

BIOL 4403 - Herpetology Fall 2022 Lecture Syllabus

INSTRUCTOR AND COURSE DESCRIPTION

Instructor: Dr. Thornton R. Larson

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Lectures: MW 6PM-715 WSB 107

Laboratory: M 3-450 (Alpine campus only)

Course Description

If you are reading this, then it's true, you are about to learn in-depth about amphibians and reptiles from me, Dr. Thornton Larson (though I respond better to Thor). Amphibians and reptiles encompass two large classes of animals found worldwide! In fact, over 100 new amphibian and reptile species are still described each year. This is my first time officially teaching a herpetology course. However, I have been training for this moment my whole life. I look forward to introducing you to a crazy world where I have spent my entire professional career. I find that, beyond the content of the course, that your questions, comments, and discoveries help make the course more engaging for both myself and everyone else in the course. Within Herpetology, we will cover the basics of morphology and physiology of amphibians and reptiles and dive into the specific families within Reptilia and Amphibia. So let us get your feet wet as we hop into the frog pond. Following the taxonomy from amphibians to reptiles, we will explore the ecology, natural history, physiology, evolution, and systematics, emphasizing species found here in the Trans Pecos/Chihuahuan Desert region of Texas. Herpetology presents an exciting field compared to many other animal -ologies. We focus on two distinct classes of animals, whereas others focus on just one class. Reasons for this are as interesting as the rocks we flip. However, I hope to foster discussion about why Anura-ology is not one thing and Reptile-ology another.

This course is designed to provide a detailed overview of the ecology, natural history, physiology, evolution, and systematics of all families within amphibians and reptiles. Research regarding life history, systematics, and evolution will be explored. We will also discuss some of the past and present giants of herpetology and how their various contributions led to today's research. Natural history continues to be an often-overlooked area within the modern herpetological studies arena. I won't lie, there are a lot of families, and therefore there will be quite a bit to commit to memory. This commitment pays dividends as you will be rewarded with an uncanny ability to distinguish groups of amphibians and reptiles you encounter in the field, impressing friends and neighbors. It is also my great hope that you take away an appreciation of these beautiful animals that often suffer from some of the worst PR imaginable.

This course will require 16 weeks of work. It consists of approximately 15 distinct units. The time commitment is expected to be around 8 hours per week. Each unit is associated with readings from the textbook, a few online videos, and some exercises to rehearse the knowledge taken in. This course strongly follows the textbook and is ordered by current taxonomic understanding. By approaching the material in this way, each unit from week to week will contain many similarities, building on your learned knowledge.

Required Materials

Vitt, LJ, and JP Caldwell. 2014. *Herpetology*. Fourth Edition.

Optional Materials

Petersons Guide to Amphibians and Reptiles

Exams and Grading

3 lecture exams (100 pts ea) 300

5 Lecture Assignments (10 pts each) 50

2 Lab Practicals (100 pts ea) 200

Lab Presentation (50 pts) 50

Reptile Field Identification (50 pts) 50

Total Credit 650 points (350 for lecture)

A 90 – 100% B 80 – 89% C 70 – 79% D 60 – 69% F <60%

COURSE OBJECTIVES, LEARNING OUTCOMES, MARKETABLE SKILLS, POLICIES, AND UNIVERSITY SERVICES

Course Objectives: At the end of the semester, students will:

1. Sight-recognize the Reptiles and Amphibians of Texas and know the habitat and range for which they would be encountered.
2. Know the families of North American Herpetofauna.
3. Know the orders of Amphibians and Reptiles.
4. Be able to use morphological features to identify and classify living and preserved Amphibians and Reptiles.
5. Understand and compare different reproductive strategies of Amphibians and Reptiles.
6. Use a standard field guide to identify Amphibians and Reptiles.
7. Utilize databases to find primary literature to learn more about a Amphibian or Reptilian family.
8. Keep journal records of field sightings and behaviors of Amphibians and Reptiles.

Student Learning Outcomes (SLOs) for Biology:

1. Demonstrate an understanding of evolution by natural selection.
2. Demonstrate an integration of environmental awareness into everyday modern life.
3. Understanding how to incorporate molecular biology into the study of the whole organism.
4. Demonstrate utilization of various field techniques toward addressing scientific questions in the discipline.
5. Conduct basic laboratory experiments utilizing standard observational strategies.

Marketable Skills

1. Ability to organize, analyze, and interpret data.
2. Proficiency in using presentation software.
3. Experience in managing time and meeting deadlines.
4. Ability to speak effectively and write concisely about scientific topics.
5. Experience in the development of professional email correspondence.

