

## **NRM 2303 – Principles of Conservation Biology Course Syllabus - Spring 2023**

### **Instructor**

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Office Hours: Mon | 2:00-3:30 | RAS 113 (and virtual)  
Wed, Fri | 2:00-4:00 | RAS 113 (and virtual)  
Tue, Thu | 9:30-11:30 & 2:00-4:00 | FH 204 (and virtual)  
Alternate arrangements can always be made via e-mail or text. I also have "Open Door Office Hours".  
Feel free to come in anytime you see me in my office.

### **Course Description**

Introductory course on the fundamental issues in the discipline of conservation biology including conservation genetics, habitat fragmentation, natural resources sustainability, and island biogeography.

### **Enhanced Course Description\***

Biological diversity throughout the world is being threatened by human activity: species are being driven to the edge of extinction; biological communities are being degraded, fragmented, and destroyed; and the genetic variation within species is being lost as populations are reduced in size and lost. Conservation biology is a multidisciplinary science that has developed in response to this biodiversity crisis. Conservation biology has three goals: (1) to investigate and describe the diversity of the living world; (2) to understand the effects of human activities on species, communities, and ecosystems; and (3) to develop practical interdisciplinary approaches to protecting and restoring biological diversity.

Conservation biology arose because none of the applied disciplines, such as forestry, fisheries and wildlife management, zoo and park management, and agriculture, were comprehensive enough individually to address the critical threats to biological diversity. In general, these applied disciplines have developed methods for managing a small range of species for the marketplace and recreation. Conservation biology complements these applied disciplines by providing a broader approach and by having the long-term preservation of biological diversity as its primary goal, with economic factors often secondary. The academic disciplines of population biology, ecology, taxonomy, landscape ecology, and genetics constitute the core of conservation biology, with increasing inputs from economics, law, philosophy, anthropology, and other related fields.

Since the 1980s, conservation biology has become one of the most vibrant subject areas within biology. Enormous interest has led to whole new fields of knowledge being developed. However, conservation biologists are not simply content with developing new knowledge. The field of conservation biology will only be judged a success if this knowledge is used in a practical way to protect and restore the world's fragile biological diversity.

\*From <http://www.biologyreference.com/Ce-Co/Conservation.html> by Richard B. Primack

## Objectives and Outline

### **Student Learning Objectives for the B.S. in Natural Resource Management**

The graduating student will demonstrate that he/she is able to:

1. Identify species of wildland plants and wildlife common to the western United States and describe their natural history.
2. Demonstrate knowledge of the elements of an ecosystem.
3. Communicate about natural resources and conservation both verbally and in writing.

### **Marketable Skills for the B.S. in Natural Resource Management**

Students will acquire these marketable skills:

1. Students will demonstrate public speaking skills.
2. Students will demonstrate writing skills.
3. Students will be able to apply course knowledge through a research project.
4. Personal Responsibility. Students will develop principles of personal responsibility for living in a diverse world; to include intercultural competency, knowledge of civic responsibility, and the ability to engage effectively in regional, national and global communities.
5. Social Responsibility. Students will develop principles of social responsibility for living in a diverse world, to include the ability to connect choices, actions, and consequences to ethical decision-making.

### **Course Objectives**

This course addresses the Student Learning Objectives and Marketable Skills highlighted above. More specifically, this course will introduce students to the general concepts of conservation biology. Upon course completion, students will understand:

- The discipline of conservation biology including its past, present, and future challenges.
- The meaning and importance of biodiversity including species diversity, ecosystem diversity, and genetic diversity.
- The threats to biodiversity including mass extinctions and global change, habitat fragmentation and loss, overexploitation, and invasive exotics.
- Methods of maintaining biodiversity through management and protection of individuals, populations, and ecosystems.
- The societal, economic, and political factors influencing conservation.

