



Course Approval Form

For instructions:
<http://registrar.gmu.edu/facultystaff/catalog-revisions/course/>

Action Requested: (definitions available at website above)

☒ Create NEW ☐ Inactivate
☐ Modify (check all that apply below)

Course Level:

☒ Undergraduate ☐ Graduate

☐ Title (must be 75% similar to original)
☐ Credits

☐ Repeat Status
☐ Schedule Type

☐ Prereq/coreq
☐ Restrictions

☐ Grade Mode
☐ Other: _____

College/School: College of Science

Submitted by: David Luther

Department: Biology

Ext: 3-5267

Email: dluther@gmu.edu

Subject Code: BIOL

Number: 351

Effective Term:

☒ Fall
☒ Spring
☒ Summer

Year 2017

(Do not list multiple codes or numbers. Each course proposal must have a separate form.)

Title: Current

Banner (30 characters max w/ spaces)

New Conservation Seminar

Fulfills Mason Core Req? (undergrad only)

☐ Currently fulfills requirement
☐ Submission in progress

Credits:

(check one)

☒ Fixed →

☐ Variable →

☐ Lec + Lab/Rct →

2

to

0

or

Repeat Status:

(check one)

☐ Not Repeatable (NR)

☒ Repeatable within degree (RD) →

☐ Repeatable within term (RT) →

Max credits allowed:

(required for RT/RD status only)

Grade Mode:

(check one)

☒ Regular (A, B, C, etc.)

☐ Satisfactory/No Credit

☐ Special (A, B, C, etc. +IP)

Schedule Type:

(check one)

LEC can include LAB or RCT if linked sections will be offered

☐ Lecture (LEC)

☐ Lab (LAB)

☐ Recitation (RCT)

☐ Internship (INT)

☐ Independent Study (IND)

☒ Seminar (SEM)

☐ Studio (STU)

Prerequisite(s) (NOTE: hard-coding requires separate Prereq Checking form; see above website):

EVPP 301 or EVPP 302 or BIOL 308 or INTS 401 (or equivalent course) or permission of instructor

Corequisite(s):

Restrictions Enforced by System: Major, College, Degree, Program, etc. Include Code(s).

Equivalencies (check only as applicable):

☒ YES, course is 100% equivalent to Cons 400
☐ YES, course renumbered to or replaces

Catalog Copy (Consult University Catalog for models)

Description (No more than 60 words, use verb phrases and present tense)	Notes (List additional information for the course)
Examines key conservation issues, based on readings and discussions from the primary literature. Teaches professional development skills for scientists in conservation including fundraising, poster presentations, and interpretation of findings for diverse audiences. Develops skills for obtaining internships, jobs, or graduate positions.	
Indicate number of contact hours: Hours of Lecture or Seminar per week: 2 Hours of Lab or Studio:	
When Offered: (check all that apply) <input checked="" type="checkbox"/> Fall <input checked="" type="checkbox"/> Summer <input checked="" type="checkbox"/> Spring	

Approval Signatures

Department Approval

Date

College/School Approval

Date

If this course includes subject matter currently dealt with by any other units, the originating department must circulate this proposal for review by those units and obtain the necessary signatures prior to submission. Failure to do so will delay action on this proposal.

Unit Name	Unit Approval Name	Unit Approver's Signature	Date

Undergraduate or Graduate Council Approval

UGC or GC Council Member

Provost's Office

UGC or GC Approval Date

Form revised 9/2/2016

Course Proposal Submitted to the College of Science Curriculum Committee (COSCC)

The form above is processed by the Office of the University Registrar. This second page is for the COSCC's reference.
Please complete the applicable portions of this page to clearly communicate what the form above is requesting.

