

Lecture: 127 Wey; Tu/Th 11:00-11:50am

Lab (Section A02): 22 Wey; Tu 2:00-4:45pm

Lab (Section A03): 22 Wey; Fr 1:25-4:10pm

Instructor of Record: Josiah Townsend, PhD

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Tu 900-1100; Th 0900-1100; Fr 900-1000

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Required Texts (available at the Co-op Store)

Herpetology, 3rd Ed., by L.J. Vitt & J.P. Caldwell (2008; ISBN: 978-0123743466)

Key to the Herpetofauna of the Continental United States and Canada, 2nd Ed., by R. Powell, J. T. Collins & E. D. Hooper (2012; ISBN: 978-0700618330)

Pennsylvania Amphibians and Reptiles, by L. L. Shaffer (1999; PA Fish & Boat Commission).

Additional required reading material will be distributed over the course of the semester.

Supplemental Readings (recommended but not required)

Amphibians and Reptiles of Pennsylvania and the Northeast, by A.C. Hulse, E.J. Censky, and C.J. McCoy (2001; ISBN: 978-0801437687).

A Field Guide to Reptiles & Amphibians of Eastern & Central North America, 4th Ed., by R. Conant & J.T. Collins (1998; ISBN: 978-0395904527).

Extinction in Our Times: Global Amphibian Decline, by J.P. Collins & M.L. Crump (2009; ISBN: 978-0195316940).

Course Description: A comprehensive survey of Amphibia and Reptilia, including their origin, evolution, phylogenetic relationships, ecology, and natural history. Laboratory will focus on classification, identification, and current literature.

COURSE POLICIES

Attendance Policy: You are expected to attend every lecture and lab, and to arrive ON TIME. Students that miss class regularly will typically have significantly lower grades than those who attend all (or most) classes. Exams will be given at the beginning of class, and labs may include field trips outside of the classroom, so arriving on-time for class is critical. Lecture attendance is part of your grade, and attendance will be taken regularly.

Make-up Policy: Make up exams are only available for students who make arrangements with me **prior** to missing class or lab, or who present a doctor's note verifying a medically excused absence. Do not miss multiple classes without contacting me and then come to me looking for make-up assignments later on.

Academic Integrity: I expect students to uphold a high standard for honesty and integrity in my classroom. Students caught cheating will be subject to sanction as per University regulations, which can include failing the class, academic probation, or expulsion.

Classroom Conduct: Please respect myself and your fellow students and DO NOT use your phone or text message in our classroom. Phones that ring in class may be answered by the professor in front of the class, and students who are observed texting may have their text messages read aloud to the class. Seriously. Using your smartphone (or a camera) to take photos during laboratory activities IS permitted, but let me know first so I don't get the wrong idea.

Email Conduct: If you email a faculty member and want to be viewed as a serious and professional person, you should follow these simple guidelines:

- Emails are NOT text messages, and (no matter how friendly they are) professors should not be communicated with as if they are a casual acquaintance. Format your email more like a letter, with a "Dear Dr. So-and-so" at the beginning... not "Hey" or simply writing a train-of-thought question or statement. Punctuation helps too...
- Include your name, Banner ID, and course section number to allow the professor to easily identify you; many professors teach 4-6 different course sections and may have over 150 students at any given time
- Include a Subject! Leaving the subject blank makes your email easy to accidentally overlook when a professor is scanning through the dozens of emails they deal with each day. Make yours stand out.

UNIVERSITY RESOURCES FOR STUDENTS

IUP Advising and Testing Center: <http://www.iup.edu/advisingtesting/default.aspx>

IUP Technology Support: <http://www.iup.edu/itsupportcenter/student/default.aspx>

IUP Writing Center: <http://www.iup.edu/writingcenter/default.aspx>

IUP Disability Support Services: <http://www.iup.edu/disabilitysupport/default.aspx>

