

CONS XXX Introduction to Field Conservation

2.0 credits

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Course Description:

In this immersive 1-week experience, students will acquire first-hand exposure to fieldwork in conservation and how conservation professionals contribute to the long-term survival of species in natural habitats. Through a combination of lectures, discussions, field experiences and outdoor adventure with SMSC faculty and other conservation practitioners, students will be introduced to the major concepts of ecology (including diversity, succession, species interactions, communities, populations and ecosystems) in the context of species and habitat conservation. Students will have the opportunity to learn field methods in conservation research, with an emphasis on developing observational skills, defining a research question, and pursuing a guided pilot study that will culminate with a final presentation and poster. In addition, students will have the opportunity to explore the complexity of environmental problems in their social, political and economic contexts through debates and discussions.

Objectives:

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

- Understand the complex nature of present-day conservation in practice
- Utilize their increased scientific literacy and technical skills to investigate complex natural ecological systems and ask questions about the influence of human impacts on those systems
- Develop an understanding of the value of biodiversity and the interconnectedness of species to the natural world
- Critically review conservation issues and responses based on sound science;
- Interact and network with leading conservation science and policy practitioners;
- Develop skills in ecological field research, collect preliminary data, define a research question to address an issue in conservation, and present this question and their preliminary findings to a general audience.

Prerequisites:

This course is being offered to participants in the Washington Youth Summit on the Environment. Outstanding sophomores and juniors (rising juniors and seniors) are nominated to be National Youth Delegates based on strong academic performance, a demonstrated interest in environmental science and/or conservation, and the ability to be exceptional representatives for their states and high schools.

Course Readings and Materials

Popular and peer-reviewed articles will be accessible through e-reserves through the Mason Library: <http://library.gmu.edu>. All readings will be listed under CONS XXX; Instructor S. Lessard-Pilon and will be available before the course. As with the other readings for the WYSE program, we recommend that you have read the readings before the course begins and revisit them during the course rather than try to read them during the busy schedule of the course.

Assignments (detailed assignment guidelines will be distributed during the course)

- Conservation Research Question Project 50%
Under the mentorship of faculty and staff, students will work in pairs to select a field conservation project from a pre-determined list. Students will work with their mentors and learn to make detailed observations, collect preliminary data and establish the context of the problem using proper ecological field methods and library research. The goal of the project is to define a research question to address a conservation issue. At the end of the course, students will prepare a poster and present their research question, its context, and their preliminary data and observations. They will also propose the next steps for continuing research.
 - Detailed observations and thorough fieldwork (10%)
 - Carefully defined and relevant conservation research question (10%)
 - Poster (10%)
 - Project presentation to classmates and faculty (10%)
 - Teamwork and participation (10%)

Sample topics include:

- Bluebird banding and distribution (Mentor: Dr. Vicky McDonald)
- Camera trapping for assessing large mammal distributions and abundance (Mentor: Dr. S. Lessard-Pilon)
- Water quality, biotic indices and invertebrate sampling in the Happy Creek watershed from the Appalachian Trail to Front Royal (Mentor: Dr. Jim McNeil)
- Butterfly mapping project – the impact of landuse patterns on biodiversity (Mentor: Jennifer Buff)
- Invasive plant surveys (Mentor: Jennifer Buff)
- Bird distribution in forests, fields and edges – changing communities in an increasingly edgy landscape (Mentor: Dr. Vicky McDonald)
- Plant and/or arthropod communities in deer exclusion vs. deer inclusion plots (Mentor: Dr. Jim McNeil)
- Pollinator diversity in mowed, hay and fallow fields (Mentor: Dr. S. Lessard-Pilon)
- Bat behavioral ecology (Mentor: Dr. Anneke DeLuyker)

- Field Journals 25%
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 and reflectively at the end of each day.

Each field entry in your journal must include:

- Date/time
- Weather/temperature
- Location (using GPS)
- Biome 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

Reflective daily entries can be more open-ended, but should 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
- Intentions: what did you learn today that you can apply to your own life or interests?
- Entries can include drawings and other forms of creative self-expression

- Participation 25%
Active participation all field activities, assignments and discussions is required.

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%

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. 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.

Laptops and Phones

Please keep your laptops and phones shut down and out of sight during class.

Academic Integrity

The integrity of the University community is affected by the individual choices made by each of us. GMU has an [*Honor Code*](#) with clear guidelines regarding academic integrity. Three fundamental and rather simple principles to follow at all times are that: (1) all work submitted be

your own; (2) when using the work or ideas of others, including fellow students, give full credit through accurate citations; and (3) if you are uncertain about the ground rules on a particular assignment, ask for clarification. No grade is important enough to justify academic misconduct. Plagiarism means using the exact words, opinions, or factual information from another person without giving the person credit. Writers give credit through accepted documentation styles, such as parenthetical citation, footnotes, or endnotes. Paraphrased material must also be cited, using MLA or APA format. A simple listing of books or articles is not sufficient. Plagiarism is the equivalent of intellectual robbery and cannot be tolerated in the academic setting. If you have any doubts about what constitutes plagiarism, please see your instructor.

