Objectives: The goal of this course is to instill in students an understanding of, and an appreciation for, the biology of amphibians and reptiles. The role of these unique organisms in the contemporary biota reflects both their historical legacy and their subsequent evolutionary innovations. Understanding current research into their biology requires a firm foundation in evolutionary theory and the principles of phylogenetic systematics. Among tetrapod vertebrates, amphibians and reptiles are distinctive in terms of their interactions with the physical and biological environment. These taxa can also be seen to illustrate many fundamental principles of biological theory.

Specific learning objectives include: (1) gaining factual knowledge; (2) learning fundamental principles; and (3) learning to evaluate ideas critically.

Lectures: This course will be delivered in an asynchronous online format. Accordingly, lectures will be delivered by uploading video presentations to Canvas, where students can access them at times that they find convenient. An attempt will be made to divide lectures into short video segments, to facilitate delivery and to reduce the fatigue that may be associated with watching video classes.

Lectures will follow the approximate order of topics shown below, and the videos will be numbered by topic and sequential video. However, we will maintain sufficient flexibility to allow other topics to be covered as they arise. Therefore, we will deviate from this schedule when it suits our purposes.

Note also that the order of lecture topics will roughly follow the organization of the text, although we will devote about two-thirds of the semester to discussing the diversity of amphibians and reptiles. Those lectures will include many aspects of the ecology, behavior, and reproduction of each major taxon (and thus we will draw heavily from later chapters of the text, especially Chapters 5, 8, 9, and 11, because reproduction and feeding are best discussed in their phylogenetic context). Other topics, such as locomotor and feeding morphology, will be covered through lab activities. Students should use the required text by Pough et al. (2016) as a reference throughout the course, to reinforce and expand on topics as they are covered in both lectures and labs, including those topics from later chapters that are covered out of sequence. The text will also be essential for the lecture exams.

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<th>Topic</th>
<th>Lecture</th>
<th>Text Ch.</th>
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<tr>
<td>1</td>
<td>Introduction to Herpetology</td>
<td>1</td>
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<tr>
<td>2</td>
<td>Evolutionary Theory &amp; Systematics</td>
<td>2.1</td>
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<tr>
<td>3</td>
<td>Origin of Tetrapods</td>
<td>2.2-2.4</td>
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Laboratories: Laboratories will be a particular challenge in an online format. Under the best of circumstances, the climate of northern Utah is not very conducive to amphibian and reptile activity during the spring semester, so local field trips have never been a regular element of the course. In addition, dissection of specimens to learn anatomy and use of preserved specimens to learn identification skills will not be possible. However, we will replace those activities with alternatives intended to serve a similar purpose, to the extent possible, including active-learning activities.

Seminars: The Department of Biology sponsors seminars by professional biologists, usually from other institutions. Seminars usually are held on Tuesdays, 3:30-4:30 pm, delivered online via Zoom. They provide an opportunity for students to learn about recent advances in many biological fields. If seminars by visiting herpetologists are scheduled, your attendance will be strongly encouraged.

Texts and Other Printed Materials:

Textbooks

Required (print & digital versions available)


Optional (absolutely not required; this is only for those interested in a field guide)

Video lectures will be illustrated with PowerPoint presentations that include graphs, phylogenies, illustrations of animals, and anatomical drawings. In general, handout versions of the PowerPoint slides will be made available as documents on Canvas. Occasionally additional graphs, phylogenies, or other handouts will also be available as documents.

*Primary Literature*

The primary scientific literature consists of reports of original findings by individuals or groups of scientists. You will be asked to read a number of such papers, to engage with the original research of practicing herpetologists and, in some cases, to supplement the lecture or lab material. Such resources will be made available through Canvas, either as PDF files or by providing a URL that links to the resource.

*Internet Sources*

You are encouraged to explore the many sources of herpetological information available on the internet. The websites maintained by professional herpetological societies provide a good point of departure, often providing useful links to other reliable resources. Many academic herpetologists also maintain informative and authoritative websites. Remember, however, that anyone can post anything on the Web. Therefore, much of what is available online is unreviewed and of dubious veracity. You should be an informed and skeptical consumer of internet information.

One special source of online information is the website associated with your textbook: http://sites.sinauer.com/herpetology4e/. This site is maintained by the publisher, with frequent updates from the authors. Current news about herpetological subjects is posted, and there are both general and chapter-specific links to additional resources, such as articles, blogs, and videos of animal locomotion, feeding, courtship behavior, etc.

*Course Fee:* The course fee for BIOL 5570 is $125. This fee is used for the purchase of specimens and other essential supplies and equipment for the development, recording, and delivery of online lab exercises.