HERPETOLOGY SCHEDULE (TENTATIVE) - SPRING 2013

Week of 28 Jan	Class intro; History of Herpetology
	History of Herpetology cont.; Tetrapod Origins
	Lab: No lab meeting
4 Feb	Origins & Evolution of Amphibians, Caecilians
	Salamanders: Diversification and Biogeography
	Lab: Systematics, Speciation, Amphibian Diversity I: Caecilians & Caudata
11 Feb	Salamanders: Morphology, Osteology, and Physiology
	Salamanders: Reproduction and Behavioral Ecology
	Lab: Amphibian Diversity II: Caudata (Quiz 1)
18 Feb	EXAM 1 - Salamanders & Caecilians
	<i>21 Feb- No class</i>
	Lab: Student-led Current Research Discussion Session 1 (Quiz 2)
25 Feb	Anurans: Diversification and Biogeography
	Anurans: Morphology, Osteology, and Physiology
	Lab: Amphibian Diversity: Anura
4 Mar	Anurans: Reproduction and Behavioral Ecology
	Anurans: Reproduction and Behavioral Ecology
	Lab: Amphibian Diversity: Anura (Quiz 3) (525 Paper Topics Due)
11 Mar	Amphibian Conservation
	EXAM 2 - Anurans
	Lab: Student-led Current Research Discussion Session 2 (Quiz 4)
18 Mar	<u>Spring Break</u>
25 Mar	Origins & Evolution of Reptiles
	Crocodylians & the Tuatara
	Lab: Crocodylian and Turtle Diversity
1 Apr	Turtle Diversification and Biogeography
	Biology & Ecology of Turtles
	Lab: Student-led Current Research Discussion Session 3 (Quiz 5)
8 Apr	EXAM 3 - Crocodylians, Turtles, and Tuataras
	Amphisbaenians
	Lab: Reptile Diversity
15 Apr	Snakes: Diversification and Biogeography (525 Papers Drafts Due - For Peer Review)
	Snakes: Morphology, Osteology, and Physiology
	No Lab - Taxon Report and Peer Review Work
22 Apr	Snakes: Reproduction and Behavioral Ecology
	EXAM 4 - Snakes and Amphisbaenians
	Lab: Reptile Diversity (Quiz 6) (525 Peer Reviews Due)
29 Apr	Lizards: Diversification and Biogeography
	Lizards: Morphology, Osteology, and Physiology
	Lab: SPECIES TAXON REPORT PRESENTATIONS (Taxon Report Due)
6 May	Lizards: Reproduction and Behavioral Ecology
	Conservation of Reptiles
	Lab: FINAL PRESENTATIONS (525 Final Papers Due)
13 May	EXAM 5 - Lizards

GRADING

BIOL 425: 1000 pts; A = 900+; B = 800-899; C = 700-799; D = 600-699; F = <600

BIOL 525: 1500 pts; A = 1350+; B = 1200-1349; C = 1000-1199; D = 900-999; F = <900

Assignment	Points
Lecture Exam 1: Salamanders & Caecilians	100
Lecture Exam 2: Anurans	100
Lecture Exam 3: Crocs, Turtles, Tuataras	100
Lecture Exam 4: Snakes & Amphisbaenians	100
Lecture Exam 5: Lizards	100
Lab Quizzes on Taxonomic Diversity (6 x 20 pts each)	120
Pennsylvania Species Taxon Report	100
Pennsylvania Species Taxon Presentation	100
Field Trip Participation	100
Lecture Attendance & Participation (4 pts per class)	80
Current Research Discussion Leader (BIOL 525 ONLY)	50
Research Paper (BIOL 525 ONLY)	300
Peer Review (BIOL 525 ONLY)	50
Final Presentation (BIOL 525 ONLY)	100

FIELD TRIPS

At least two Saturday fieldtrips (not overnight) will be offered later in the semester. Students must participate in at least one of these, and are welcome to attend all fieldtrips.

Student Drivers: I will need at least two drivers per section (8 total) to drive the department vans on fieldtrips. Drivers should be eligible for federal work study and will be paid for 1 hour of work for each class that they drive.

CURRENT RESEARCH DISCUSSION SESSIONS

In three different lab sessions, 4 students (BIOL 525) will each be assigned a paper from the recent herpetological literature. The student will present a brief (10-15 minutes) powerpoint summary of the paper, and then lead a ~30 minute discussion of the paper's key findings and implications.

For each Discussion session, be sure to address the following 3 questions:

- What was the research question being investigated in this paper?
- What were the methods used, and were they appropriate for answering the question?
- What are the main findings of the paper and their broader significance?

PENNSYLVANIA SPECIES TAXON REPORT

Each student will prepare a report about one species of amphibian or reptile native to Pennsylvania. The report should be 2–3 pages in length, and include at least one photo of your taxon (be sure to cite the source!). Each report will use the following format (examples uses a non-existent species; instructions are given in brackets and boldface):

Scientific Name: *Plethodon crimsonhawkorum* Townsend 2012 (Amphibia: Caudata: Plethodontidae) [**Genus + species, original author + year, (Class: Order: Family)**]

Common Name: Crimson Hawk Woodland Salamander

Distribution (outside PA): This species is not found outside Pennsylvania.

Distribution (within PA): In Pennsylvania, *Plethodon crimsonhawkorum* is known only from the vicinity of White's Woods in Indiana County.

Diagnosis from Similar Species: [**Summarize the morphological characteristics that would help distinguish this species from other similar taxa**]

Natural History: This species has only been collected on the slopes of a single forested hill (Townsend 2012). All collecting localities for *P. crimsonhawkorum* are associated with mature stands of hemlock (scientific name), and individuals from the type series were encountered underneath limestone rocks beneath closed canopy (Townsend 2012). One female was discovered brooding and clutch of eggs beneath a limestone rock during September.