### **Course Outline**

1. Major Issues that Define Conservation Biology
  - a. What is Conservation Biology?
  - b. What is Biodiversity?
  - c. Where is the World's Biodiversity Found?
2. Threats to Biodiversity
  - a. Extinction
  - b. Habitat Destruction, Fragmentation, Degradation
  - c. Global Climate Change
  - d. Overexploitation, Invasive Species, Disease
3. Conservation at the Population and Species Levels
  - a. Applied Population Biology
  - b. Problems Specific to Small Populations
4. Practical Applications
  - a. Establishing Protected Areas
  - b. Managing Protected Areas
  - c. Conservation Outside Protected Areas
  - d. Agenda for the Future of Conservation Biology
  - e. Other topics as time allows

## Logistics / Materials / Grading Information / Course Policies

### Class Meeting Time/Place

Time: Monday, Wednesday, Friday 1:00 pm - 1:50 pm

Place: RAS 129

### Text and Supplies

1. *Essentials of Conservation Biology* by Richard Primack (6th Edition, Sinauer and Associates). (**Required**) (ISBN 978-1605352893)

### Course Grade

In-Class Quizzes & Participation	20%
Conservation Research Project & Presentation	30%
Fieldwork and Report	10%
Midterm Exam	20%
Final Exam	20%

### *Overall Grade Assignment*

<60 = F, 60-69 = D, 70-79 = C, 80-89 = B, 90-100 = A.

### Late Work and Extensions Policy

All graded work is expected to be on-time. **No due dates for ANY graded work will be extended without PRIOR e-mail arrangements** initiated by the student, and only for valid reasons. **Before an accommodation (e.g. extended due date) can be granted for a COVID-related reason, students are required to first submit the SR COVID-19 Self Report form found at <https://srinfo.sulross.edu/covid-19/self-report/>.** Late work may be accepted at the instructor's discretion, with a **10% penalty per day late** (i.e. 10% for 0-24 hours late, 20% for 24-48 hours late, etc.) Late assignments are not accepted after 7 days.

### In-Class Quizzes & Participation Grade (20%)

You are required to read sections from the book at home prior to most classes. Most lectures will include in-class assignments, discussions, or quizzes. Attendance is crucial for the successful completion of this course and is ultimately the responsibility of the student. In class activities cannot be made up unless your absence from class is excused (bring a note from your doctor, coach, club advisor, etc. explaining your absence).

### Conservation Research Project / Presentation Grade (30%)

Throughout the semester, you will work within a small group to complete a conservation research project on an endangered species of your choice. The project is broken down into three parts, due periodically during the semester, that relate to the information we covered most recently in class. Each part will build on the previous ones and together they will be combined into a research paper due at the end of the semester. You will also present your findings to the rest of the class at the end of the semester. Guidelines for each part of the project and for the final presentation will be supplied during the semester.

### Fieldwork and Report Grade (10%)

There will be at least two days that we will spend doing fieldwork. The days that we do fieldwork there will be no class at the regularly scheduled time/place – instead that time will be spent outside. To allow sufficient time for fieldwork, you may be required to attend outside regularly scheduled class hours. You will be required to write a research report with introduction, methods, results, and discussion. More details will be given in class.

### Midterm (20%) and Final (20%) Exams

Two in-class examinations will be given during the semester. Exams will consist of a variety of questions, including multiple-choice, fill-in-the-blank, short-answer, and essay. No make-up exams will be given for an unexcused absence. You must notify me of an excused absence from an exam PRIOR to the start day and time of the exam you will miss; i.e. arrangements for make-up exams must be made BEFORE the exam is given.

## Participation

- I expect a high level of engagement to enhance everyone's learning. This includes interacting with the instructor and other students, asking questions during class, posting in the Blackboard discussion forums, attending office hours (in-person and/or online), completing outside of class assignments and readings, and being prepared to participate in class discussions.
- Online participation: Any time you attend class online (via Blackboard Collaborate Ultra), you are required to be properly dressed, avoid video distractions, and keep your microphone muted except to ask questions or request clarification. **Anyone causing distractions may be muted, have their video shut off, and/or removed from the session without warning, at the instructor's discretion.**