*Attendance:* As an asynchronous online class, attendance will not be recorded. **Regular attendance access to the materials on Canvas will, however be expected, both for lectures and laboratories.** Exams will rely heavily on material presented in the lecture videos, together with the text and other assigned resources, so failure to engage actively with those resources presumably will result in lower scores on exams and other required work. **Delays in meeting announced deadlines for exams or other assignments, other than for medical emergencies, should be approved prior to the deadline.**

*Lecture Exams:* Three lecture exams are planned, two midterms and a final exam. Each of the exams will be entirely essay format, and they will be open-book, open-notes, and open-internet. Students will have one week to complete the exam. **However,** students must write their exams individually, without assistance from other students or individuals (other than studying the material together in advance, if they wish). Due to the open-book nature of the exams, students are reminded that access to the required textbook will be especially important.

*Lab Assessments:* Information will be provided with each lab activity regarding the work to be completed and the date on which it is due to be uploaded to Canvas.

*Additional Graduate Assignment:* Graduate students will be asked to complete a series of abstracts of papers from the primary literature. Additional information on this assignment will be provided to those students.
**Grading:** There will be three major exams, two midterms and a final, each of which will be worth 100 points. There will also be additional laboratory exercises and other written assignments, the point value of which will be announced in advance, as well as an additional assignment for graduate students. All numerical grades will be converted to a percentage of total points for final comparison, and the following scale will be used to assign letter grades:

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

Plus/minus grades will also be assigned, as appropriate, depending on a student’s proximity to a numerical cut-off and any trend in improvement during the semester.

I reserve the privilege of interjecting a small degree of subjectivity into specific decisions regarding final course grades. This option may be exercised to account for meritorious performance in some aspect of the class, a strong trend in improvement on exams, or other relevant circumstances. Such a subjective evaluation may work *in favor* of a particular student, but it will not be used to lower a grade earned expressly on the basis of points scored.

**Academic Honesty:** You are reminded that *adherence to the university’s Academic Integrity Standard and Honor Pledge is expected of every matriculated student.* More importantly, participants in academic life, faculty and students alike, are *de facto* adherents to the precepts of academic honesty that have governed institutions such as this one for generations. Cheating on exams, plagiarism, and similar activities involve the intentional lack of attribution when using the ideas of others, and all are manifestations of academic dishonesty. As such, each constitutes an assault upon the freedom of discourse that is the foundation of academic life. Cheating, plagiarism, and other forms of academic dishonesty degrade the atmosphere of trust upon which the university depends.

The open-book format of the exams for this online class has been chosen to reduce the likelihood of cheating. However, it is still possible that students might attempt to work together or obtain outside assistance with writing exams or other assignments, and it is also possible that plagiarism may occur. Those are considered violations of the Academic Integrity Standard.

Students are encouraged to bring their concerns over possible infractions to the attention of the instructors. It is my policy *to report all reasonably documented cases of academic integrity violations for appropriate sanctions.*

A full description of the university’s Academic Integrity Standard, policies governing reporting of honor violations, and sanctions can be found in Article VI of the Student Code of Conduct ([https://studentconduct.usu.edu/studentcode/article6](https://studentconduct.usu.edu/studentcode/article6)).

**Open Hours:** Although this course is designed to be delivered entirely in asynchronous format, the instructors wish to make ourselves available for live interactions with Herpetology students. We will be polling the students to determine whether we can set up some times that would be convenient for as many students as possible, when we can meet via Zoom to have open discussions of any topics that are of interest to members of the class.

Appointments for individual or group meetings can be scheduled by contacting Dr. Savitzky through Canvas or directly at savitzky@usu.edu.

The Graduate Teaching Assistant and laboratory instructor is Helen Bond Plylar, and you can contact her through Canvas or directly at helen.plylar@usu.edu (mailto:megenkepas@gmail.com).

**Students With Disabilities:** Students with ADA-documented physical, sensory, emotional or medical impairments may be eligible for reasonable accommodations. Veterans may also be eligible for services. All accommodations are coordinated through the Disability Resource Center (DRC) in Room 101 of the University Inn, (435)797-2444. Please contact the DRC.
as early in the semester as possible.

Students are especially encouraged to share any concerns over access due to the remote mode of delivery of the course materials.

**Sexual Harrassment:** Sexual harassment is defined by the Affirmative Action/Equal Employment Opportunity Commission as any "unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature." If you feel you are a victim of sexual harassment, you may talk to or file a complaint with the Affirmative Action/Equal Employment Opportunity Office located in Old Main, Room 161, or call the AA/EOO Office at 797-1266.

**Epilogue:** In many ways the field of herpetology is a microcosm of the field of biology itself. Herpetologists are concerned with the study of all aspects of the biology of amphibians and reptiles, from the details of their molecular constitution to the roles they play in communities and ecosystems. We will attempt to extract from this broad area of study both the fundamental factual and taxonomic foundation necessary for further discussion and a sampling of specific topics that are of current interest to herpetologists. In all likelihood you will consider yourself to be deluged with facts. Some may appear loosely connected, whereas others will seem to be suspended in vacuo. Your challenge will be to weave these factual threads into a fabric of comprehensive understanding regarding these fascinating organisms. In doing so you should not only gain a deeper understanding of the lives of amphibians and reptiles, but also a clearer picture of the workings of organismal biology and its practitioners.