

Conservation Biology

Fall 2012 - BIOL 3307

Undergraduate Course, 3 semester hours

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Course meetings: Tuesday & Thursday, 3:30-4:50pm

Location: 332 Biology-Life Sciences

Office hours: Tuesday & Thursday, 2:00-3:00pm, and by appt. (I will also offer extra hours prior to exams.)

Pre-requisites:

The course "*Principles of Ecology* (BIOL 2227)" with a grade of C- or better is required for participation in this course.

Course Description:

The Earth harbors an incredible diversity of species and communities, most still poorly understood by science. This biodiversity is essential to the functioning of natural ecosystems and provides a wide array of priceless services to people today and a treasure of benefits for the future. Yet human threats to biodiversity have led us to the brink of the sixth major extinction event in Earth's history. This loss of biodiversity, as E.O. Wilson put it, "is the folly our descendants are least likely to forgive us."

Which populations, species, communities, and ecoregions are most diverse? Which are most threatened, and by which human activities? What is the contribution of biodiversity to human livelihoods? What does the science suggest is needed to conserve biodiversity? How might this best be done given social, economic, and political realities? We will examine all these questions and more in this course, focusing on the key principles of conservation biology and the application of those principles to conservation of terrestrial, freshwater, and marine conservation at local, national, and international scales.

Overall course goal:

The overall goal of this course is to develop student capacity to apply scientific principles and integrate diverse perspectives for the conservation of the Earth's biodiversity. Our major approach will be to foster understanding of (1) the ecological and evolutionary context of biodiversity; (2) the anthropogenic threats biodiversity faces; and (3) conceptual frameworks for and practical approaches to mitigating threats to biodiversity and sustaining it over the long term. These three elements will form the principal foci of this course.

Course objectives:

By the end of the course, students will:

- understand the diversity and complexity of biodiversity,
- understand critical threats to biodiversity,
- be able to discuss effective approaches to conserving biodiversity, and
- be capable of applying conservation biology principles to real-world conservation problems.

In addition, students will:

- be able to think critically about conservation issues,
- integrate concepts from biological and social sciences in a conservation context,
- seek out and weigh diverse perspectives on conservation problems, and
- understand the uncertainties, risks, and trade-offs inherent in different conservation strategies.

Course Format:

Your primary sources of information for this course will be lecture, textbook readings, readings from the primary literature, and in-class discussions. We will also have a course website on Blackboard, on which I will post announcements and supplementary materials. *It is your responsibility to regularly check the website, and your Temple-based email account for announcements and potential schedule changes.* Class meetings will include lectures, but also (reflecting the integrative nature of the subject material) a variety of interactive activities.

Required textbook:

The required textbook for this course will be the 5th edition of *Essentials of Conservation Biology* by Richard Primack. It is available from the University bookstore, and from a variety of online and other sources. (Note: be sure you get the 'Essentials' book – Primack also has a different book by a similar name, and other editions of the same book). You may be able to find a used copy of the book to save you some money. Here are the specifics on the textbook:

Essentials of Conservation Biology, 5th Edition. Richard B. Primack. 2010.
Sinauer Associates: Sunderland, MA. (ISBN: 978-0-87893-640-3)

You may also obtain this as an eBook. This option saves money off the new book price, but expires after 180 days. For more info, see: <http://www.coursesmart.com/9780878936403>

Other readings, class discussions on readings, and online quizzes:

In addition to the text, we will read several articles from the primary literature. These articles, and the dates we will discuss them in class, are noted on the course schedule. *It is important to have fully read and understood these articles prior to class so that we can have an engaged discussion.* Please also *bring a paper or electronic copy to class with you* to facilitate the discussion. You will be tested on these articles during exams. Your participation in discussions of these articles will also become part of your attendance and participation grade.

Midterm Exams and Online Quizzes:

We will have two midterm exams. Exams will be largely multiple choice; but may also include short-answer and/or essay questions. All exams will cover material from the textbook, readings from the primary literature, lecture, discussions, handouts, and the course website. There will not be a final exam in this course.

We will also have quizzes periodically throughout the semester. These will be conducted online, and must be completed via the course website on Blackboard by 3pm on the date listed on the Course Schedule. The online quizzes are open book / open notes / open article – in other words, you are free to refer to these sources of information as you complete the quizzes. However, you must do these quizzes on your own. Evidence that you completed these with others, discussed questions, or shared answers will be considered cheating.

International Climate Negotiations Activity:

This November, the countries of the world will be holding a major meeting to establish an international framework for mitigating and adapting to climate change. To illustrate how such meetings function, and to clarify some of the complexities, difficulties, and opportunities inherent in reaching agreement on meaningful steps to address this global issue, we will develop a multi-part activity that simulates the international negotiations; each student will represent a country in the negotiations. In preparation for this activity, *you will prepare a policy brief highlighting the negotiating stance you recommend for your specific country, and the reasons why you recommend those positions on the major issues. You will be expected to cite relevant literature in support of your arguments.* The ~3-page policy brief and your participation in the activity will together be worth 5% of your grade in this course. More details on how to write the policy brief and how the activity will work will be provided in class.