FOR ALL COURSES (required)

Course Number and Title: BIOL 351 Conservation Seminar

Date of Departmental Approval: October 19, 2016

FOR INACTIVATED/REINSTATED COURSES (required if inactivating/reinstating a course)

- Reason for Inactivating/Reinstating:

FOR MODIFIED COURSES (required if modifying a course)

- Summary of the Modification:
- Text before Modification (title, repeat status, catalog description, etc.):
- Text after Modification (title, repeat status, catalog description, etc.):
- Reason for the Modification:

FOR NEW COURSES (required if creating a new course)

- Reason for the New Course: The course will help build critical skills in professional development as well as skills in reading, synthesizing and conveying information from papers in the primary literature on the topic of conservation biology. It will tie together many of the concepts discussed in existing CONS courses taught at SMSC and provide a context within the larger field of conservation biology for each specific studying and conservation application.
- Relationship to Existing Programs: BIOL 351 will be housed in the Biology department but equivalent to CONS 400 within the Smithsonian Mason School of Conservation (SMSC) and will be offered in conjunction with several other cons courses. The course ties the theories, concepts and topics from the other SMSC courses together and provides an overarching perspective about the field of conservation biology. The course could help fulfil credits for concentrations in the Biology-environmental and conservation biology concentration, Environmental and Science and Policy-conservation concentration, the School of Integrative Studies- applied global conservation concentration, and the Environmental Studies and Sustainability – conservation and sustainability concentration.
- Relationship to Existing Courses: There are no other courses at GMU specifically like this one, however Biology offers several one-credit seminar courses BIOL 492, senior seminar, BIOL 494, Honors Seminar, and BIOL 498, Research Seminar, that are all seminar courses within the greater field of biology. Although none of these BIOL courses are focused on conservation biology specifically.
- Semester of Initial Offering: Fall 2017
- Proposed Instructors: James McNeil, Stephanie Lessard-Pilon, Anneke Deluycker
- Insert Tentative Syllabus Below

BIOL 351 - Conservation Seminar
2 or 3 credits

Course Meeting Times

This course will meet for 2 hours each Monday throughout the semester.

Description

In this course, students will develop professional skills needed to succeed as conservation biologists. Using case studies, students will learn about key issues facing the practice of conservation today and will become familiar with using and discussing the primary literature relating to these case studies. In addition to knowledge of the current state of the field, the seminar will focus on opportunities to practice professional development skills for scientists in conservation including fundraising, poster presentations, and interpreting findings for diverse audiences, as well as how to obtain internships, jobs, and/or graduate positions.

Learning Objectives

Students will:

- Engage in the key elements of the scholarly process, such as professional development, reflection on values, and determination of career goals
- Discuss and interpret literature in quantitative ecology, field biology and conservation biology
- Construct informed arguments concerning specific conservation methods, conservation actions, and theoretical underpinnings of the field
- Synthesize theoretical concepts and use case studies for a big picture view of how the different sub-disciplines within the field of conservation biology are interwoven
- Apply the research discussed in seminar to their own research projects at SMSC.

Prerequisites

This semester is being offered to undergraduate juniors, seniors and post-baccalaureate students. Prerequisites include coursework to demonstrate a commitment to and understanding of conservation-related disciplines, with at least one upper level ecology course (BIOL 308 or equivalent). Students should have completed 60 credit hours of undergraduate classes. Students must sign up for all Smithsonian-Mason Semester courses in a given semester.

Textbooks and Other Course Materials

Required:

Hunter, M. et al. (2007). *Saving the Earth as a Career: Advice on Becoming a Conservation Professional*. Wiley-Blackwell.

Additional readings for this course will be from the primary literature and accessible on BlackBoard 9.1, via MyMason portal (<http://mymason.gmu.edu>).

BlackBoard:

Many resources for the course will be accessible on BlackBoard 9.1, via the MyMason portal (<http://mymason.gmu.edu>) using the browser of your choice. Enter the username and password from your GMU email account and then click on the "Courses" tab at the top, right side of the page. Select the combined course option.

Assignments

Journal Club (25%)

Students will select papers for the class to read related to their research experience and lead discussions on those papers. Students will be assessed on their effectiveness at leading a discussion and their participation in the discussions of others. Note: This activity will be assigned at the midpoint of the semester, concurrent with research experience mentor selection, to allow time for students to choose papers.

Grant Writing (25%)

Students will create mock grant proposals based on the OSCAR USRP Grant application and work in groups to evaluate and rank the proposals in the format of an NSF review panel. They will be evaluated on the quality of their grant proposal as well as their participation in the mock evaluation panel.

Poster Design (20%)

Students will choose a conservation issue discussed in the first half of the semester and produce a mini-poster about that issue suitable for a public audience. The poster should be persuasive; the reader know why the issue is a problem, why they should be concerned about it, and how they can take action. Posters will be displayed in the dining hall during the SCBI Public Lecture Series and voted on by the public.

