cattle, horses, sheep, and goats. Furthermore, forages are the third most valuable crop (\$17 billion and 34 million/y) and the second and first in terms of harvested acres (54 million and 135 thousand acres) in the U.S. and Maine, respectively (NASS, 2016). Consequently, basic forage insight is essential for the success of animal scientists serving the livestock industry, crop scientists managing forage crops in sustainable rotations, and zoologists and ecologists interested in naturalized grassland ecosystems and their management. AVS 546 will be cross-listed as AVS 446 for undergraduate students.

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 other departments have been consulted besides AVS.

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 fall semester. No overload nor teaching assignment rearrangements. Part of Dr. Romero's regular workload.



Course Syllabus AVS 446/546

Forage Science and Range Management

Spring 2018 | 3 Credit hours

Animal and Veterinary Sciences Program - SFA | University of Maine

Instructor:

Dr. Juan Romero

Assistant Professor | Animal Nutrition

Rogers Hall - Room 203

Tel: (207) 581-2925

Email: juan.romero@maine.edu

<https://umaine.edu/foodandagriculture/romero2/>

Prerequisites: AVS 446: AVS, SAG, BIO, ZOL, or WLE senior or permission.
AVS 546: None.

Course Schedule: Lectures are held 3 times per week: Mondays, Wednesdays and Fridays from XXX in room XXX.

Course Description: AVS 446/546 – Forage Science and Range Management – Participants will be introduced to the biological fundamentals needed for understanding and managing forage and grassland resources used to feed livestock and wildlife.

URL for Syllabus/Course: In Blackboard - <https://bb.courses.maine.edu>

Course Goals: The course will cover the foundations behind:

- Plant Processes
- Soil Composition, Fertility, and Testing
- Rumen Processes and Forage Quality
- Characteristics and Management of Native Rangeland
- Forage Establishment
- Forage-Livestock Systems
- Effects of Animals on Pastures and Grazing Management
- Forage Conservation and Supplementation of Forage Diets

Learning Outcomes: Upon completion of the course, students will be able to:

- **Use terms** relevant to forage science and range management.
- **Sample** soils, pastures, hay, and silages.

- **Interpret and discuss** soil and forage nutritional value reports and livestock requirements.
- **Match** forage species to environmental characteristics, seasons of the year when forages grow, and to the requirements of different classes of livestock systems.

Course structure and meetings:

Forty-six sessions covering aspects of forage processes, fertilization and establishment, rangeland management, voluntary intake and nutritive value, forage-livestock interactions, grazing management, forage conservation and supplementation. The sessions will be broad enough to be suitable for AVS, SAG, BIO, and WLE senior students. A final group presentation will be prepared on a topic selected by the students on forage production.

Office Hours: Dr. Romero will be available by appointment on Thursdays, 3-5pm at 203 Rogers Hall.

Course Materials:

Software:

Microsoft Office: All students must have access and be able to use MS Office. Check <https://umaine.edu/it/software/office/> for access to the full MS Office package on up to 5 personally owned devices. Contact the University Tech Support Center at (207) 581-2506, 800-696-4357, or techsupport@maine.edu.

Blackboard: All students must have access and be able to use Blackboard (<https://online.umaine.edu/technologies/blackboard/>). Blackboard Learn is a learning management system designed with students in mind. It gives you the tools you need to collaborate with your peers, stay informed of upcoming due dates, submit assignments, view your grades, and more. Questions regarding Blackboard course materials (files, spreadsheets, etc.) should be directed to the instructor. If you suspect hardware/software/Blackboard issues contact: Technology Help Center – Room 17 Shibles Hall – 207-581-2506.

Devices:

i>clicker: All students must use the i>clicker student response system in class this term. i>clicker helps me to understand what you know and gives everyone a chance to participate in class. We will use i>clicker to keep track of attendance; please see the attendance policy on page (4) of the syllabus. Participation with i>clicker will account for (10% of your final grade). I will drop 3 of the lowest scores to account for times you forget to bring your clicker to class.

You may purchase one of the following models:

The original i>clicker

i>clicker +

i>clicker 2

The mobile application, REEF Polling will not be allowed.

How to register:

To receive credit for the responses you submit with i>clicker, you must register by the add deadline, (01/XX/18). Students who register after this time will not receive credit.

Register your clicker on iclicker.com

You must register your clicker on Iclicker.com. Use your (replace this value with whatever appears on your roster in the Student ID field, e.g., email address) in the student ID field. This will allow me to match your responses with your name. If you're using a used clicker, there is no need for the previous owner to unregister. If you make a mistake registering, just register again—the correct information will take precedence.

