WILDLIFE 458/658 - Wildlife Ecology and Conservation Biology
Tentative Syllabus – Fall 2019

"We are into the opening phase of a mass extinction of species. That much is well understood. Hardly understood at all is what the mass extinction will do to the future course of evolution. But we are surely disrupting and impoverishing it in ways that promise to match the greatest set-back to life`s course during the past half billion years - and we are doing it in half a century.

- Norman Meyers

"Thanks to science and technology, access to factual knowledge…is destined to become global and democratic…What then? The answer is clear: synthesis. We are drowning in information, while starving for wisdom. The world henceforth will be run by…people able to put together the right information at the right time, think critically about it and make important choices wisely"

- E.O. Wilson

What this course is trying to do

It has become increasingly obvious that an ever mounting human population combined with massive alterations in habitats, are threatening the biota of the planet and altering basic ecosystem functions. The emerging multidisciplinary field of conservation biology seeks to conserve entire systems with all their biological components and processes. Whereas traditional wildlife management often was motivated by utilitarian, single species issues, conservation biology draws on the disciplines of ecology, genetics, biology, geology, chemistry, economics, sociology, and anthropology to seek solutions to the multitude of threats to biodiversity. The distinction between wildlife ecology and conservation biology becomes less and less as the wildlife profession moves rapidly to incorporate a more holistic, ecosystem management philosophy.

Concern has also recently surfaced that wildlife education at the university level has not developed students' ability to synthesize knowledge from a variety of disciplines into coherent conceptual models. Biologists have claimed that many university programs train technicians "for state and federal agencies, but without a conceptual framework in which to practice these skills, management becomes nothing more than a series of random thrusts at whatever happens to be the most current problem." Developing students' critical thinking skills has become vital. **Techniques and practices, while extremely important as tools, are transient. A framework of "facts" is important to have, but it is no substitute for developing an ability to critically evaluate ideas and information.**

Conservation biology is an ideal arena for developing critical thinking skills because it is extremely complex and often deals in shades of gray, rather than black and white. "Right" answers give way to "best" or "most supportable" answers. It requires the synthesis of information from a variety of disparate disciplines to formulate explanations or solutions, and has a variety of "principles" that may act in concert or against each other depending on individual circumstances.

Goals

This course will help you understand the principles that underlie the practice of conservation biology while attempting to develop your critical thinking skills. It will incorporate aspects of traditional ecology, landscape ecology, population genetics, behavioral ecology, policy, and economics. In addition to lecture, there will be a weekly discussion group. You will be asked to bring a critical, inquisitive mind to every lecture and discussion.

Course objectives

Specifically, the course is designed to provide opportunities for advanced students to:

1) become acquainted with the nature and development of biodiversity;

2) understand the nature and extent of threats to the biodiversity of the planet.

3) become acquainted with the principles of conservation biology and sustainable development - including population genetics, landscape ecology, ecosystem ecology, policy, economics, etc.

4) develop critical thinking skills to: investigate problems, issues, or concerns; synthesize basic (albeit scattered and conflicting) biological/ ecological information; evaluate the validity, assumptions, and consistency of research and theory

5) kindle the intrinsic desire to know and understand.

BASIC COURSE OUTLINE

I. What is conservation biology? - an overview
II. Understanding biodiversity
  A. The value of biodiversity
  B. Species diversity
  C. Genetic diversity
  D. Ecosystem diversity
III. Threats to biodiversity
  A. Extinction, rarity, and small populations
  B. Habitat loss/degredation
  C. Overexploitation
  D. Exotics
  E. Global climate change
IV. The practice of conservation biology
  A. Species and landscape approaches
  B. Ecosystem approaches
  C. Protected areas
  D. Sustainable development
  E. Ex situ conservation

Grading

Exams I&II (each @150 pts.)	300
Final exam (comprehensive)	200
Discussion	400
TOTAL	900

Graduate students enrolled in WLDL 658 will be required to complete an additional project.