EOL Submission (20%)

Students will write entries to be uploaded to the Encyclopedia of Life open-source online resource on a species of interest to them. This assignment includes a peer review component. Entries will be evaluated based on their accuracy and suitability for a general audience.

Participation (10%)

Active, positive engagement in the Semester is formally assessed at the end of the semester and is based on level of contribution to class discussions, activities and projects in addition to attendance and preparedness for class.

Grading

Grades for individual assignments and overall in the course will be assigned on the following scale:

A+	97-100%
A	93-96.9%
A-	90-92.9%
B+	87-89.9%
B	83-86.9%
B-	80-82.9%
C+	77-79.9%
C	73-76.9%
C-	70-72.9%
D	60-69.9%
F	<60%

Weekly Topics, Readings, and Assignments:

Date	Topic	Readings & Assignments Due
Week 1	The Nature of Conservation Systems of valuing in conservation <ul style="list-style-type: none"> Journal Club introduced; modelled by faculty 	Voosen, P. (2013). Who is conservation for? The Chronicle Review. Retrieved from: http://www.chronicle.com/article/Who-Is-Conservation-For-/142853/ Kareiva, P. and M. Marvier. (2012). What is Conservation Science? <i>BioScience</i> 62, no. 11 Hunter et al. (2007). Preface and Ch. 1 Pp. i-12
Week 2	The Nature of Conservation, cont'd Defining ecosystem services <i>Case Study: Post-environmental disaster clean-up</i> <ul style="list-style-type: none"> Journal Club in second hour 	Daily, G.C. et al. (2009). Ecosystem services in decision-making: time to deliver. <i>Frontiers in Ecology and the Environment</i> 7(1): 21-28 Nelson, E., et al. (2009). Modeling multiple ecosystem services, biodiversity conservation, commodity production, and tradeoffs at landscape scales. <i>Frontiers in Ecology and the Environment</i> 7(1): 4-11 White, R. L. et al. (2015). The next generation of action ecology: novel approaches towards global ecological research. <i>Ecosphere</i> 6(8):134.

Week 3	Threats to Biodiversity Climate change and habitat degradation <ul style="list-style-type: none"> Journal Club in second hour 	<p>IPCC. (2014). Climate Change Synthesis Report Summary for Policy Makers. http://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_SPMcorr2.pdf</p> <p>Langley, J.A. et al. (2009). Elevated CO₂ stimulates marsh elevation gain, counterbalancing sea-level rise. <i>Proceedings of the National Academy of Sciences of the United States of America</i> 106: 6182–6186.</p> <p>Langley, J.A. and J.P. Megonigal. (2010). Ecosystem response to elevated CO₂ levels limited by nitrogen-induced plant species shift. <i>Nature</i> 466: 96-99.</p>
Week 4	Threats to Biodiversity, cont'd Habitat fragmentation and invasive species <i>Case Study: Japanese stilt grass in forest systems</i> <ul style="list-style-type: none"> Journal Club in second hour 	<p>Hufbauer, R. A. and M.E. Torchin. (2007). Integrating Ecological and Evolutionary Theory of Biological Invasions. In W. Nentwig (Ed.), <i>Biological Invasions</i>, Ecological Studies (Vol. 193, pp. 79–96).</p> <p>Charles, H. and J.S. Dukes. (2007). Impacts of Invasive Species on Ecosystem Services. In W. Nentwig (Ed.), <i>Biological Invasions</i>, Ecological Studies (Vol. 193, pp. 217–237).</p> <p>Marsh, D.M. (2005). Forest Roads as Partial Barriers to Terrestrial Salamander Movement. <i>Conservation biology</i>. 19 (6), p. 2004 - 2008.</p>
Week 5	Threats to Biodiversity, cont'd Formally evaluating threats <i>Case Study: Sea level rise in the Chesapeake</i> <ul style="list-style-type: none"> Poster assignment introduced Journal Club in second hour 	<p>Likens, G. (2010). The role of science in decision-making. <i>Front Ecol Environ</i> 2010; 8(6): e1–e9</p> <p>Bennett, N. J. (2016), Using perceptions as evidence to improve conservation and environmental management. <i>Conservation Biology</i>, 30: 582–592.</p> <p>Conservation Measures Partnership. (2013). Open Standards for the Practice of Conservation. http://cmp-</p>

