

Course Change Request

New Course Proposal

Date Submitted: 10/06/17 10:28 am

Viewing: **CONS 540 : Ecology Field Skills**

Last edit: 10/06/17 10:28 am

Changes proposed by: dpolayes

Are you completing this form on someone else's behalf?

In Workflow

1. **CONS Director**
2. **UN Academic Affairs Dean**
3. **SC Impacted Unit Approver**
4. LA Impacted Unit Approver
5. Assoc Provost- Graduate
6. Registrar-Courses
7. Banner

Approval Path

1. 10/24/17 3:44 pm
Cody Edwards
(cedward7):
Approved for CONS Director
2. 11/07/17 8:53 am
Marcy Glover
(mglover2):
Approved for UN Academic Affairs Dean

Yes

Requestor:

Name	Extension	Email
David Luther	3-5267	dluther@gmu.edu

Effective Term: Summer 2018

Subject Code: CONS - Conservation Studies

Course Number:
540

Bundled Courses:**Equivalent Courses:****Catalog Title:** Ecology Field Skills**Banner Title:** Ecology Field Skills**Will section titles
vary by semester?** No**Credits:** 4**Schedule Type:** Lecture w/Lab**Hours of Lecture or Seminar per
week:** 3**Hours of Lab or Studio per week:** 3**Repeatable:** May only be taken once for credit (NR)**Default Grade
Mode:** Graduate Regular**Recommended
Prerequisite(s):**

BIOL308 or BIOL310, or equivalent course, or INTS 401

**Recommended
Corequisite(s):****Required
Prerequisite(s) /
Corequisite(s)
(Updates only):****Registrar's Office Use Only - Required Prerequisite(s)/Corequisite(s):**

And/Or	(Course/Test Code	Min Grade/Score	Academic Level)	Concurrency?	

**Registration
Restrictions
(Updates only):****Registrar's Office Use Only - Registration Restrictions:****Field(s) of Study:**

Class(es):**Level(s):****Degree(s):****School(s):****Catalog****Description:**

Graduate level directed field studies emphasizing ecology and behavior. Topics vary but include design of field manipulations, data collection and analysis, and introduction to organisms of study site. May include field trips.

Justification:

CONS 540 is intended for early-level Masters or PhD students in environmental science, biology, or ecology who have not yet had the opportunity to build field skills through their undergraduate education. The activities included in this course will provide fundamental field skills that will be helpful as the students develop their Masters' or PhD projects, and as a result this course should be taken early in the students' graduate career. CONS 540 builds upon the undergraduate course experience for graduate students by asking the students to further apply their learning to develop a research design for an applied ecology question of their choice. Students will be required to prepare a research question, a detailed literature review of the existing state of knowledge, as well as an oral presentation of the content and context of their question. A clear research design, including a thorough explanation of research and analysis methods, objectives and expected outcomes will be due in a written report two weeks following the course. The added rigor of this assignment is enough to differentiate it from the undergraduate course.

There are no other short, intensive, skills-based general field ecology courses intended for graduate students offered at Mason.

Does this course cover material which crosses into another department? No

Learning Outcomes:

- Survey and identify a variety of local plants and animals using field marks and dichotomous keys
- Collect and measure plants, insects, birds, fish, herpetofauna and mammals in the field using tools including pitfall traps, mistnets, visual counts, and sweep nets
- Use several field techniques to monitor different taxa, including radiotelemetry, camera traps, acoustic monitoring and electrofishing
- Evaluate grassland, forest and aquatic habitat
- Organize, analyze and synthesize ecological data collected during the course

Attach Syllabus

[CONS 540 Syllabus.docx](#)

Additional

Attachments**Additional
Comments:****Reviewer
Comments**

Key: 15616

CONS 540 Ecology Field Skills
Smithsonian-Mason School of Conservation
Front Royal, VA

Instructor:

Stephanie Lessard-Pilon
210 Academic Center
slessar2@gmu.edu*
540-635-0471

*Email is the best way to reach me outside of class. Office hours are by appointment.

Course dates and location: May 29-June 10th, situated at Smithsonian-Mason School of Conservation in Front Royal, VA

Prerequisite courses: Biology 308 or equivalent ecology course

Credits: This course earns 4 credits in two weeks. This means that there will be between 8 – 10 contact hours per day.