Cheating

I consider bringing a fellow student's i>clicker to class to be cheating and a violation of the University Honor Code. If you are caught with a remote other than your own or have votes in a class that you did not attend, you will forfeit all clicker points and may face additional disciplinary action.

Computers, tablets, and smartphones: Any electronic device that can operate Microsoft Office and Blackboard. Laptops are available for 4-hour loan at Fogler Library (<http://www.library.umaine.edu/mrc/policy.htm#laptops>).

Textbooks:

No textbook is required for this class. Optional textbook:

Forages: An Introduction to Grassland Agriculture. Volume I. M. Collins, C. J. Nelson, K. J. Moore, and R. F. Barnes, ed. Wiley-Blackwell, Hoboken, NJ.

One copy will be available on reserve at the Fogler Library.

Grading criteria:

The final grade for the course will be determined based on scores from each of the course components and will be weighted as follows:

AVS 446:

- Quarterly Exams – 80% (4 exams, 20% each)
- Participation – 10% (i>clicker questions, 4 questions per class, lowest 5% questions will be waived)
- Final presentation – 10% (in groups of 3)

AVS 546:

- Quarterly Exams – 70% (4 exams, 20% each)
- Participation – 10% (i>clicker questions, 4 questions per class, lowest 5% questions will be waived)
- Final presentation – 10% (in groups of 3)
- Review paper on a topic covered in class – 10% (individual)

This course uses the following letter grading:

A = 93 – 100	B- = 80 – 82	D+ = 67 – 69
A- = 90 – 92	C+ = 77 – 79	D = 63 – 66
B+ = 87 – 89	C = 73 – 76	D- = 60 – 62
B = 83 – 86	C- = 70 – 72	F = below 60

Class Schedule:

Session	Date	Topic
1	Monday, January 22, 2018	Introduction/Class Overview
2	Wednesday, January 24, 2018	Contribution of forages to agriculture, society, and the environment
3	Friday, January 26, 2018	Terminology and classification of forage plants
4	Monday, January 29, 2018	Grass and legume structure and morphology
5	Wednesday, January 31, 2018	Physiology of forage plants
6	Friday, February 2, 2018	Growth and development of forage plants
7	Monday, February 5, 2018	Cool-season forages for humid areas
8	Wednesday, February 7, 2018	Forage systems for humid areas
9	Friday, February 9, 2018	Review - Q&A
10	Monday, February 12, 2018	Exam 1
11	Wednesday, February 14, 2018	Forage establishment and renovation
12	Friday, February 16, 2018	Forage fertilization
13	Monday, February 19, 2018	No Classes (President's day)
14	Wednesday, February 21, 2018	Naturalized grassland ecosystems and their management
15	Friday, February 23, 2018	Nutritional chemistry of forages
16	Monday, February 26, 2018	Digestibility and Intake
17	Wednesday, February 28, 2018	Methods for representative sampling and evaluating forage quality
18	Friday, March 2, 2018	Predicting forage quality
19	Monday, March 5, 2018	Fitting forages to dairy systems in the Northeast
20	Wednesday, March 7, 2018	Review - Q&A
21	Friday, March 9, 2018	Exam 2
22	Monday, March 12, 2018	Spring Break
23	Wednesday, March 14, 2018	Spring Break
24	Friday, March 16, 2018	Spring Break
25	Monday, March 19, 2018	Fitting forages to cow/calf systems in the Northeast
26	Wednesday, March 21, 2018	Fitting forages to sheep systems in the Northeast
27	Friday, March 23, 2018	Fitting forages to equine systems in the Northeast
28	Monday, March 26, 2018	Plant-herbivore Interactions
29	Wednesday, March 28, 2018	Grazing management systems
30	Friday, March 30, 2018	Grazing animal nutrition and behavior
31	Monday, April 2, 2018	Antinutritive factors in forages
32	Wednesday, April 4, 2018	Forage-induced animal disorders

33	Friday, April 6, 2018	Review - Q&A
34	Monday, April 9, 2018	Exam 3
35	Wednesday, April 11, 2018	Hay harvest and storage 1
36	Friday, April 13, 2018	Hay harvest and storage 2
37	Monday, April 16, 2018	No Classes (Patriot's Day)
38	Wednesday, April 18, 2018	Silage production 1
39	Friday, April 20, 2018	Silage production 2
40	Monday, April 23, 2018	Interpreting forage analysis reports
41	Wednesday, April 25, 2018	Supplementation of livestock on pastures
42	Friday, April 27, 2018	In class presentations 1
43	Monday, April 30, 2018	In class presentations 2
44	Wednesday, May 2, 2018	No Classes (Maine Day)
45	Friday, May 4, 2018	Review - Q&A
46	Week of May 7, 2018	Exam 4