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

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 School of Conservation 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.

Preliminary Course Schedule **All times are approximate and may be modified as details continue to be solidified*

	Topics/Activities	Assignments & Readings Due Today
Friday, June 28th	<p>2:00 PM: Arrive at SCBI/settle in</p> <p>2:30-3:30 PM: Orientation, rules of the road, field journal overview</p> <p>3:30-5:00 PM: Games/relaxation</p> <p>5:00-6:00 PM: Dinner in the dining facility</p> <p>6:00-7:00 PM: Walking tour of campus</p> <p>7:00-9:00 PM: Bonfire on Racetrack Hill</p> <p>9:00 PM: Star-gazing with the Shenandoah Astronomical Society on Racetrack Hill</p>	<p>Readings:</p> <ul style="list-style-type: none"> • Aldo Leopold “Land Conservation Ethic” • McKibben, “A New World”
Saturday, June 29 th	<p>8:00-9:00 AM: Breakfast at the dining facility</p> <p>9:00 AM – Depart for Shenandoah River Outfitters (Downriver Canoe Company Fort Stover Trip)</p> <p>10:00 – Arrive at launch site; brief safety overview and introduction to canoeing</p> <p>10:30-12:30 PM: Canoeing</p> <p>12:30-2:00 PM: Lunch and swim break</p> <p>2:00 – 3:00 PM: Introduction to Shenandoah River geology, ecology and wildlife in the field</p> <p>3:00- 5:30 PM: Canoeing</p> <p>5:30 PM: Stop at campsite (Golden Rock Campground), unpack, and prepare dinner</p> <p>6:00 – 7:00 PM: Dinner, cleanup, journal time</p> <p>7:00 – Games, swim time, and introduction to night wildlife viewing</p>	<p>Reading:</p> <ul style="list-style-type: none"> • Shenandoah National Park Official Handbook pp. 12-30 • Solnit, “A Field Guide to Getting Lost”

<p>Sunday, June 30th</p>	<p>8:00 -9:00 AM: Camp breakfast and cleanup</p> <p>9:00-10:00 AM: Pack up and clean</p> <p>10:00-12:00 PM: Canoeing to state park</p> <p>12:00- 1:00 PM: Lunch/break at State Park</p> <p>1:00-4:00 PM: Canoe back to Downriver Canoe Company</p> <p>4:00-5:00 PM: Transport back to SCBI</p> <p>5:00-5:30 PM: Break</p> <p>5:30-6:30 PM: Dinner in dining facility</p> <p>6:30 -7:30: Break/journaling time</p> <p>7:30 PM: Introduction to scientific illustration/nature photography</p>	<p>Reading:</p> <ul style="list-style-type: none"> Goldberg and Silberman “Photography and the Environment”
<p>Monday, July 1st</p>	<p>8:00-9:00 AM: Breakfast in dining facility</p> <p>9:00- 9:30 AM: Announcements/current events/reading discussion</p> <p>9:30-10:30 AM: Introduction to conservation biology and field ecology</p> <p>10:30-11:00 AM: Brainstorming issues in conservation and strategies for studying them</p> <p>11:00-12:00 PM: Introduction to conservation research projects. Students select topics and partners, meet their mentor and begin library research on their topic.</p> <p>12:00-1:00 PM: Lunch and break</p> <p>1:00-5:00 PM: Field activities</p> <ul style="list-style-type: none"> - Stream sampling (kick samples, surber sampling, water quality and biotic indices, aquatic invertebrate ecology and salamanders) - Break/snack - Discussion of species adaptations, niches, and responsible sampling 	<p>Reading:</p> <ul style="list-style-type: none"> Primack, Chapter 1 pp. 3-11, Chapter 2 23-25, 37-49. <p>Assignments:</p> <ul style="list-style-type: none"> Conservation Research Project Topic Selection due

	<ul style="list-style-type: none"> - Radiotracking turtles and techniques for monitoring reptiles and amphibians <p>5:00-6:00 PM: Break/Journaling</p> <p>6:00-7:00 PM: Dinner in dining facility</p> <p>7:00-8:00 PM: Introduction to bats, white nose syndrome and conservation</p> <p>8:00-10:00 PM: Night hike and bat watching</p>	
<p>Tuesday, July 2nd</p>	<p>6:00 - 6:30 AM: Early breakfast in dining facility</p> <p>6:30 - 9:00 AM: Birding at SCBI (Dr. V. McDonald and Carolyn Emerick) and nest box surveys or mist netting</p> <p>9:00 –10:00 AM: Break/Journaling time</p> <p>10:00 – 10:30 AM: Announcements/current events/reading discussion</p> <p>10:30 -12:00 PM: Virginia Working Landscapes: the interaction between agriculture, landowners and conservation-</p> <ul style="list-style-type: none"> - Overview of how to make decisions in a complex environment with many stakeholders. - Tour of demonstration areas at SCBI. - Hands-on introduction to bird and pollinator sampling to assess biodiversity <p>12:00 - 1:00 PM: Lunch</p> <p>1:00- 3:00 PM: Field activities:</p> <ul style="list-style-type: none"> - Plant/insect interactions: observations and field notes - Discussion of observations - Introduction to interspecies interactions (in the field, including: competition, predation, mutualisms, co-evolution, facilitation and a discussion of phenology) <p>3:00-3:30 PM: Break</p> <p>3:30- 5:30 PM: Pairs identify a research</p>	<p>Reading:</p> <ul style="list-style-type: none"> • Sutherland et al. “100 Questions of Importance to the Conservation of Global Biodiversity” • Robbins “In wild animals, charting the pathways of disease” http://www.nytimes.com/2012/05/29/science/eco-immunology-charts-pathways-of-disease-in-nature.html?pagewanted=1&src=un&feedurl=http://json8.nytimes.com/pages/science/index.jsonp <p>Assignments:</p> <ul style="list-style-type: none"> • Conservation Research Project Question due