Maximum enrollment: 16

TA: TBD

Grades:

- 30% Participation
- 35% Field Journal
- 35% Research Proposal

Course Description:

In this course, you will be introduced to a variety of field techniques used in ecological research through occasional classroom lectures and intensive field activities. The class will begin with an overview of sampling methodologies common to the discipline of ecology and progress into hands-on and remote sampling techniques for plants, insects, amphibians, reptiles, birds and mammals. You will become familiar with Virginia's flora and fauna, gain experience in sampling and identifying representative plants, invertebrates and vertebrates, and obtain experience in making observations and characterizing ecological interactions related to population ecology, community ecology and behavioral ecology. Also, you will maintain a field journal and complete a proposal for an ecology field project including a literature review, research question and detailed overview of the methods necessary to collect and analyze data. Come to Front Royal ready to work hard and to spend long days in the field. Bring hiking boots, raingear, and comfortable work clothes that you can get dirty, including long-sleeved pants, shirts and at least two water bottles.

Objectives:

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

- Survey and identify a variety of local plants and animals using field marks and dichotomous keys
- Collect and measure plants, insects, birds, fish, herpetofauna and mammals in the field using tools including pitfall traps, mistnets, visual counts, and sweep nets
- Use several field techniques to monitor different taxa, including radiotelemetry, camera traps, acoustic monitoring and electrofishing
- Evaluate grassland, forest and aquatic habitat
- Organize, analyze and synthesize ecological data collected during the course

Course Materials:

The book assigned for the course is the Petersen Field Guide to Eastern Forests. ISBN-10: 0395928958, Houghton Mifflin Harcourt.

Other recommended texts (not required)

- 1) Ecological Census Techniques, Second Edition. ISBN-10 0-521-60636-5, Cambridge Univ. Press. W. J. Sutherland
- 2) A Primer in Ecological Statistics. ISBN 0-87893-269-0, Sinauer Associates, Nicholas Gotelli and Aaron Ellison

Assignments:

Field Journals

35%

In the beginning of the course, students will be taught how to keep a professional, neat, detailed and organized field notebook. Students will be responsible for documenting their fieldwork and experiences throughout the course during each experience at the end of each day. Journals will be collected and graded twice; once halfway through the course (15%) and once at the end of the course (20%). Grades will reflect the thoroughness, completeness and legibility of the entries.

Each field entry in your journal must include:

- The purpose, methods and major findings of the activity
- Date/time
- Weather/temperature
- Location (be as specific as possible)
- Ecoregion type
- Dominant vegetation (written description, drawings, and do your best to identify at least two different dominant species)
- Dominant fauna (written description, and do your best to identify at least two different species)
- Detailed observations of your surrounding area
- At least two questions about the area

Entries may also include:

- Record of the day's events as well as the development of your own ideas

and responses

- Reaction to the day's events or readings
- Questions that the day's events have sparked in your mind
- Drawings and other forms of creative self-expression

Participation

30%

Active, positive participation all field activities, assignments and discussions is required. Participation will be assessed not only for your interactions with faculty and instructors, but also for interaction with your fellow classmates.

Research Proposal

35%

Students will work independently to develop a research proposal that addresses a question in conservation ecology. In this proposal, students will clearly define a scholarly question based on the content discussed over the duration of the course. The question must be introduced in the context of a particular problem in conservation and the proposed investigations should provide evidence that will add to the body of knowledge in the field. The proposal should include a detailed literature review of the existing state of knowledge, as well as a thorough overview of the methodology required to address the question. A clear research design and discussion of expected outcomes and proposed data analyses must also be included. A preliminary research question will be presented midway through the course, followed by a discussion of the development of the proposal at the end of the course. The final written proposal will be due two weeks after the end of the course.

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%

Class Absences

Students are expected to attend all daily sessions of the course. In-class experiences and lectures cannot be replicated. Attendance contributes to your participation grade. Any absence from class must be pre-approved by a faculty member and must fit the criteria for a university-sanctioned absence (e.g. religious holiday, university-sponsored activities, verified illness, death in the family). Please consult faculty if you have any questions.

Late Policy

You are responsible for completing assignments on time. Assignments submitted late will lose 10% for each day they are past due, including Fridays, Saturdays, and Sundays up to 5 days, after which the maximum you can earn for an assignment is 50%. Due dates are clearly indicated on Blackboard. Assignments may only be made up if failure to attend class and/or complete required assignments was for a prior excused absence or emergency. Full or partial credit for missed in-class assignments, activities and field trips may only be made up based on prior notification of an excused absence or an emergency, as agreed upon with the faculty point of contact.

University Policies

The University Catalog, <http://catalog.gmu.edu>, is the central resource for university policies affecting student, faculty and staff conduct in university affairs. Additional information about university policies can be found at <http://universitypolicy.gmu.edu/>

Students are responsible for being aware of university policies, even those related to plagiarism and academic integrity.