Classroom civility: Any successful learning experience requires mutual respect on behalf of the student and the instructor. The instructor, as well as the fellow students, should not be subjected to any student's behavior that is in any way disruptive, rude, or challenging to the instructor's authority in the classroom. A student should not feel intimidated or demeaned by his/her instructor and students must remember that the instructor has primary responsibility for control over classroom behavior and maintenance of academic integrity. The instructor can order the temporary removal or exclusion from the classroom of any student engaged in disruptive conduct or conduct violating the general rules and regulations of the institution.

Make-up Exams and Attendance: Students are expected to take exams on the day and time scheduled unless alternate arrangements have been made with the professor. Attendance at all scheduled sessions is expected. If a student must miss a session, they may with the instructor's permission attend one of the other session sections that week (arrange at least 1 week in advance). There is no other make-up of sessions. If a student misses a session his/her grade will be automatically zero.

Extended Disruption of Classroom Activities: 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.

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 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 me (Dr. Romero) privately as soon as possible.

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: 1-00-310-0000 or Spruce Run: 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/>

12/5/2017

To: Curriculum Committee:
Scott Delcourt
Jim Artesani
Grant Miles
Joshua Kelley
Stuart Marrs
Deborah Rollins
Jack Campbell
Qian Xue

Fr: Erin Twitchell, Administrative Specialist

Re: **Curriculum Committee, November 7th, 2017 Stodder Hall, Room #48**

The following courses will be presented on **Tuesday, December 5th at 1:00 p.m.** in the Graduate School's Conference Room, 48 Stodder Hall.

1. 1:05-1:15 AVS 577

Pauline Kamath

2. 1:15-1:20 BUA 601

No Presentation



OCT 20 2017
GRADUATE SCHOOL

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 erin.twitchell@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT

School of Food and Agriculture

COURSE DESIGNATOR

AVS

COURSE NUMBER

577

EFFECTIVE SEMESTER

Fall 2018

COURSE TITLE

Zoonoses and Animal Health

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)

M Susan Erich

Digitally signed by Sue Erich
DN: cn=Sue Erich, o, ou,
email=erich@maine.edu, c=US
Date: 2017.10.19 10:31:39 -04'00'

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

Frank A. [Signature]

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):**

Designator: AVS

Number: 577

Title: Zoonoses and Animal Health

Prerequisites: Graduate standing

Credit hours: 3

Description: This course focuses on the ecology, evolution and epidemiology of infectious diseases from a One Health perspective that considers wild and domestic animals, public health and ecosystem health. Core biological principles as well as ecological and social issues will be explored. The historical and contemporary literature in disease ecology and evolution as it relates to animal health will be reviewed, with an emphasis placed on wildlife and livestock diseases. Additional topics covered include the factors driving heterogeneity in disease transmission in animal populations, the ecology of disease spillover in wildlife and livestock, host-pathogen evolution, antibiotic resistance, and animal disease management strategies. AVS 477 and AVS 577 cannot both be taken for credit.

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

- | | | | | |
|----------------------------------------|-----------------------------------------------------|------------------------------------------------------|--------------------------------------------|---------------------------------|
| <input type="checkbox"/> Applied Music | <input type="checkbox"/> Clinical | <input type="checkbox"/> Field Experience/Internship | <input type="checkbox"/> Research | <input type="checkbox"/> Studio |
| <input type="checkbox"/> Laboratory | <input checked="" type="checkbox"/> Lecture/Seminar | <input type="checkbox"/> Recitation | <input type="checkbox"/> Independent Study | <input type="checkbox"/> Thesis |

Text(s) planned for use:

There is no required textbook for this course. Instead, there will be assigned readings (papers, chapters from textbooks, etc.) related to the topic material each week which will be made available through the course Blackboard website.

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

Dr. Pauline Kamath, Assistant Professor of Animal Health, School of Food and Agriculture, 50% teaching

Reason for new course:

It is estimated that 60-80% of all new emerging infectious diseases in humans are zoonoses (i.e. diseases shared with animals). One Health is a modern health concept that recognizes the linkages between animal, human and ecosystem health, and there is an urgent need for integrating these principles into the Animal and Veterinary Sciences (AVS) curriculum. Furthermore, the proposed course will build upon and strengthen the new Interdisciplinary Initiative for One Health and the Environment at UMaine.