Grade	%
A	93+
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	≤59

Discussions

We will meet every week to discuss current events, readings, a special "problem", view a video, or go over a returned assignment/exam. This interactive period is a chance for you to direct and actively participate in your own learning. Toward this end, you as students eventually will be responsible for planning and leading discussions. You'll work in small groups to develop topics, choose readings, decide the format, and then present. There will be a separate handout giving you more details early in the semester.

Readings

Reading will be one of your primary methods for staying current with the practice of wildlife management or conservation biology once you leave the university. Hence, this course will involve a fair amount of reading. The primary text for this class will be:

Groom, M.J., G.K. Meffe, and C.R. Carroll. 2005. Principles of conservation biology, 3rd ed. Sinauer Associates, Sunderland, Massachusetts. 799pp.

The text is thorough and detailed. Readings from the text are meant to support and extend concepts developed in class.

Attendance

Material and class attendance are your responsibility. I will try to post most of my lecture materials in Canvas. However, it will be extremely difficult to get a thorough understanding of the material without attending every lecture.

"A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.

Aldo Leopold, 1949

Instructor: Jason Riddle, Rm 265 TNR **E-mail**: Jason.Riddle@uwsp.edu **Phone**: 346-3224
Lecture: 10:00-10:50am T and Th, A109 SCI **Discussions**: 10:00-11:50pm W A208 SCI
Office Hours: 1:00-3:00 W, or by appointment

	Date	Tentative Topic Schedule	Readings
Sep	3	Course overview/administration	
	4	**DISCUSSION: Further Introductions**	
	5	What is conservation biology?	12-25 (not essays)
	10	Biodiversity and values	111-119 (not essays)
	11	**DISCUSSION: Instructor Paper Discussion**	
	12	Species diversity – basics	31-34, 39-43
	17	Species diversity – measuring	
	18	**DISCUSSION: Final Group Determination**	
	19	Species diversity – patterns	43-55
	24	Species diversity – (continued)	377-386
	25	**DISCUSSION: Instructor Activity**	
	26	Ecosystem diversity	36-39
Oct	1	TBD	
	2	**DISCUSSION: TBD**	
	3	TBD	
	8	Ecosystem diversity – (continued)	
	9	**DISCUSSION: **********EXAM 1************	
	10	Extinction, rarity, and small populations	63-92, Box 3.2, (not essays)
	15	Extinction, rarity, and small populations – (continued)	
	16	**DISCUSSION: Student Planning and Feedback**	
	17	Habitat loss and degradation	85, 173-188
	22	Habitat loss and degradation – (continued)	213-234
	23	**DISCUSSION: Students take the lead**	
	24	Overexploitation	253-272
	29	Overexploitation – (continued)	
	30	**DISCUSSION: Students take the lead**	
	31	Species invasions	293-314, 316-330
Nov	5	Species invasions – (continued)	
	6	**DISCUSSION: Students take the lead**	
	7	Applied population biology, PVA's, and metapopulations	423-444, Essay 12.3
	12	Applied population biology, PVA's, and metapopulations – (continued)	
	13	**DISCUSSION: Students take the lead**	
	14	Species and landscape approaches – ESA	Supplemental Reading
	19	Species and landscape approaches – ESA – (continued)	
	20	**DISCUSSION: **********EXAM 2************	
	21	Ecosystem approaches	467-473 Case Study 13.4
	26	Ecosystem approaches – (continued)	
	27	**DISCUSSION: Students take the lead**	
	28	Thanksgiving: Gluttony takes the lead	
Dec	3	Protected areas	509-525
	4	**DISCUSSION: Students take the lead**	
	5	Protected areas – (continued)	
	10	Ex situ conservation/reintroductions	565-566, Case Study 15.4
	11	**DISCUSSION: Conservation conclusions?**	
	12	Exam Review	
	18	**FINAL EXAM – Wednesday, December 18, 12:30pm to 2:30pm SCI A109**	