## Academic Integrity

Students in this class are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. A scholar is expected to be punctual, prepared, and focused; meaningful and pertinent participation is appreciated. Examples of academic dishonesty include but are not limited to: Turning in work as original that was used in whole or part for another course and/or professor; turning in another person's work as one's own; copying from professional works or internet sites without citation; collaborating on a course assignment, examination, or quiz when collaboration is forbidden. In addition, please note that plagiarism detection software will be used in this class for written assignments, as well as monitoring software for any online exams. **Any student shown to violate academic integrity will receive no credit (0) for work done and/or may be penalized in accordance with published University Rules.**

On all work submitted for credit by students at the university, the following pledge is either required or implied: **"On my honor, I have neither given nor received unauthorized aid in doing this assignment."**

## Classroom Climate of Respect

Importantly, this class will foster free expression, critical investigation, and the open discussion of ideas. This means that all of us must help create and sustain an atmosphere of tolerance, civility, and respect for the viewpoints of others. Similarly, we must all learn how to probe, oppose and disagree without resorting to tactics of intimidation, harassment, or personal attack. No one is entitled to harass, belittle, or discriminate against another on the basis of race, religion, ethnicity, age, gender, national origin, or sexual preference. Still we will not be silenced by the difficulty of fruitfully discussing politically sensitive issues.

## Communication

You are required to check your ***Sul Ross e-mail and Blackboard announcements several times per week***. I do not use the personal or preferred e-mail addresses that you may have on record with the University.

## Attendance

- Students are expected to make every effort to attend class live (as it happens) either online OR in person (when available and if comfortable doing so). All lectures will be recorded and posted in Blackboard. If live class must be missed, the student is expected to watch the recorded lecture as soon as practical.
- Roll will be taken every lecture for the face-to-face students, attendance will be automatically recorded for those joining live lecture online, and viewing of recorded lectures will also be automatically recorded by Blackboard.
- It is policy of this class to **drop a student with a grade of ``F" if 9 hours or more of class are missed**. Any time class is missed, for any reason, it will be recorded as an absence. Any time class is missed, for any reason, it will be recorded as an absence, unless an absence can be shown to be due to a college-related event.
- Students are expected to arrive to class on time. If a student is perpetually late, they will be asked to not attend class unless they can arrive on time. If tardiness becomes a problem for the class as a whole, people who arrive late will not be permitted to enter the class. If this stricter policy becomes necessary, there will be an announcement made in class.

### **Electronics in the Classroom**

The use of personal laptops, cell phones, iPads, and other electronic devices can create distractions for learning, both for yourself and others. However, such devices can also be great tools to aid learning. Therefore, using electronic devices for class purposes (e.g. taking notes, working out problems, searching the internet) is allowed in silent mode. If you choose to use electronic devices in class, do so in a professional manner that does not impede others' learning. **The use of internet-capable devices (e.g. smartphones) is not allowed for exams. Headphones/earbuds will not be allowed in class for any reason.**

### **General Expectations**

We will cover a lot of material in this course. To maximize learning in this course, we should have some expectations of each other:

I expect from you:

- ATTEND lecture; be on time as a courtesy to others.
- ASK whenever something is unclear. It is likely that others have the same question.
- PARTICIPATE in lecture.
- READ the required sections from the text. If you come to me with a question and it is clear that you haven't read the book or the lecture notes, I will direct you to the reading first.
- BE HONEST in all your work.

What you can expect from me:

- GIVE 100% effort in teaching you the best I can.
- Make myself AVAILABLE to help outside of class.
- ANSWER all questions to the best of my knowledge, and if I don't know the answer I will find out.
- Be FAIR in all grading.
- Provide you with timely, constructive FEEDBACK regarding your work.

## Resources and Assistance

### **SRSU Online Bookstore**

The Sul Ross State University Online Bookstore, powered by TextbookX, operates completely online and can be visited at <http://sulross.textbookx.com>. Created in partnership with Akademos, Inc., and powered by TextbookX, SRSU's Online Bookstore simplifies the textbook process for students while providing them with a variety of course materials, and physical and digital textbook formats. Students log into the bookstore using their LoboID login, select their materials, checkout, and their materials will be delivered to them via email or shipped via USPS, FedEx, or UPS. Information about the on-campus bookstore can be found at <https://www.sulrossbookstore.com/home>.