There are no other University courses that cover the ecology, evolution and epidemiology of infectious diseases in animals in any considerable depth, with the exception of BIO 431, which differs in that it is taught primarily from the human disease perspective. The proposed class would be unique in that it will be taught from the veterinary perspective with a much larger focus on wildlife and livestock diseases, animal health and disease management. These topics will be particularly relevant for students pursuing degrees in AVS and WLE. The course will also cover advanced topics and involve reviewing the contemporary literature on animal disease and One Health. Therefore, it is suited for seniors and graduate students; a cross-listed 500 level version of the course is also being proposed. Beyond AVS and WLE students, the course will also likely attract students in Ecology and Environmental Sciences, Biology and Zoology majors.

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.

WLE and BIO were consulted and no significant concerns were expressed. WLE would like to list this course as an elective for two of their concentrations (Wildlife Science and Conservation Biology). However, BIO suggested there may be some overlap with BIO 431. A comparison of the syllabi revealed some overlap in the core biological and ecological principles covered, however BIO 431 is taught from the perspective of human (and not animal) disease and there is almost no overlap in the reading material that will be covered. In contrast, AVS 477 will be taught from more of a veterinary perspective; it will have a much larger focus on wildlife and livestock diseases, animal health and disease management, and will use entirely different case studies. AVS 477 also differs in that it includes topics in disease evolution and genetic epidemiology, which are not covered in BIO 431.

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 once per year in the Fall semester. It will not result in overload salary payments.

AVS 477/577
ZOONOSES AND ANIMAL HEALTH
FALL 2018

Instructor:

Dr. Pauline Kamath, Assistant Professor of Animal Health

Office: 342 Hitchner Hall

Office phone: 207-581-2935

Email: pauline.kamath@maine.edu

Mailbox: 108 Hitchner Hall

Office hours: *By appointment*

Class: Tuesday/ Thursday, 1.25 hours (Time and Room TBD)

Course Description: This course focuses on the ecology, evolution and epidemiology of infectious diseases from a One Health perspective that considers wild and domestic animals, public health and ecosystem health. Core biological principles as well as ecological and social issues will be explored. The historical and contemporary literature in disease ecology and evolution as it relates to animal health will be reviewed, with an emphasis placed on wildlife and livestock diseases. Additional topics covered include the factors driving heterogeneity in disease transmission in animal populations, the ecology of disease spillover in wildlife and livestock, host-pathogen evolution, antibiotic resistance, and animal disease management strategies. AVS 477 and AVS 577 cannot both be taken for credit. (3 credits)

Prerequisites: AVS 477: WLE 200, BIO 319, SMS 300 or AVS 437, and senior standing (or instructor permission). AVS 577: Graduate standing

Learning Outcomes: AVS 477/ AVS 577

After completion of this course students will be able to:

1. *Describe* the links between animal, human, and ecosystem health.
2. *Use and explain* appropriate terminology and core concepts in the fields of disease ecology, evolution, epidemiology, and public health.
3. *Integrate* core biological concepts into the study, management and control of infectious diseases in animals.
4. *Review and critically evaluate* the primary literature on animal diseases of importance to public health.

Learning Outcomes: AVS 577 only

After completion of this course students will be able to:

5. *Lead and facilitate* discussion on contemporary topics related to zoonotic diseases and One Health.

Website: A course website will be maintained on Blackboard. You will need your MaineStreet ID and password to log on. Course announcements, lecture slides, assignments, readings, files for the computer labs, and grades will be posted on the website. *You are expected to access the website regularly.*

Website Link: <https://bb.courses.maine.edu>

Readings: There is no required textbook for this course. Instead, there will be assigned readings (papers, chapters from textbooks, etc.) related to the topic material each week which will be made available through the course Blackboard website one week prior to the class. See list at the end of the syllabus for a tentative list of readings. Students are responsible for completing the assigned readings prior to class. Reading the material will be essential for active participation in the course, which comprises a moderate portion of the final grade.

Course Format: The course will focus on critical thinking, and therefore be largely structured in a discussion-based format. Each week, the first class (Tuesdays) will be Lecture classes and the second (Thursdays) will be either a Discussion or Computer Lab class.

Lectures – Lecture classes will explain terms, concepts and theory on various topics related to the study and management of zoonotic disease and animal health. For each class, there will be assigned readings to be completed BEFORE class (e.g. book chapter, review article, foundation paper on topic). These classes will be interactive and students are expected to come prepared to ask questions based on the reading material (to clarify and increase understanding of terms and concepts).

