

## BIOLOGY 375-011: CONSERVATION BIOLOGY

<b>INSTRUCTOR:</b>	Dr. Andrew Mashintonio	<b>EMAIL:</b>	<a href="mailto:afm8@njit.edu">afm8@njit.edu</a>
<b>OFFICE:</b>	337D CKB ▪ (973) 642-4973	<b>OFFICE HOURS:</b>	Please email for an appointment.
<b>COURSE SCHEDULE:</b>	M,T,W,R: 9:00AM- 11:15AM, CKB 330	<b>COURSE WEBSITE:</b>	<a href="http://moodle.njit.edu/">http://moodle.njit.edu/</a>

### COURSE DESCRIPTION:

Conservation biology is a developing and complex field. It draws upon the biological disciplines of population biology, taxonomy, ecology, genetics, and resource management as well as the fields of economics, ethics, and politics to document, understand, and protect the world's biodiversity. This course will give students an overview of this emerging discipline including the scientific methods employed, the biological principles behind conservation techniques and strategies as well as the complexities involved in attempts to influence and implement conservation-oriented policies.



PHOTOGRAPH: MARK CONLIN/ALAMY



### PREREQUISITES:

- Foundations in Biology: Ecology & Evolution (BIOL 205 & 206)
- Foundations in Biology: Cell & Molecular (R120:201&202)

### REQUIRED TEXT:

- A Primer of Conservation Biology, Fifth Edition: Paper Text © 2012 by Richard B. Primack; ISBN: 978-0878936236.

### ADDITIONAL READINGS:

Throughout the semester, I'll be providing additional readings to supplement the course text and to serve as the basis for class discussions. These readings will be posted to the course Moodle site.

### LEARNING OUTCOMES:

Students are able to....

- Identify and explain important threats to biological diversity as well as how these threats relate to human actions.
- Evaluate the variety of management approaches to protecting biodiversity and addressing conservation problems.



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**LEARNING OUTCOMES CONT'D:**

- Understand the multidisciplinary effort required for conservation, including policy, economics, and ethics.
- Read critically and be able to form and articulate opinions on complex issues in conservation biology.

**GRADING POLICY:**

Your grade will be calculated based on the following components:

1. Exams (200 points): There will be two exams, each worth 100 points. Exams will be predominantly short-answer questions. The second exam will focus on material since the first exam but can include information from the entire semester.
2. Assignments (50 points): Questions on the readings will be assigned regularly to prepare you for the upcoming class.
3. Case studies (150 points): Case studies will be worked on during class and will explore real-world applications of certain topics. A one-page (single-spaced) written assignment will accompany each case study.
4. Article discussion (25 points + 25 points): In a group, each student will be responsible for leading a class discussion of scientific literature on a particular topic. Points will be awarded for writing discussion questions, briefly summarizing an article, and leading the class in discussion. The additional points will be awarded for being prepared for discussions that you are not leading.
5. Participation (25 points): Points are awarded for participation during lecture, class discussions, and group work.
6. Presentation (50 points): Each student is responsible for researching in detail some topic related to conservation biology and sharing it through a 15 minute presentation to the class. Topics must be approved by the instructor in advance.

**COURSE POLICIES:**

**Electronics/Cell Phone Policy:** No electronics (cell phones etc.) in class; laptops permitted for note-taking only or in use in an activity.

**Attendance:** You are expected to attend all classes and complete all the assigned readings in advance. We will primarily use our class time to discuss the readings and explore topics in more detail.

**Moodle:** You must update your Moodle profile with an email address that you check regularly.

**Make-Up Exams and Quizzes:** Make up exams and quizzes will be permitted only with a doctor's or a dean's letter or with prior approval. If you have a serious reason for missing an exam, you must contact me **BEFORE** the scheduled exam period to notify me that you cannot take the exam.

**Late Assignments:** Late assignments based on readings will not be accepted. The purpose of the assignments is to prepare you for the upcoming class. Other late assignments (case study, review paper, etc.) will be penalized 10% per day late.

**Academic Integrity:** I have a zero tolerance policy for academic dishonesty, including plagiarism and cheating. If you have any questions about what constitutes plagiarism or cheating, please ask me or refer to the academic integrity code: [Academic Integrity Code](#).