### **SRSU Library Services**

The Bryan Wildenthal Memorial Library in Alpine. Offers FREE resources and services to the entire SRSU community. Access and borrow books, articles, and more by visiting the library's website, [library.sulross.edu](http://library.sulross.edu). Off-campus access requires logging in with your LoboID and password. Librarians are a tremendous resource for your coursework and can be reached in person, by email ([srsulibrary@sulross.edu](mailto:srsulibrary@sulross.edu)), or phone (432-837-8123).

### **Tutoring**

SRSU tutoring will be available shortly after the semester starts. Contact Anita Banegas (432-837-8992, [abanegas@sulross.edu](mailto:abanegas@sulross.edu)) or Mabel Garcia 432-837-8629, [mag15bf@sulross.edu](mailto:mag15bf@sulross.edu)) to get information or to request an appointment.

### **Blackboard's Support Desk**

If you have any technical issues with Blackboard itself, e.g. if you are having issues submitting a document, getting videos to play, or you are dealing with a technical error in the course, then the Blackboard Support Desk is ready to help you. The support desk is open 24 hours a day, 7 days a week. You can reach the support desk by calling **888-837-6055**, emailing [blackboardsupport@sulross.edu](mailto:blackboardsupport@sulross.edu), using resources from the Technology Support tab within Blackboard, or clicking the Support Desk graphic on the course homepage. As always, academic questions about course assignments, due dates, and general course questions should be directed to your instructor.

### **SRSU Disability Services**

Sul Ross State University (SRSU) is committed to equal access in compliance with Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. Alpine students seeking accessibility/accommodations services must contact Mary Schwartz Grisham, M.Ed., LPC, SRSU's Accessibility Services Coordinator at 432-837-8203, or email [mschwartz@sulross.edu](mailto:mschwartz@sulross.edu). The office is located on the first floor of Ferguson Hall - room 112, and the mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas, 79832.

### **Learning Environment and Life**

I aim to create a learning environment for my students that supports a diversity of thoughts, perspectives and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, socioeconomic class, age, nationality, etc.). I also understand that the crisis of COVID, economic disparity, and health concerns, or even unexpected life events could impact the conditions necessary for you to succeed. My commitment is to be there for you and help you meet the learning objectives of this course. I do this to demonstrate my commitment to you and to the mission of Sul Ross State University to create an inclusive environment and care for the whole student as part of the Sul Ross Familia. **If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me.** I want to be a resource for you.