Discussions – In Discussion classes, we will discuss articles from the recent literature related to the week's topic and that demonstrate the application of core concepts in real systems. Students will be responsible for participating in these sessions and are expected to have done the readings prior to class and come prepared with at least three questions or comments to generate discussion. Graduate students will have the additional responsibility of leading at least one session during the semester.

Computer Labs – There will be three computer labs that will require the use of a personal computer. These labs are designed to give you hands-on experience with data and/or to demonstrate concepts covered in class. You will be provided with instructions on how to download the necessary programs and data files from the Blackboard site, and are expected to have these set up on your laptops prior to class. If you do not have a laptop to bring, you may borrow one from the Fogler Library (<https://library.umaine.edu/circulation/equipment/>). Laptops should be reserved and can be checked out for 4 hours at a time, so leave time prior to class to download the files needed.

Final Grade Components:

Assignment	Due Dates	Percent
Participation	All Classes	20%
Discussion Pre-class Assignments (10)	Prior to Start of Discussions	10%
Problem Set 1: Disease Models	September 19	10%
Problem Set 2: Contact Networks	October 24	10%
Problem Set 3: Pathogen Phylogenetics	November 21	10%
Project- Phase I: Proposal & Literature List	September 12	5%
Project- Phase II: Review Paper Draft	October 10	10%
Project- Phase III: Review Paper	November 16	15%
Project- Phase IV: Presentation	November 28 or 30	10%

Participation: There will be an emphasis on participation (20%), which will be based on engaging in discussions during *both lecture and discussion* classes. For full participation credit, please come to class having done the required reading and prepared with at least three questions/comments/talking points in order to engage in a discussion on the week's topic. A participation grading rubric will be posted on Blackboard. Graduate students (enrolled in AVS 577) will have the additional responsibility of facilitating at least one discussion, which will be assigned at the beginning of the semester. As the lead, you will identify a paper for the class to read related to the topic on your assigned week.

Discussion Pre-class Assignments: To help you prepare for discussion classes, pre-class assignments related to the readings will be due before the beginning of each of the 11 discussion sections (see course schedule). The lowest grade will be dropped. Assignment instructions and questions will be posted on Blackboard at least one week prior to the due date.

Problem Sets: Three problem sets will be given related to the computer lab material, each counting towards 10% of your grade.

Animal Disease Review Project: A semester-long project will be assigned to give you the opportunity to delve deeper into a specific animal disease (of choice) that has implications for public health. More detailed instructions will be provided towards the beginning of the semester. Specifics of the final project differ for AVS 477 and AVS 577 as follows:

Phase I - Proposal & Literature List: Students will provide a short (1 page) proposal of their disease/ topic of choice, summarizing how and why the disease is relevant to public health. Undergraduates (AVS 477) will submit a list of at least 5 articles from the literature to be used in their disease project review; graduate students (AVS 577) will submit a list of at least 10 articles.

Phase II and III - Review paper: Students will conduct a review of the literature on an animal disease of choice. In the review, you will be expected to discuss the current state of knowledge on the disease, summarize the gaps in knowledge and the implications for wildlife, human and/or livestock health. Review papers will make use of the literature list previously submitted (along with adjustments in this list determined after feedback from the instructor), and a review paper draft will first be submitted, for which students will receive constructive feedback.

Students are expected to address comments on the draft and make edits (as needed). The final review paper will be a maximum of 5 (AVS 477) or 10 pages (AVS 577) in length.

Phase IV - Presentation: You will have the opportunity to share what you learned about your disease of choice to the class. Final presentations (15 minutes) will be given at the end of the semester.

Grading Scale: Total points at the end of the semester will be rounded to the nearest tenth of a point.

Letter Grade	Percent	Letter Grade	Percent	Letter Grade	Percent
A	≥ 93.0	B-	80.0 – 82.9	D+	67.0 – 69.9
A-	90.0 – 92.9	C+	77.0 – 79.9	D	63.0 – 66.9
B+	87.0 – 89.9	C	73.0 – 76.9	D-	60.0 – 62.9
B	83.0 – 86.9	C-	70.0 – 72.9	F	< 60.0

Course Policies

Academic honesty: 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.

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Course schedule disclaimer: 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.

Sexual Violence Policy

Sexual discrimination reporting: The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell any of your teachers about sexual 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.

Behaviors that can be "sexual discrimination" include sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct, and gender discrimination. Therefore, all of these behaviors must be reported.

Why do teachers have to report sexual discrimination?

The university can better support students in trouble if we know about what is happening. Reporting also helps us to identify patterns that might arise— for example, if more than one victim reports having been assaulted or harassed by the same individual.

What will happen to a student if a teacher reports?