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### COURSE OUTLINE:

*Please note that this is the proposed schedule. I reserve the right to make changes to the schedule when needed; you will be notified of any changes. Additional readings and assignments will be posted to the course website.*

DATE	LECTURE TOPIC	READINGS / ASSIGNMENTS
M – 5/23	Course overview; What is conservation biology? ; Biodiversity I	Chapter 1 (pp. 3-16), Chapter 2 (pp. 19-45); Costello et al 2013
T – 5/24	Biodiversity II, <i>Biodiversity and Human Health</i>	Chapter 3 (pp. 47-66); Naeem et al. 1999; <b>Radiolab “Worth”, <i>Biodiversity and Human Health background and exercise</i></b>
W – 5/25	Ethics and Economics*, <i>Complexity in Conservation</i>	Chapter 3 (pp. 66-77); Leopold 1949 (pp. 4-14), Kaimowitz & Sheil 2007*, Murphy 2007
TH – 5/26	Threats to biodiversity I [Human population growth, habitat destruction, fragmentation]	<b>Case Study #1 due</b> ; Chapter 4 (pp. 79-98), <b>Forest fragmentation mapping exercise</b>
T – 5/31	Threats to biodiversity II [Environmental degradation, pollution, climate change]	<b>Case Study #2 due</b> , Chapter 4 (pp. 98-110); McClure et al. 2013; Swain et al. 2007
W – 6/1	Threats to biodiversity III, [Overexploitation, invasive species, disease], Threats Discussion*	Chapter 4 (pp. 110-130); Pimm 2008*; Loss et al. 2010*; Davis et al. 2011 and responses*
TH – 6/2	Small populations and extinction, <i>Caribou Conservation</i>	Chapter 5 (pp. 135-167); He & Hubbell 2011 <b>Presentation topic due</b>
M – 6/6	<b>EXAM #1</b> , "CRASH: A TALE OF TWO SPECIES"	
T – 6/7	Red Knots and Horseshoe Crabs in the Delaware Bay*, Applied population biology	<b>Case Study #3 due</b> ; Niles et al. 2009*, Niles interview 2011*, FWS 2013*, Chapter 6 (pp 169-180)
W – 6/8	Law & Policy	Chapter 6 (pp. 180-190); IUCN Red List brochure; Harris et al. 2011
TH – 6/9	The Role of Zoos, Aquariums, and Botanical Gardens*	Chapter 6 (pp. 199-211)*; Donlan et al. 2005*; Redford et al. 2011*; Swaisgood & Sheppard 2010 & responses*
M – 6/13	Conservation inside and outside of protected areas	Chapter 7 (pp. 213-252); Chapter 8 (pp. 255-270); Lewis et al. 1990; <b>Kareiva &amp; Marvier 2007</b>
T – 6/14	Protected Areas*, Reintroduction	Lalas et al. 2007*; Reed & Merenlender 2008*; Mascia & Pailler 2011*, Chapter 6 (pp. 191-199)
W – 6/15	<i>Wolf Management</i> , Restoration	<i>Handouts</i> , Chapter 8 (pp. 270-281)
TH – 6/16	Restoration and Reintroduction*, <i>Wetland Mitigation</i>	Hobbs et al. 2009*; Corlett et al. 2016*; O’Rourke 2014*; <i>Handout</i>
M – 6/20	Conservation, education, and the media*	<b>Case Study #4 due</b> ; Chapter 9 (pp. 303-309); Bride 2006; Radiolab “Galapagos”
T – 6/21	MARCH 13-20: SPRING BREAK – NO CLASSES	<b>Case Study #5 due</b> ; Chapter 9 (pp. 283-302)

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**COURSE OUTLINE (CONT.):**

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DATE	LECTURE TOPIC	READINGS / ASSIGNMENTS
W – 6/22	TBD	
TH – 6/23	Student Presentations	
M – 6/27	<b>EXAM #2</b>	
<b>FINAL</b>	<b>FINAL EXAM: JUNE 27, 2016</b>	

\*Refers to class discussion

*Refers to case study*

**Refers to assignments**