Laptops

You are welcome to bring a laptop to class and use it for class-related purposes (e.g.

taking notes). During class, please refrain from using your laptop for purposes not related to class (e.g. email, IM, surfing the Internet).

Phones

Please keep your phone shut down and out of sight during class, field trips and during demonstrations.

Academic Integrity

GMU is an Honor Code university; please see the University Catalog for a full description of the code and the honor committee process. Studying in groups and working collaboratively are not violations of the Honor Code, but the Honor Code does require that work that you (as an individual) turn in is your own individual synthesis or integration of ideas in your own words, and that the work a group turns in ultimately be the product of the group's collective ideas. Vigorous discussion and debate are encouraged in this course, with the firm expectation that all aspects of the class will be conducted with civility and respect for differing ideas, perspectives, and traditions. If you have any questions at all about the line between collaboration and cheating, ask an instructor. Always cite your sources using the APA method. If you do not, it is plagiarism. Plagiarism is lifting someone else's ideas or words and presenting them as your own without proper attribution of the source. This includes all sources, including those found on the Internet. It also includes turning in previous work for multiple assignments. The principle of academic integrity is taken very seriously and violations are treated gravely. When in doubt (of any kind) please ask for guidance and clarification.

Mason Email Accounts

Students must use their Mason email accounts to receive important University information, including messages related to this class. See <http://masonlive.gmu.edu> for more information.

Office of Disability Services

If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Services (ODS) at (703) 993-2474. All academic accommodations must be arranged through the ODS. <http://ods.gmu.edu>

Other Useful Campus Resources

WRITING CENTER: A114 Robinson Hall; (703) 993-1200 or Prince William Campus (703) 993-8451; <http://writingcenter.gmu.edu>

UNIVERSITY LIBRARIES “Ask a Librarian”
<http://library.gmu.edu/mudge/IM/IMRef.html>

COUNSELING AND PSYCHOLOGICAL SERVICES (CAPS): (703) 993-2380;
<http://caps.gmu.edu>

UNIVERSITY POLICIES

The University Catalog, <http://catalog.gmu.edu>, is the central resource for university policies affecting student, faculty, and staff conduct in university academic affairs. Other policies are available at <http://universitypolicy.gmu.edu/>. All members of the university community are responsible for knowing and following established policies.

Our Commitment to Diversity

The Smithsonian-Mason Semester is an intentionally inclusive community, promotes and maintains an equitable and just work and learning environment. We welcome and value individuals and their differences including race, economic status, gender expression and identity, sex, sexual orientation, ethnicity, national origin, first language, religion or irreligion, age and disability.

- We value our diverse student body and desire to increase the diversity of our faculty and staff.
- We commit to supporting students, faculty and staff who have been the victims of bias and discrimination.
- We promote continuous learning and improvement to create an environment that values diverse points of view and life experiences.
- We believe that faculty, staff and students play a role in creating an environment that engages diverse points of view.
- We believe that by fostering their willingness to hear and learn from a variety of sources and viewpoints, our students will gain competence in communication, critical thinking and global understanding, aware of their biases and how they affect their interactions with others and the world.

Summary Course Schedule

Below is a preliminary schedule for the course. Scheduling of activities may change based on weather conditions and instructor availability.

Updated, detailed schedules will be shared as necessary.

Tuesday, May 29	PM: Move-in, orientation and walk-about tour Evening: Dinner and bonfire
Wednesday, May 30 - Making quality observations, measurements and orienteering - Monitoring birds	AM: Early breakfast <ul style="list-style-type: none">- Birding introduction<ul style="list-style-type: none">o Using binoculars, field guides and field marks to describe and identify species- Getting started in ecological observation<ul style="list-style-type: none">o Peterson's Forest Field Guide Questionnaire PM: Overview of orienteering basics (including the use of compasses and GPS units to navigate) <ul style="list-style-type: none">- Overview of field notebook assignment Evening: Overview of monitoring birds, bird banding and survey methodology READ: MAPS manual pages 1-17 http://www.birdpop.org/pages/mapsDataForms.php and Peterson's Field Guide pp 1-61, 250-256, 294-307
Thursday, May 31 - Bird monitoring con't - Grassland diversity	AM: Early Breakfast <ul style="list-style-type: none">- Mistnetting/banding at Environmental Studies on the Piedmont PM: Comparative study of grassland diversity <ul style="list-style-type: none">- Sampling two grassland habitats for plant diversity- Point, transect and quadrat sampling- Overview of basic statistics to compare species richness, abundance and diversity indices within the habitats Evening : Light trap sampling for insects READ: Peterson's Field Guide pp 154-166
Friday, June 1	AM: Insects in the field and lab