An employee from the Office of Sexual Assault & Violence Prevention or the Office of Equal Opportunity will reach out to you and offer support, resources, and information. You will be invited to meet with the employee to discuss the situation and the various options available to you.

If you have requested confidentiality, the University will weigh your request that no action be taken against the institution's obligation to provide a safe, nondiscriminatory environment for all students. If the University determines that it can maintain confidentiality, you must understand that the institution's ability to meaningfully investigate the incident and pursue disciplinary action, if warranted, may be limited. There are times when the University may not be able to honor a request for confidentiality because doing so would pose a risk to its ability to provide a safe, nondiscriminatory environment for everyone. If the University determines that it cannot maintain confidentiality, the University will advise you, prior to starting an investigation and, to the extent possible, will share information only with those responsible for handling the institution's response.

The University is committed to the well-being of all students and will take steps to protect all involved from retaliation or harm.

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 Spruce Run: 1-800-863-9909.**

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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/>

PROPOSED CLASS SCHEDULE*

Part I: Zoonoses and One Health		Date/Date
8/29	Links between animal and human health; Rx for Survival: "How Safe Are We?"	
8/31	<i>Discussion: One Health and the Ebola outbreak</i>	Discussion #1
9/5	Global trends and patterns of zoonotic disease	
9/7	<i>Discussion: Rodent reservoirs of future zoonoses</i>	Discussion #2
Part II: Basics of Disease Ecology and Epidemiology		
9/12	Terms & Concepts: thresholds, Ro, SIR models, frequency v. density dependent transmission, epidemic cycles, etc.	Project, Phase I
9/14	<i>Computer Lab: disease models/ outbreak investigation</i>	
9/19	Modes of transmission, vector-borne disease	Problem Set #1
9/21	<i>Discussion: West Nile virus case study</i>	Discussion #3
Part III: Disease Transmission and Ecological Heterogeneity		
9/26	Ecological drivers of disease emergence and spillover	
9/28	<i>Discussion: Case studies on hendra virus (and other bat viruses)</i>	Discussion #4
10/3	Animal movements and migrations: implications for pathogen evolution and transmission	
10/5	<i>Discussion: Avian influenza case study</i>	Discussion #5 Project, Phase II
10/10	NO CLASS - FALL BREAK	
10/12	<i>Discussion: Biodiversity and disease - the "dilution effect"; Lyme disease case study</i>	Discussion #6
10/17	Host behavior and superspreaders	
10/19	<i>Computer Lab: Network analysis of contact patterns</i>	
Part IV: Host-Pathogen Evolution		
10/24	Host-pathogen co-evolution; Host innate vs. adaptive immunity	Problem Set #2
10/26	<i>Discussion: Tradeoffs in the evolution of resistance</i>	Discussion #7
10/31	Evolution of pathogen virulence	
11/2	<i>Discussion: Antibiotic resistance; Examples in domestic and wild animal populations</i>	Discussion #8
Part V: Genetics/Genomics of Infectious Diseases		

11/7	Genetic applications to wildlife and veterinary epidemiology and disease management	
11/9	Discussion: Bovine TB and brucellosis case studies	Discussion #9
11/14	Molecular phylogenetics and transmission	
11/16	Computer Lab: Pathogen phylogenies	Project, Phase III
Part 6: Disease Control, Management and Emerging Infectious Diseases		
11/21	Discussion: Agriculture, land use and zoonotic disease emergence	Discussion #10 Problem Set #3
11/23	NO CLASS – Thanksgiving holiday	
11/28	Student presentations	Project, Phase IV
11/30	Student presentations	Project, Phase IV
12/5	Disease surveillance, prediction and control	
12/7	Discussion: Disease control (vaccination, behavioral changes, culling)	Discussion #11

*DISCLAIMER: Schedule may be adjusted under special circumstances (e.g. class cancellations due to weather) or at the instructor's discretion. In the event of an adjustment, a revised version of the schedule will be provided through Blackboard.

Tentative Reading List

Papers from the following list (as well as those from outside this list) will be assigned and posted on the Blackboard course website at least a week prior to the class in which it will be discussed.