Conservation Research Projects:

You will participate in a group that will develop a semester-long research project. Shortly after the first midterm exam, you will be assigned to a group that will identify a topic that you will research and ultimately present to the class and write up as a final research paper. I will provide you with more information in class about this research project, but the focus will be on researching an approach to conserving biodiversity. Your topic should have broad interest to conservation biologists, but sufficiently specific to be able to be covered in a term paper. For example, you might identify a topic based on a case study of a particular park, and evaluate to what extent conservation biology principles were followed during its establishment, and to what extent that park has been successful in meeting its objectives. Or you might pick a conceptual topic, such as developing strategies likely to be effective in protecting species or ecosystems that are threatened by both invasive species and climate change. I encourage you to be innovating in identifying a topic. *In selecting a topic, choose one that is timely and novel (i.e., it hasn't been investigated before in just the way you plan to investigate it).* In researching your topic, you will rely principally on peer-reviewed articles as your sources, though for some topics, interviews with experts or other sources of information might be appropriate. There will be several steps to this project – identification of a topic, and preparation of a proposal, an outline and plan for completion, a presentation to the class, and a final term paper. You will do

these in small groups, though you will get both an individual and group grade for the presentation and final paper. You will have several opportunities to get feedback from me and your classmates to help improve your work. See the Course Schedule for more on project timing, and see below for more on the break-down of the project grades.

Attendance and Participation:

In this course, students will learn from each other as well as from me and from the readings, especially during the discussions, interactive activities, and student presentations. We will engage in a lot of active learning activities in class throughout the semester. It is essential for your sake and for that of your classmates that you attend and participate during these activities. Yes, I will actively note who is present and absent during that period, and absences will cause your grade to decline.

However, full attendance is not enough – you must also ask questions and participate in discussions. *I will keep track of participation throughout the semester.* Participation points are not automatic. I don't expect everyone to say something in every single discussion, but *you are expected to engage fully in small group activities, and the whole class should hear your questions or thoughts on a number of occasions during the semester. I will also be looking for informed discussion that illustrates that you have prepared fully for class.*

Policy on absences or make-up of exams or presentations:

If you perceive that you will have a conflict either on an exam or on the day your group is scheduled to present, please notify me as far in advance as possible. I will try my best to be flexible if you have a legitimate conflict due to a university-sanctioned activity, significant religious holiday, or an activity that would provide you a significant opportunity for learning or professional development – and provided you contact me with sufficient advance notice.

In addition, there may be something unexpected that turns up at the last minute which prevents you from attending, such as an illness or family emergency. If so, please notify me as soon as possible once this occurs. I may require an excuse, such as a doctor's note.

Evaluation:

Exams & Quizzes

First midterm exam	18
Second midterm exam	22
Online quizzes	16

Assignments, Attendance, & Participation

International climate change policy brief and participation in activity	5
Attendance and participation	5

Research Project

Proposal (group grade)	3
Plan for Completion (group grade)	3
Group Presentation (5 points for individual grade, 3 points for group grade)	8
Final Paper (17 points for individual grade, 3 points for group grade)	<u>20</u>

Total 100

Final Grades:

Grades will be assigned based on the overall weighted score at the end of the course. This course is graded on an absolute scale: a score of 93% or better will receive an A, a 90% will receive an A-, a 87% will receive a B+, and so on; thus a 60% or better is required to receive a D-. *There is no limit on the number of students that can get a top grade, but getting an A or B in this class is not easy, and requires your careful preparation and full engagement in the course.*

To ensure that I haven't graded you unfairly, I also examine a relative scale (i.e., a 'curve'). On this scale, everyone at or above the 85th percentile will receive an A- or better, everyone at or above the 60th percentile will receive a B- or better, and everyone at or above the 20th percentile will receive a C- or higher. This relative scale will be applied at the end of the course on overall grades for the semester. I will not examine the curve except at the end of the semester. *At the end of the semester, I will give you the better letter grade on either the absolute or the relative scale.* Thus, this works to your benefit.

In other words, if you earned a score of 93% you are guaranteed an A regardless of how other students in the class did. (And, if everyone earns a 93% or better, everyone gets an A.) But if you earned a score of 88% you would get at least a B+, but you might still get an even better grade depending on how other students in the class did. On the other hand, if you get a 70% on the absolute scale but most students did better (and so you are below the 20th percentile), then no curve kicks in and you still get the C- you earned on the absolute scale.

