

## EEB 484 Conservation Biology (Fall 2020)

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University of Tennessee Knoxville/EEB  
Office Hours: W 2-3 pm (OGG)  
TA Office Hours: TR 11:30 am-12:30 pm (HSY)

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Tuesdays, Thursdays: 9:50-11:05 am  
Online, Synchronous (Zoom MID: 92469635066)  
Lecture, Discussion & Packback

**Course description** – Conservation biology has emerged as a discipline in response to unprecedented environmental crisis and species extinction driven by human activities. This course provides an introduction to concepts and principles of conservation biology and to conservation in practice across the world. Course topics include (i) basic concepts of conservation biology, (ii) ecological and evolutionary principles that underlie species diversity and risk of extinction, (iii) examples of species and ecosystem conservation approaches, such as protected areas, restoration and species recovery projects. This course meets synchronously twice/week online via Zoom. The course method involves a combination of reading of primary literature and discussions to identify conservation history, principles, techniques but also the theoretical basis of conservation biology to allow students to learn how to develop testable hypotheses in this field. The course also includes student presentations and discussions on local conservation issues and solutions, invited speakers, hands-on exercises and packback use for further developing questions around course materials.

**Learning outcomes** – At the end of this course, students will be able to

- Describe the basic principles and concepts of conservation biology,
- Explain the ecological and evolutionary theories that underlie species diversity, species persistence, risk of extinction and conservation strategies,
- Discuss the importance of, and threats to, biodiversity at the levels of genes, populations, species, communities and ecosystems,
- Give examples of and explain conservation strategies and efforts being carried out locally, statewide and other systems around the world.

**Textbook and course method** – Sodhi N. & P. Erlich (eds). 2010. Conservation Biology for All. Oxford University Press. Available at: <https://conbio.org/publications/free-textbook/>

Gibbs JP, Hunter MJ, & Sterling EL. 2008. Problem solving in conservation biology and wildlife management. Blackwell Publishing, 2d edition, 328p.

This course will meet T & R on Zoom (<https://tennessee.zoom.us/j/92469635066>). We will read and discuss one chapter of Sodhi & Erlich for each session. Class will start with a short online quiz (on canvas) that covers the main points of the chapter. A classroom discussion about the answers of the quiz will be used to develop the theoretical basis for the topics covered by the chapters and some methodological approaches. Short videos will be used to provide a broader context to the topic, and occasional speakers will provide more grounding based on their research experience. Chapters in Gibbs et al book will be used for hands-on lab activities.

**Classroom communication** – Check the Canvas site (<https://utk.instructure.com/>) for readings, assignments and announcements related to this course. If you have questions that are personal or specific to an individual, please contact the instructor via your UTK e-mail. The instructor will respond to your email within 2 working days.

**Tentative Schedule of Topics** (Reading chapter numbers are from Sodhi & Erlich)

Day	Date	Topic	Reading
R	Aug 20	Introduction	-
T	Aug 25	Conservation biology: past and present	1
R	Aug 27	Biodiversity	2
T	Sep 1	Ecosystem functions and services	3
R	Sep 3	Habitat destruction: death by a thousand cuts	4
T	Sep 8	<i>Student presentation (Group 1)</i>	-
R	Sep 10	<i>Hands-on Lab - Estimating biological diversity</i>	-
T	Sep 15	Habitat fragmentation and landscape change	5
R	Sep 17	Overharvesting	6
T	Sep 22	Invasive species	7
R	Sep 24	Climate change	8
T	Sep 29	<i>Student presentation (Group 2)</i>	-
R	Oct 1	<i>Hands-on Lab - Life table estimation of harvesting rates</i>	-
T	Oct 6	Fire and biodiversity	9
R	Oct 8	Extinction and the practice of preventing them	10
T	Oct 13	Conservation planning and priorities	11
R	Oct 15	<i>Student presentation (Group 3)</i>	-
T	Oct 20	<i>Hands-on Lab - Studying declining populations</i>	-
R	Oct 22	Endangered species management	12
T	Oct 27	Conservation in human-modified landscape	13
R	Oct 29	The role of people in conservation	14
T	Nov 3	<i>Student presentation (Group 4)</i>	-
R	Nov 5	<i>Hands-on Lab - Testing Island Biogeography Theory</i>	-
T	Nov 10	From conservation theory to practice	15
R	Nov 12	The conservation biologist's toolbox	16
T	Nov 17	General Synthesis and Discussion	-
R	Dec 3	<b>Final exam</b>	-

**Assessment**

(i) Daily Quizzes (15%) At the start of each class, students will be given a short quiz consisting of short answers and multiple choice questions related to the assigned readings. The quiz question will often cover all parts of the chapters from initial pages to the end. To do well for the quiz, think about the important concepts, theories, arguments and examples the chapter covers. In addition, as for any scientific paper, understanding all the figures in a chapter gives you a decent window into the important aspect of the topic. The quiz will be used as a starting point for more in-depth discussion on the topic of the week.