1. Altizer, S., Bartel, R., & Han, B. A. (2011). Animal migration and infectious disease risk. *Science*, 331(6015), 296–302.
2. Bengtsson-Palme, J., & Larsson, D. J. (2015). Antibiotic resistance genes in the environment: prioritizing risks. *Nature Reviews Microbiology*, 13(6), 396–396.
3. Boots, M. (2015). The need for evolutionarily rational disease interventions: vaccination can select for higher virulence. *PLoS Biol*, 13(8), e1002236.
4. Borer, E. T., Antonovics, J., Kinkel, L. L., Hudson, P. J., Daszak, P., Ferrari, M. J., ... Rizzo, D. M. (2011). Bridging taxonomic and disciplinary divides in infectious disease. *EcoHealth*, 8(3), 261–267.
5. Brooks, D. R., Hoberg, E. P., Boeger, W. A., Gardner, S. L., Galbreath, K. E., Herczeg, D., ... Dursahinhan, A. T. (2014). Finding them before they find us: informatics, parasites, and environments in accelerating climate change. *Comparative Parasitology*, 81(2), 155–164.
6. Butler, C. D. (2012). Infectious disease emergence and global change: thinking systemically in a shrinking world. *Infectious Diseases of Poverty*, 1(1), 5.
7. Daszak, P., Cunningham, A. A., & Hyatt, A. D. (2000). Emerging infectious diseases of wildlife—threats to biodiversity and human health. *Science*, 287(5452), 443.

8. Daszak, P., Epstein, J., Kilpatrick, A., Aguirre, A., Karesh, W., & Cunningham, A. (2007). Collaborative research approaches to the role of wildlife in zoonotic disease emergence. In *Wildlife and emerging zoonotic diseases: the biology, circumstances and consequences of cross-species transmission* (pp. 463–475). Springer.
9. Ezenwa, V. O., Prleur-Richard, A.-H., Roche, B., Bailly, X., Becquart, P., Garcia-Pena, G. E., ... others. (2015). Interdisciplinarity and infectious diseases: An ebola case study. *PLoS Pathog*, 11(8), e1004992.
10. Han, B. A., Kramer, A. M., & Drake, J. M. (2016). Global patterns of zoonotic disease in mammals. *Trends in Parasitology*, 32(7), 565–577.
11. Han, B. A., Schmidt, J. P., Bowden, S. E., & Drake, J. M. (2015). Rodent reservoirs of future zoonotic diseases. *Proceedings of the National Academy of Sciences*, 112(22), 7039–7044.
12. Johnson, C. K., Hitchens, P. L., Evans, T. S., Goldstein, T., Thomas, K., Clements, A., ... others. (2015). Spillover and pandemic properties of zoonotic viruses with high host plasticity. *Scientific Reports*, 5, 14830.
13. Johnson, P. T., De Roode, J. C. & Fenton, A. Why infectious disease research needs community ecology. *Science* 349, 1259504 (2015).
14. Jones, K. E. *et al.* Global trends in emerging infectious diseases. *Nature* 451, 990–993 (2008).
15. Kilpatrick, A. M. (2011). Globalization, land use, and the invasion of West Nile virus. *Science*, 334(6054), 323–327.
16. Levin, B. R., Lipsitch, M., & Bonhoeffer, S. (1999). Population biology, evolution, and infectious disease: convergence and synthesis. *Science*, 283(5403), 806–809.
17. Lloyd-Smith, J. O., Cross, P. C., Briggs, C. J., Daugherty, M., Getz, W. M., Latto, J., ... Swei, A. (2005). Should we expect population thresholds for wildlife disease? *Trends in Ecology & Evolution*, 20(9), 511–519.
18. Lloyd-Smith, J. O., George, D., Pepin, K. M., Pitzer, V. E., Pulliam, J. R., Dobson, A. P., ... Grenfell, B. T. (2009). Epidemic dynamics at the human-animal interface. *Science*, 326(5958), 1362–1367.
19. Manlove, K. R. *et al.* 'One Health' or Three? Publication Silos Among the One Health Disciplines. *PLoS Biol* 14, e1002448 (2016).
20. Olsen, B., Munster, V. J., Wallensten, A., Waldenström, J., Osterhaus, A. D., & Fouchier, R. A. (2006). Global patterns of Influenza A virus in wild birds. *Science*, 312(5772), 384–388.
21. Plowright, R. K., Eby, P., Hudson, P. J., Smith, I. L., Westcott, D., Bryden, W. L., ... others. (2015). Ecological dynamics of emerging bat virus spillover. In *Proc. R. Soc. B* (Vol. 282, p. 20142124). The Royal Society.
22. Plowright, R. K., Sokolow, S. H., Gorman, M. E., Daszak, P., & Foley, J. E. (2008). Causal inference in disease ecology: Investigating ecological drivers of disease emergence. *Frontiers in Ecology and the Environment*, 6(8), 420–429.
23. Reed, K. D., Meece, J. K., Henkel, J. S., & Shukla, S. K. (2003). Birds, migration and emerging zoonoses: West Nile virus, Lyme disease, Influenza A and enteropathogens. *Clinical Medicine & Research*, 1(1), 5–12.
24. Rulli, M. C., Santini, M., Hayman, D. T., & D'Odorico, P. (2017). The nexus between forest fragmentation in Africa and Ebola virus disease outbreaks. *Scientific Reports*, 7, 4161.
25. Russell, C. A., Jones, T. C., Barr, I. G., Cox, N. J., Garten, R. J., Gregory, V., ... others. (2008). The global circulation of seasonal Influenza A (H3N2) viruses. *Science*, 320(5874), 340–346.