<p>-Insects, con't</p>	<ul style="list-style-type: none"> - Classroom overview of insects - Sampling techniques in the field (including sweep nets, pitfall traps, malaise traps and more) <p>PM: Insects in the lab</p> <ul style="list-style-type: none"> - Collecting voucher specimens - Building an insect collection, including using a microscope to describe and identify individuals, pinning, sorting and organizing a collection <p>Evening: Free evening</p>
<p>Saturday, June 2 - Introduction to monitoring mammals</p>	<p>AM: White-tailed deer as a key component of eastern forests (Bill McShea)</p> <ul style="list-style-type: none"> - Lecture and tour of deer exclusion plots <p>PM: Understanding mammal distribution and abundance</p> <ul style="list-style-type: none"> - Overview of mammal monitoring - Camera trap set up in the field <p>Evening: Sherman trap set up for small mammals</p> <p>DUE: Field notebooks</p>
<p>Sunday, June 3 - Mammals con't - Fishes</p>	<p>AM: Check Sherman traps</p> <ul style="list-style-type: none"> - Work time for field notebook updates and preliminary research proposal <p>PM: Aquatic ecology</p> <ul style="list-style-type: none"> - Sampling fish in Happy Creek <p>Evening: Free evening</p>
<p>Monday, June 4 - Reptiles and amphibians</p>	<p>AM: Monitoring reptiles and amphibians</p> <ul style="list-style-type: none"> - Sampling strategies - Specific risks and threats <p>PM: Introduction to radiotracking</p> <ul style="list-style-type: none"> - Classroom overview - Field practice - Tracking box turtles <p>READ: Peterson's 281-294, 314-317, 373-381</p> <p>Evening: Free evening</p>

Tuesday, June 5 - Watersheds and water quality	AM: Water quality and riparian habitat monitoring <ul style="list-style-type: none"> - Introduction to watersheds, riparian habitat and water quality testing (including biotic indices) - Sampling water quality in Sloan Creek PM: Evaluating water quality in Shenandoah National Park <ul style="list-style-type: none"> - Hawksbill Creek water quality sampling and analysis Evening: Free evening
Wednesday, June 6	Free day
Thursday, June 7 - Forest ecology and GIS	AM: Forest ecology sampling tools and techniques <ul style="list-style-type: none"> - Tree grid; tree ID, measurements and the use of long-term study sites PM: Introduction to GIS <ul style="list-style-type: none"> - Creating a habitat map for SCBI Evening: Free evening or GIS activity work time DUE: Preliminary Research Proposal Topic/Question
Friday, June 8 - Small mammal sampling - Acoustic monitoring	AM: Field work with NEON: sampling small mammals PM: Detecting animals using sound – introduction to bioacoustics Evening: Active monitoring of bats /setting up passive acoustic equipment READ: Baptista and Gaunt 1997 Bioacoustics as a tool in conservation studies
Saturday, June 9 - Acoustics con't - Camera trap analysis	AM: Bioacoustics data analysis in the computer lab PM: Camera trap collection and data analysis <ul style="list-style-type: none"> - Species lists and activity patterns Evening: Natural History Jeopardy/Bonfire DUE: Field notebooks

Sunday, June 10 - Preliminary discussion of research proposals and departure	AM: Work time to prepare for afternoon discussion/Discussion PM: Finish presentation/discussion of preliminary research proposals <ul style="list-style-type: none"> - Closing and evaluations - Depart DUE: Research Proposal Discussion
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CONS 440 is intended to expose upper-level undergraduates who have previously obtained ecology education in lecture-style courses to practical field methods and approaches. CONS 540 is intended for early-level Masters or PhD students in environmental science, biology, or ecology who have not yet had the opportunity to build field skills through their undergraduate education. The activities included in this course will provide fundamental field skills that will be helpful as the students develop their Masters' or PhD projects, and as a result this course should be taken early in the students' graduate career.

CONS 540 is distinct from CONS 440 in that it builds upon the undergraduate course experience for graduate students by asking the students to further apply their learning to develop a research design for an applied ecology question of their choice. Students will be required to prepare a research question, a detailed literature review of the existing state of knowledge, as well as an oral presentation of the content and context of their question. A clear research design, including a thorough explanation of research and analysis methods, objectives and expected outcomes will be due in a written report two weeks following the course. The added rigor of this assignment is enough to differentiate it from the undergraduate course.