	<p>question for their conservation research projects and use the library/computer lab to research background and context information</p> <p>5:30 - 6:00 PM: Break/journaling</p> <p>6:00 - 7:00 PM: Dinner</p> <p>7:00 PM: Guest lecture: Wildlife Disease/Conservation Medicine: A Vet's Perspective on Conservation (A.Aguirre)</p>	
<p>Wednesday, July 3rd</p>	<p>8:00 - 9:00 AM: Breakfast in dining facility</p> <p>9:00 – 9:30 AM: Announcements/current events/reading discussion</p> <p>9:00-12:00 AM: Field activity - Detailed observations of study system and data collection for conservation research project with mentor supervision</p> <p>12:00- 1:00 PM: Lunch in dining facility</p> <p>1:00 – 4:00 PM: The importance of effective communication, stakeholder perspectives and constructing convincing arguments - Town hall stakeholder role playing exercise (Yellowstone wolves)</p> <p>4:00 – 5:00 PM: Tour of SCBI</p> <p>5:00 – 6:00 PM: Break/journaling</p> <p>6:00 – 9:30 PM: Picnic dinner, games and swimming at 4H Center</p> <p>9:30 PM: July 4th Fireworks at the 4H Center</p>	<p>Reading:</p> <ul style="list-style-type: none"> • Montana Wolf Conservation and Management 2011 Annual Report pp. 1-15 • Dayton and Dayton, 2011 “Observations in Nature: the Keystone to Understanding Natural Systems”
<p>Thursday, July 4th</p>	<p>8:00 - 9:00 AM: Breakfast in dining facility</p> <p>9:00 - 9:30 AM: Announcements/current events/reading discussion</p> <p>9:30 - 12:00 AM: Fieldwork and preliminary data collection to define research question</p> <p>12:00 -1:00 PM: Lunch in dining facility</p>	<p>Readings:</p> <ul style="list-style-type: none"> • National Fish, Wildlife and Plants Climate Adaptation – the Strategy Section only http://www.wildlifeadaptationstrategy.gov/index.php • Convention on Biological Diversity “Biodiversity and Climate Change” brochure

	<p>1:00 - 4:00 PM: Finalize field work and research question, library research, organize data and observations, and assemble posters for presentations</p> <p>4:00 – 5:00 PM: Climate and conservation: facing biodiversity loss in a changing world</p> <p>5:00 – 6:00 PM: Break/journaling</p> <p>6:00 – 7:00 PM: Dinner</p> <p>7:30 - 9:30 PM: Bowling and ice cream in Front Royal</p>	<p>www.cbd.int/doc/bioday/2007/ibd-2007-booklet-01-en.pdf</p> <p>Assignment:</p> <ul style="list-style-type: none"> • Conservation Research Project data collection due
Friday, July 5 th	<p>8:00 - 9:00 AM: Breakfast in dining facility</p> <p>9:00- 9:30 AM: Announcements/current events/reading discussion</p> <p>9:30 – 11:00 AM: Guest lecture (Marshall Jones- elephant conservation in Africa and Asia)</p> <p>11:00 – 12:00 PM: Finalize and rehearse presentations</p> <p>12:00 – 1:00 PM: Lunch</p> <p>1:00 – 4:00 PM: Poster presentations (break midway through)</p> <p>4:00 – 5:00 PM: Discussion of projects and question/answer session</p> <p>5:00 – 6:00 PM: Course evaluations, break, journaling</p> <p>6:00 – 7:00 PM: Dinner</p> <p>7:00 – 9:00 PM: Closing ceremony (slideshow and awards)</p> <p>9:00 PM: Bonfire on Racetrack Hill</p>	<p>Reading:</p> <ul style="list-style-type: none"> • Editorial: Adam Frank “We can do impossible things” • WWF 50 years of conservation success stories- choose 5 http://wwf.panda.org/who_we_are/history/50_years_of_achievements/stories/ <p>Assignments;</p> <ul style="list-style-type: none"> • Journal due (your journal will be mailed to you after it has been graded). • Conservation Research Project Poster and Presentation due
Saturday, July 6 th	Departure time!	