Attendance:

Mandatory. No roll will be called, but this course is sized to where I will recognize when someone is not present. I am allowed to drop you from my class if you miss more than six times (that accounts for 2 full weeks of lecture). I do not wish to hear excuses for missing class, and do not want to hear about it every time you are gone. Absences are excused only if you have a documented, university approved excuse (hospitalization, funeral, etc.) DO NOT MISS EXAMS unless you have a documented, university-approved excuse. If you do not inform me of your approved absence before the exam it will be a ZERO. For labs, DO NOT MISS LAB PRACTICALS!!! It is impossible to re-run them as they are setup with many lab components that take up space that is not guaranteed.

SRSU Library Services

The Sul Ross Library 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. Off-campus access requires your LoboID and password. Check out materials using your photo ID. Librarians are a tremendous resource for your coursework and can be reached in person, by email (srsulibrary@sulross.edu), or phone (432-837-8123).

SRSU Disability Services:

ADA (Americans with Disabilities Act) 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. Students seeking accessibility/accommodations services must contact Rebecca Greathouse Wren, LPC-S, SRSU's Accessibility Services Coordinator at 432-837-8203 (please leave a message and we'll get back to you as soon as we can during working hours), or email rebecca.wren@sulross.edu. Our office is located on the first floor of Ferguson Hall (Suite 112), and our mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas, 79832

ACADEMIC HONESTY:

The University expects all students to engage in all academic pursuits in a manner that is beyond reproach and to maintain complete honesty and integrity in the academic experiences both in and out of their classroom. The University may initiate disciplinary proceeding against a student accused of any form of academic dishonesty, including but not limited to, cheating on an examination or other academic work, plagiarism, collusion, and the abuse of resource materials. "Cheating" includes 1. Copying from another student's test paper, laboratory report, other report, or computer files, data, listings, and/or programs, or allowing another student to copy from same. 2. Using, during a test, materials not authorized by the person giving the test. 3. Collaborating, without authorization, using, buying, selling, stealing, transporting, soliciting, copying, or possessing, in whole or in part, the contents of a non-administered test. 5. Substituting for another student; permitting any other person, or otherwise assisting any other person to substitute for oneself or for another student in the taking of an examination or test or the preparation of academic work to be submitted for academic credit. 6. Bribing another person to obtain a non-administered test or information about a non-administered test. 7. Purchasing, or otherwise acquiring and submitting as one's own work any research paper or other writing assignment prepared by an individual or firm. This section does not apply to the typing of a rough and/or final version of an assignment by a professional typist. 8. "Plagiarism" means the appropriation and the unacknowledged incorporation of another's work or idea in one's own written work offered for credit. 9. "Collusion" means the unauthorized collaboration with another person in preparing written work offered for credit. 10. "Abuse of resource materials" means the mutilation, destruction, concealment, theft or alteration of materials provided to assist students in the mastery of course materials. 11. "Academic work" means the preparation of an essay dissertation, thesis, report, problem, assignment, or other project that the student submits as a

course requirement or for a grade. 12. "Falsification of Data" means the representation, claim, or use of research, data, statistics, records, files, results, or information that is falsified, fabricated, fraudulently altered, or otherwise misappropriated or misrepresented. All academic dishonesty cases may be first considered and reviewed by the faculty member. If the faculty member believes that an academic penalty is necessary, he/she may assign a penalty but must notify the student of his/her right to appeal to the department chair, the dean and eventually, to the Provost and Vice President for Academic and Student Affairs before imposition of the penalty. At each step in the process, the student shall be entitled to written notice of the offence and/or of the administrative decision, an opportunity to respond, and an impartial disposition as to the merits of his/her case. The decision of the Provost and Vice President for Academic and Student Affairs shall be final.

I will reiterate here, I take academic dishonesty and plagiarism very seriously. Citations are your friend.

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.

Diversity Statement

"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."

For Remote/Online Courses Only - SRSU Distance Education Statement.

Students enrolled in distance education courses have equal access to the university's academic support services, such as library resources, online databases, and instructional technology support. For more information about accessing these resources, visit the SRSU website. Students should correspond using Sul Ross email accounts and submit online assignments through Blackboard, which requires secure login. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies pertaining to academic honesty and appropriate student conduct, as described in the student handbook. Students in web-based courses must maintain appropriate equipment and software, according to the needs and requirements of the course, as outlined on the SRSU website. Directions for filing a student complaint are located in the student handbook.