## Tentative Course Schedule (Subject to Change)

Week	Date	Lecture Topic	Reading Due Before Class	Pages #	Other Due	In-Class Activity
1	1/18	Course Overview & Syllabus	N/A	0		
1	1/20	What is Conservation Biology? The New Science of Conservation Biology	Chapter 1 pp 3-10	8	Start Here + Intro Module	
2	1/23	What is Conservation Biology? The Origins of Conservation Biology	Chapter 1 pp 10-18	9	Syl. & Integ. Quizzes	
2	1/25	What is Conservation Biology? Origins (concluded); A New Science is Born	Chapter 1 pp 18-21	4		
2	1/27	What is Biodiversity? Species Diversity	Chapter 2 pp 23-34	12		
3	1/30	What is Biodiversity? Species Diversity (concluded); Genetic Diversity	Chapter 2 pp 34-36	3	Ch 1 Quiz	
3	2/1	What is Biodiversity? Ecosystem Diversity	Chapter 2 pp 36-50	15		Ch2 Quiz
3	2/3	Semester Research Project Overview: Where is the World's Biodiversity? Diverse Ecosystems & Patterns of Diversity	Chapter 3 pp 53-58	6		
4	2/6	Where is the World's Biodiversity? Why so Many in the Tropics? How Many Species Exist Worldwide?	Chapter 3 pp 58-62, 66-67, 70	5		Ch3 Quiz
4	2/8	Communication: Scientific Writing Essentials	Catch-up on reading	-		
4	2/10	Extinction: Past/Mass Extinctions, Current Human-Caused Extinction, Background Extinction Rates	Chapter 7 pp 135-146	12		
5	2/13	Extinction: Island Extinctions; Island Biogeography Model, Local Extinctions	Chapter 7 pp 146-154	9	Project Groups Formed	
5	2/15	Vulnerability to Extinction: Rare & Endemic Spp, Cat's of Vulnerability. IUCN, US, & TX Cons. Cat's, Debate OV	Chapter 8 pp 157-173	17		
5	2/17	Communication: Debate	Catch-up on reading	-		Debate
6	2/20	Habitat: Human Population Growth/Impact	Chapter 9 pp 175-189	15		Ch7&8 Quiz
6	2/22	Habitat: Habitat Destruction; Fragmentation	Chapter 9 pp 189-197	9		
6	2/24	Habitat: Degradation and Pollution	Chapter 9 pp 197-205	9		
7	2/27	Habitat: Global Climate Change	Chapter 9 pp 205-214	10	Project Report Part I	
7	3/1	Other Threats: Overexploitation	Chapter 10 pp 217-227	11		Ch9 Quiz
7	3/3	Other Threats: Invasive Species	Chapter 10 pp 227-238	12		
8	3/6	Other Threats: Disease; Applied Population Biology: Methods for Studying Populations	Chapter 10 pp 238-243	6		
8	3/8	Communication: Presentation Design	Catch-up on reading	-		
8	3/10	<b>MIDTERM EXAM</b>	Catch-up on reading	-	Study for Midterm	EXAM
9	3/13	SPRING BREAK	N/A	-		
9	3/15	SPRING BREAK	N/A	-		
9	3/17	SPRING BREAK	N/A	-		
10	3/20	Applied Population Biology: Population Viability Analysis	Chapter 12 pp 275-285	11		Midterm Exam Results
10	3/22	Applied Population Biology: Population Viability Analysis; Metapopulations	Chapter 12 pp 285-292, 295	9		Population Estimation
10	3/24	CMR Lincoln-Petersen	Catch-up on reading	-		Ch12 Quiz
11	3/27	Problems of Small Populations: Concepts	Chapter 11 pp 249-266	18	Project Report Parts I-II	
11	3/29	Problems of Small Populations: Other Factors & Extinction Vortices	Chapter 11 pp 266-271	6		Field Work Day 1
11	3/31	--- Field Work Day 1 ---	Catch-up on reading	-		Ch11 Quiz
12	4/3	Establishing New Populations	Chapter 13 pp 297-311	14		
12	4/5	Ex-Situ Conservation Strategies	Chapter 14 pp 315-317, 326-329, 339	7		
12	4/7	HOLIDAY: GOOD FRIDAY	N/A	-		
13	4/10	--- Field Work Day 2 ---	Catch-up on reading	-		Field Work Day 2
13	4/12	Establishing Protected Areas: Types and Classification & Existing Protected Areas	Chapter 15 pp 343-350	8		Ch13&14 Quiz
13	4/14	Establishing Protected Areas: Creating New Protected Areas & Selecting Areas	Chapter 15 pp 350-362, 366 summary	12		
14	4/17	Designing Networks of Protected Areas	Chapter 16 369-377, 387-388	10	Final Field Reports	Ch15&16 Quiz
14	4/19	Conservation Outside Protected Areas: Value of Unprotected Habitat & Conservation in Urban & Agricultural Areas	Chapter 18 pp 419-428	10		
14	4/21	Conservation Outside Protected Areas: Multiple Use Habitat & Ecosystem Management & Case Studies	Chapter 18 pp 428-439	12		
15	4/24	Communication: Public Speaking Essentials	Ch. 19 pp 441-460	20	Final Project Reports	Project Presentations
15	4/26	Restoration Ecology: An Agenda for the Future	Ch. 22 pp 523-536	14		Project Presentations
15	4/28	Communication: Project Presentations (3)	Catch-up on reading	-	Final Project Powerpoints	Project Presentations
16	5/1	Communication: Project Presentations (3)	Catch-up on reading	-		Project Presentations
16	5/3	Communication: Project Presentations (3)	Catch-up on reading	-		Project Presentations
16	5/5	<b>FINAL EXAM, 12:30-2:30</b>	Study for Final Exam	-	Study for Midterm	EXAM