(ii) Oral Presentation (10%) Each student will give one 10 min PowerPoint presentation on two recent TN based scientific papers that relate to the topic of the week. Selected papers must be approved by the instructor one week in advance. Each presentation will be graded for the quality of the visualization (30/100: quality of the pictures, tables, figures, aesthetics of the slides) and the content of the talk (50/100: a) theoretical basis of the question clearly communicated, b) the central hypotheses, c) a review of the papers' findings and how they relate to the chapter discussed that week, d) a short discussion of strengths (contribution) and limitations of the papers, and e) two

questions for class discussion) and the presentation skill of the student (20/100).

(iii) Summary (20%) After each class, students will write a 1-page (double-spaced) summary (due the following class day) on the chapter we discussed. Be concise but complete. Use your answers to the 4-5 quiz questions as the backbone of your summary but not necessarily in the order it was given. You can reorganize the order of these answers to suit your writing style but make sure you have good transition sentences to tie it together. Basically, including these 5 answers take your summary would guarantee 85-90% of your grade. You earn the additional 10-15% based on the quality of your transition sentences and also how well written the summary is. Do NOT plagiarize! At the end of the semester, each student will combine their revised summaries into a single 17-pages document with a short global introduction and a global synthesis. Four of our class sessions will be hands-on lab exercises. Students will submit a guided report that will not be part of the 17-pages synthesis.

(iv) Class Participation (10%) This will be a student-led course where active participation is needed. **To get full point each student needs to ask or answer at least one question each session to further our discussion.**

(v) Packback Online Q & A (15%) We will use packback for online discussion about the chapters of the book. Each student is required to **ask one question and answer to 2 questions with a minimal of 35 curiosity score** online on packback each week to get full grades. Students will receive an email invitation and a short tutorial on how to ask great questions. You will need our class lookup key on Packback (<https://questions.packback.co>) is: ca42082e-80f1-47a8-a503-c8159a21404e.

(vi) Final Exam (30%) For the final exam, each pair of students will choose one research topic but each student will write an independent paper on the topic. Students can share material but I will be very sensitive to cases of *plagiarism* to make sure that each student follows ethical guidelines and does his/her work independently. Each student will turn in a 10 pages double spaced paper on the topic of choice. This paper must include at least 10 peer-reviewed references. Papers will be graded on their originality, clarity, completeness and the quality of scientific argument. Each paper must include a section on the *problem statement* (Problem statement: What is the problem and how global it is?) and on the *theoretical background* in addition to other sections that the student see appropriate. *Theoretical background*: What are the ecological and evolutionary principles and theories that can be used to investigate the problem? What are the key hypotheses?

**Grades and Late assignment policy** – Assignments submitted after the due date will lose 15% of points for everyday (24h) with which it is late. An assignment that is 1h late counts as a day late.

Final letter grades will follow: A = 93-100%; 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 = <60%.

**Academic integrity** – Academic dishonesty of any sort will not be tolerated. Plagiarism includes the copying of phrases, portions of sentences or the main ideas from ANYONE (including a classmate) on ANY work submitted for a grade (exams, assignments, quizzes, etc). Academic dishonesty also includes assisting other students on quizzes or exams. You are expected to abide by The University of Tennessee honor statement in Biology and in all of your university activities as pledged in the honor code: "*An essential feature of the University of Tennessee, Knoxville, is a commitment to maintaining an atmosphere of intellectual integrity and academic honesty. As a student of the University, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity.*" (Undergraduate Catalog). Depending on the offence, penalties for academic dishonesty range from a minimum of a zero for

the assignment, to an F for the course, to the filing of formal academic dishonesty charges seeking dismissal from The University of Tennessee. These choices are at the discretion of the instructor, and can occur in either the lecture or the lab portion of the class. You should be familiar with the requisites of academic honesty and what constitutes academic dishonesty as outlined in the UT Undergraduate Catalog (<http://catalog.utk.edu/>).

**Disability Services** – *Any student who feels s/he may need an accommodation based on the impact of a disability should contact Student Disability Services in Dunford Hall, at 865-974-6087, or by video relay at, 865-622-6566, to coordinate reasonable academic accommodations.*