TENTATIVE SCHEDULE

Date	Lecture	Assignments Due	Recommended	Lab Topic
22-Aug 24-Aug	What is herpetology	Chapter 1 Chapter 13	Watch: After reading Herpetology chapter 1, view a 14-minute video "Tetrapod Evolution"	
29-Aug 31-Aug	Amphibian Evolution, Anatomy, and Reproductive behavior Evolution of modern amphibians	Chapter 2,4, & 5 Amphibian parts only Chapter 3 (pp.83-95)		Intro to Field Guides, iNaturalist, and other ways of Identification
5-Sep	Labor day No class or Lab			
7-Sep	Caecilians	Chapter 15	Watch: after reading Herpetology chapter 15, watch 4-minute video, "Caecilian facts"	
12-Sep	Salamanders	Chapter 16 Watch: After reading the chapters in Herpetology watch 6-minute video "How to Create a Cladogram" Due 19-Sep before lecture class begins: Cladogram based on a group of amphibians	Watch: After reading Herpetology chapter 16 5-minute video, "Animal Week – Salamanders"	Identifying frogs with Frog calls

<p>14-Sep</p>	<p>Basal Frogs</p>	<p>Chapter 17 (pp.471-499) Due 21-sep Choose Amphibian paper to review from herpetological journal</p>	<p>Watch: After reading the chapters in Herpetology watch 12-minute video "Frog Dissection"</p>	
<p>19-Sep 21-Sep</p>	<p>Neobatrachia</p>	<p>Chapter 17 (pp.499-518)</p> <p style="text-align: center;">Exam 1</p>	<p>Watch: to help sift through scientific papers watch 8-minute video "How to Read a Paper Efficiently"</p>	<p>Common trapping methods and studies, Frog dissection</p> <p>Trip to Elephant Mountain 24-Sept</p>
<p>26-Sep</p>	<p>Reptilia</p>	<p>Chapter 2,4, & 5 Reptile parts only Due 3-Oct write review of chosen scientific paper</p>	<p>Watch: to help you summarize the scientific paper 5-minute video "Tips for summarizing a journal article"</p> <p>Watch: after reading Herpetology chapter 3 "The age of Reptiles in Three Acts"</p>	<p>Frog Taxonomy</p>
<p>28-Sep</p>	<p>Reptilia Evolution</p>	<p>Chapter 3 (pp.95-112)</p>	<p>Watch: After reading Chapter 18 "The Evolution of Turtles"</p>	<p>Frog Taxonomy</p>
<p>3-Oct</p>	<p>Turtles</p>	<p>Chapter 18</p>		

5-Oct	Crocodylians and Sphenodontids Chapter 19 and 20	Watch: 8-minute video "What on Earth is a Tuatara"	Trip to Elephant Mountain 8-Oct
10-Oct	Squamates I - Lizards Chapter 21	Watch 16-minute video "Evolution of Crocodiles"	
12-Oct	Squamates I - Lizards Chapter 22 Due 17-Oct Choose Reptile paper to review from herpetological journal	Watch 6-minute video "The Lizard's Tale 101: Meet the Anoles"	
17-Oct	Squamates II - Snakes Chapter 21	Watch 9-minute video "The Evolution of Snakes"	Lizard Taxonomy
19-Oct	Squamates II - Snakes Chapter 22 Due 24-Oct write the review of chosen scientific paper		
24-Oct	Review		Anole Dissection
26-Oct	Exam 2		

<p>31-Oct</p>	<p>Physiological Ecology I - Water Balance and Gass Exchange</p>	<p>Chapter 6</p> <p>Due 2-Nov Choose Ecology or Conservation Herp paper to review from herpetological journal</p>	<p>Watch 11-minute video "Anole Lizard Dissection"</p> <p>Watch 44-minute video "Aligator Dissection Highlights"</p> <p>Watch 3-minute video "Turtles Under Ice!"</p>	<p>Snake/Lizard Taxonomy</p>
<p>2-Nov</p>	<p>Physiological Ecology II - Thermoregulation, Performance, and Energetics</p>	<p>Chapter 7</p>		
<p>7-Nov</p>	<p>Behavior - Spacing, Movements and Orientation</p>	<p>Chapter 8</p> <p>Due 14-Nov write the review of chosen scientific paper</p>	<p>Watch 7-minute video "How Snakes Move!"</p>	<p>Snakes Taxonomy</p>
<p>9-Nov</p>	<p>Behavior - Communication and Social Behavior</p>	<p>Chapter 9</p>	<p>Watch 12-minute video "Amphibian Behavior and Diversity"</p>	
<p>14-Nov</p>	<p>Behavior - Foraging Ecology and Diets</p>	<p>Chapter 10</p>	<p>Watch 14-minute video "Snakes! Behavior, Feeding and Diversity"</p>	<p>Herpetofauna Family Presentations</p>
<p>16-Nov</p>	<p>Behavior - Defense and escape</p>	<p>Chapter 11</p>		
<p>21-Nov</p>	<p>Ecology</p>	<p>Chapter 12</p> <p>Due 30-Nov Write up Physiological, Behavioral, Ecological, and Conservation summary for a chosen species</p>		

23- Nov	Thanksgiving Holiday		
28- Nov 30- Nov	Conservation Biology Chapter 14 Review	Watch 3-minute video "Amphibian Fieldwork Conservation"	
Thursday December 1st 6-8PM FINAL EXAM FOR HERPETOLOGY at RGV Friday December 2nd 6-8PM FINAL EXAM FOR HERPETOLOGY at Alpine			