26. Schmid, B. V., Büntgen, U., Easterday, W. R., Ginzler, C., Walløe, L., Bramanti, B., & Stenseth, N. C. (2015). Climate-driven introduction of the Black Death and successive plague reintroductions into Europe. *Proceedings of the National Academy of Sciences*, 112(10), 3020–3025.
27. Schmidt, J. P., Park, A. W., Kramer, A. M., Han, B. A., Alexander, L. W., & Drake, J. M. (2017). Spatiotemporal fluctuations and triggers of Ebola virus spillover. *Emerging Infectious Diseases*, 23(3).
28. Stenseth, N. C., Atshabar, B. B., Begon, M., Belmain, S. R., Bertherat, E., Carniel, E., ... Rahallson, L. (2008). Plague: past, present, and future. *PLoS Med*, 5(1), e3.
29. Stephens, P. R., Altizer, S., Smith, K. F., Alonso Aguirre, A., Brown, J. H., Budischak, S. A., ... others. (2016). The macroecology of infectious diseases: a new perspective on global-scale drivers of pathogen distributions and impacts. *Ecology Letters*, 19(9), 1159–1171.
30. Wilcox, B. A., & Colwell, R. R. (2005). Emerging and reemerging infectious diseases: biocomplexity as an interdisciplinary paradigm. *EcoHealth*, 2(4), 244.
31. Wilcox, B. A., & Gubler, D. J. (2005). Disease ecology and the global emergence of zoonotic pathogens. *Environmental Health and Preventive Medicine*, 10(5), 263–272.
32. Wolfe, N. D., Daszak, P., Kilpatrick, A. M., & Burke, D. S. (2005). Bushmeat Hunting, Deforestation, and prediction of zoonotic disease. *Emerging Infectious Diseases*, 11(12), 1822.
33. Wolfe, N. D., Dunavan, C. P., & Diamond, J. (2007). Origins of major human infectious diseases. *Nature*, 447(7142), 279–283.
34. World Health Organization. (2015). Blueprint for R&D preparedness and response to public health emergencies due to highly infectious pathogens. In *Workshop on prioritization of pathogens*. Geneva (p. 8).
35. Young, C. C., & Olival, K. J. (2016). Optimizing viral discovery in bats. *PloS One*, 11(2), e0149237.



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 erin.twitchell@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT **MBA Program, Maine Business School**

COURSE DESIGNATOR **BUA** COURSE NUMBER **601** EFFECTIVE SEMESTER **Fall 2017**

COURSE TITLE New Title: Data Analysis for Business Old Title: Statistical Analysis and Modeling for Organizational Operations

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)

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 2 (FOR COURSE MODIFICATIONS)

Current catalog description (include designator, number, title, prerequisites, credit hours):

Familiarizes the student with statistical data analysis and management science techniques as they support decision-making throughout an organization. Integrates statistical analysis and modeling techniques into the study of processes to create value through the production of goods, services and information.

Prerequisites & Notes

STS 215 or STS 232 or equivalent or previous statistics course approved by the MBA Director; MBA student or permission for the Business School Office of Graduate Programs. Must be in a graduate degree or certificate program.

Proposed catalog description (include designator, number, title, prerequisites, credit hours):

This course familiarizes students with how to utilize data to inform organizational decision making. In doing so students will learn to identify business problems, then learn how to differentiate types of big data, then propose a research question, think critically about which statistical processes and applications will yield insights from the data, such that students are able to inform organizational decisions. Students will be challenged to turn data into information, describe these data effectively, and generate a professional business communication using tools found in the business workplace (Microsoft Office products normally).

Prerequisites & Notes

A grade of B- or better in either an introductory statistics course or in a single variable calculus course (STS 215 or STS 232). Must be in a graduate degree or certificate program. Exceptions to any prerequisites require permission of the MBA Program Coordinator.

Reason for course modification:

SECTION 3 FOR COURSE ELIMINATIONS

Reason for Elimination

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 erin.twitchell@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.