		openstandards.org/wp-content/uploads/2014/03/CMP-OS-V3-0-Final.pdf pp. 9-18.
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Week 6	Presenting Data to Diverse Audiences The role of data in conservation messaging <ul style="list-style-type: none"> Journal Club in second hour 	<p>Bickford, D. et al. (2012). Science communication for biodiversity conservation. <i>Biological Conservation</i>, 151(1), 74–76.</p> <p>Bik, H. and M. Goldstein. (2013). Social media for scientists. <i>PLOS Biology</i> 11:4:1-8.</p> <p>Hunter et al. (2007). Ch. 8 pp. 119-140</p>
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Week 7	Data Management <ul style="list-style-type: none"> Role of Long Term Ecological Research in conservation <i>Case Study: NEON</i> <ul style="list-style-type: none"> Journal Club in second hour 	<p>Schimel, D. and M. Keller. (2015). Big questions, big science: meeting the challenges of global ecology. <i>Oecologia</i> 177: 925.</p> <p>Lindenmayer, D. B. et al. (2012). Value of long-term ecological studies. <i>Austral Ecology</i>, 1–13.</p> <p>Hunter et al. (2007). Ch. 5 and 6 pp. 61-100</p>
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Week 8	Data Management, cont'd Databases in conservation <ul style="list-style-type: none"> EOL assignment introduced Journal Club in second hour 	<p>Ziolkowski, D. et al. (2010). On the road again: For a bird survey that counts. <i>Birding</i> 42: 32-40.</p> <p>Hampton, S.E. et al. (2012). Ecological data in the Information Age. <i>Frontiers in Ecology and the Environment</i> 10: 59.</p>
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Week 9	In situ vs ex situ Conservation Conservation in and out of the natural world <i>Case study: Red Wolves in the US</i> <ul style="list-style-type: none"> Journal Club in second hour 	Gusset, M. and Dick, G. (2010). Building a Future for Wildlife? Evaluating the contribution of the world zoo and aquarium community to in situ conservation. <i>International Zoo Yearbook</i> . 44:183-191.
Week 10	Permitting in Conservation Permitting, ACUC, and other legal considerations of working in conservation <ul style="list-style-type: none"> Journal Club in second hour 	Sikes, R. et al. (2011). Guidelines of the American Society of Mammalogists for the use of wild mammals in research. <i>Journal of Mammalogy</i> . 92 (1): 235-253. Bekoff, M. and Ramp, D. (2014). Compassion in conservation: Don't be cruel to be kind. <i>New Scientist</i> : 2974 Hunter et al. (2007). Ch. 7 pp. 101-118
Week 11	Resource Allocation in Conservation Fundraising and grant writing <ul style="list-style-type: none"> Grant writing assignment introduced Journal Club in second hour 	A Guide for Proposal Writing http://www.nsf.gov/pubs/2004/nsf04016/print_toc.htm
Week 12	Resource Allocation in Conservation, cont'd Philanthropy and conservation <ul style="list-style-type: none"> Journal Club in second hour 	Larson, E. (2016). Constraints of philanthropy on determining the distribution of biodiversity conservation funding. <i>Conservation biology</i> . 30 (1), p. 206 - 215. Ferraro, P.J. and, S.K. Pattanayak. (2006). Money for Nothing? A Call for Empirical Evaluation of Biodiversity Conservation Investments. <i>PLoS Biol</i> 4(4): e105.
Week 13	Grant Panel <ul style="list-style-type: none"> Evaluating student grant proposals 	
Week 14	Careers in Conservation Finding the next step: Internships and graduate school <ul style="list-style-type: none"> Journal Club in second hour 	Hunter et al. (2007). Ch. 3, 4, and 10 pp. 29-60 and 163-178

Week 15	The Future Where should conservation go? <i>Case Study: The next 100 questions in conservation</i> <ul style="list-style-type: none"> Journal Club in second hour 	Sutherland, W. J. et al. (2009). One Hundred Questions of Importance to the Conservation of Global Biological Diversity. <i>Conservation Biology</i> , 23(3), 557–567. Hunter et al. (2007). Ch. 11 pp. 179-194
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Week 16	Final presentation work (CONS 499) <ul style="list-style-type: none"> Journal Club 	
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