I encourage you to work to get the grade you want on the absolute scale – that way you are sure. Don't count on the curve rescuing you: the overall distribution of grades in my courses usually works out similarly with either method. However, I keep this method to ensure my grading is fair and consistent. The curve also does sometimes help a few students who did not get a particular grade on the absolute scale, but still did well compared to other students.

Accommodations:

Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs as soon as possible but preferably within the first two weeks of class. In addition, please contact Disability Resources Services (see below for more information) to coordinate reasonable accommodations.

Conduct:

You may feel you can multitask or use smartphones and other electronic devices discreetly, but I and many of the students around you tend to find it disruptive and disrespectful to teaching and learning when during class you read or send text messages, consult your email, chat online, or otherwise are distracted by things not related to the course. Further, studies consistently show that users of text/chat, etc. are not aware of the degree to which they are distracted by this activity, or the extent to which their comprehension and performance on other tasks suffers while they use these devices. Therefore, you may use a laptop or other device to take notes or display an article or lecture notes, but *please turn off all phones, chat, & text before class.* Also, during small group work, keep conversations focused on

the topic we are studying; unrelated chatter can be distracting to the rest of your group. Lack of engagement in the class could negatively affect your attendance and participation grade.

In addition, all students are expected to follow Temple University's Student Code of Conduct, which prohibits "academic dishonesty and impropriety, including, but not limited to, plagiarism and academic cheating." The Code further states that "It is the student's responsibility to:

1. Foster an environment conducive to continued intellectual and educational stimulation within the university free from unlawful harassment by other members of the community; and
2. Foster the maintenance of physical and mental health, the safety and welfare of each member of the community; and
3. Respect the rights of others."

How to do well in this course:

It is certainly true that if you work harder you do better. *Hard work is most definitely a necessary prerequisite to obtaining a good grade.* As a rough guide, most professors assume, when assigning readings and other work to students, that students will devote about 3 hours on average to studying outside of class for every hour spent in class (thus, 9 hours of outside-class work in this course per week). You may be expected to do more to complete a semester research project. Of course the time will vary depending on many factors, including the amount of related courses you have taken in the past. Still, hard work may pay off, because to get an above-average grade, it may be necessary to do more work than your average classmate.

However, hard work alone is not always sufficient for a good grade. The students who do best in my classes – and in most university classes for that matter – are those that not only work hard, but who attend regularly, are well-prepared for class, participate in class, and are proactive. Here is a description of what I mean:

First, *attend all class periods.* On days with interactive activities (most days), much of the learning comes from interacting in small and large groups, so if you are absent on those days, you will miss critical information that would be hard to make up. Also, keep in mind that there are only 7-10 classes per midterm, so if you miss one you will have missed a significant portion of the material for the exam. If you miss several classes during the semester, you are quite simply digging a hole for yourself, from which it is hard to emerge with a good grade. Try to attend all class sessions, and if you do miss a class, you should work extra hard to learn the material you missed.

Second, *prepare.* Complete all the readings prior to the class in which the material will be taught. We have a lot of material to cover; and simply won't have sufficient time to cover it all in class. I will cover key points and assume that you are reading to understand the rest. If you read in advance, then what I present will reinforce and strengthen what you have already learned from the reading. Good preparation will also enable you to participate fully in – and get the most from – in-class activities and discussions. If you have not read in advance, you may find it difficult to keep up.

Third, *participate.* If you don't understand something, ask a question. If you think of an interesting implication of one of the concepts we are covering, then share it with the class. And

join fully in the discussions and other activities. Participation is powerful in helping you to understand the material, and will help you improve learning among your classmates as well.

Finally, *be proactive*. If you find that you don't understand something, are falling behind, or are not satisfied with your performance in the course, then get additional help. I encourage you to contact one of the resources listed below and/or to come see me as soon as possible if you are concerned about your performance and don't know how to improve. Often I can give suggestions about ways to study to help get you back on the right track, as long as you don't wait until the very end – there is little anyone can do to help you out at the very last minute, or after you have already received your final grade! On the other hand, I will most likely be able to help you to understand concepts or with your study skills if you seek help as soon as you perceive a problem.

Additional resources:

Here are a few additional resources on campus that may be helpful:

- Temple University Math and Science Resource Center. This is an academic support center to assist students who are having difficulty in math or science courses, or who are doing well but want help improving their study skills and performance. It is free to Temple University students, and is located at 1810 Liacouras Walk, or by phone at 215-204-8466 or online at <http://www.temple.edu/msrc/> .
- Tuttleman Counseling Services. This is a support center for a variety of educational, vocational, or emotional concerns. This center is free to Temple University students, and is located at 1810 Liacouras Walk, or by phone at 215-204-7276, or online at <http://www.temple.edu/studentaffairs/counseling/> .
- Disability Resources Services. If you think you might need an accommodation in this or another class, then contact DRS at 100 Ritter Annex or 215-204-1280 to coordinate reasonable accommodations. More information is available online at <http://www.temple.edu/disability> .