Conservation Status: This species is considered Critically Endangered by the IUCN (IUCN Red List 2012), due to... [**Use multiple sources, including the IUCN, USFWS, and PA Fish & Boat Commission**]

Remarks: [**the Remarks section is for you to include any other information that does not clearly fit into any of the other sections.**]

References

IUCN. (2012). *The IUCN Red List of Threatened Species*. (<http://www.iucnredlist.org/>, accessed 6 November 2012).

Townsend, J.H. 2012. A new species of woodland salamander (Plethodontidae: *Plethodon*) from Indiana County, Pennsylvania. *Journal of Made-up Herpetology* 1(1): 109–112.

A species list sign-up sheet will be posted by my door after the first day of class.

Papers should be printed and turned in during class on the due date, and also turned in electronically by placing it in your personal folder in the P Drive folder for this class.

BIOL 525 RESEARCH PAPER

Students enrolled in BIOL 525 have to option of completing one of three types of papers (type and topic of paper must be approved prior to starting the paper):

1. Research Proposal – Following National Science Foundation guidelines for a Doctoral Dissertation Improvement Grant (DDIG), write a proposal on a herpetological topic. (www.nsf.gov/publications/pub_summ.jsp?WT.z_pims_id=5234&ods_key=nsf12590)
2. Research Paper – If you are working with myself or another faculty member on a project related to amphibians and reptiles, you may write a paper based on that project. This paper must be a *minimum* of 10 pages (double spaced, 12 pt font, Times New Roman), plus cover page (title, name, abstract), references, tables, and figures. Organize the paper as if you are submitting it for publication (Title, Abstract, Intro, Methods, Results, Discussion, Lit Cited). Maximum length of text = 20 pages.
3. Literature Review Paper – Research a topic related to amphibians and reptiles, and write a synthesis paper that draws together the available literature. This paper must be a *minimum* of 10 pages (double spaced, 12 pt font, Times New Roman), plus cover page (title, name, abstract), references, tables, and figures. Organize the paper as if you are submitting it for publication (Title, Abstract, Intro, Methods, Results, Discussion, Lit Cited). Maximum length of text = 20 pages. Since this is a literature review, a minimum of 20 references from the peer-reviewed scientific literature are required.

You should turn in a <1 page topic proposal during lab the week of 4 March 2013.

A Draft of the Paper is due during lab the week of 15 April 2013, and will be distributed for **Peer Review**.

Peer Reviews will be returned the week of 22 April 2013.

You will present a powerpoint summary of your paper during the final lab meeting of the semester. The presentation should be 5-7 minutes in length, allowing 3-5 minutes for questions.

INSTRUCTIONS FOR AUTHORS

Just as you would come across for your thesis, a peer-reviewed journal, or a grant proposal, I have established some standards for formatting I expect to be followed on ALL written assignments turned in for this class.

1. All text should be Times New Roman, 12 point font, double spaced, with 1" margins on all sides (= "Normal" margins in MS Word).
2. Include your name, Banner ID#, and title of the paper on a TITLE PAGE. Include your Banner ID (NOT your name) on the top of each page.
3. All figure legends should be numbered (e.g., Figure 1) in the order that they appear in the text. Figure legends should be placed BELOW the figure.
4. All table legends should be numbered (e.g., Table 1) in the order that they appear in the text. Table legends should be placed ABOVE the table.
5. Literature cited should follow a standard format for all citations. Use the follow formats unless you want to develop a different format:

Journal Article

Pyron, R. Alexander, & Wiens, John J. (2011). A large-scale phylogeny of Amphibia with over 2,800 species, and a revised classification of extant frogs, salamanders, and caecilians. *Molecular Phylogenetics and Evolution* **61**, 543–583.

Book

Savage, Jay M. (2002). *The Amphibians and Reptiles of Costa Rica: A Herpetofauna Between Two Continents, Between Two Seas*. University of Chicago Press. Chicago, Illinois.

Book Chapter

Townsend, Josiah H., & Wilson, Larry D. (2010). Biogeography and conservation of the Honduran subhumid forest herpetofauna. In: *Conservation of Mesoamerican Amphibians and Reptiles* (eds Wilson LD, Townsend JH, Johnson, JD), pp. 686–705. Eagle Mountain Publishing LC, Eagle Mountain, Utah.

Website

IUCN. (2012). *The IUCN Red List of Threatened Species*. (<http://www.iucnredlist.org/>, accessed 6 November 2012).

RESOURCES

AmphibiaWeb - <http://amphibiaweb.org/>

- Comprehensive online system that provides access to information on amphibian declines, conservation, natural history, and taxonomy.

Amphibian Species of the World - <http://research.amnh.org/vz/herpetology/amphibia/>

- Searchable online database of living amphibian taxonomy and classification, covering all extant caecilians, salamanders, and anurans.

Center for North American Herpetology - <http://www.cnah.org/index.asp>

- Academic portal to North American herpetology.

The Reptile Database - <http://www.reptile-database.org/>

- Online database providing a catalogue of living reptile classification, covering all extant snakes, lizards, turtles, amphisbaenians, tuataras, and crocodiles.

Amphibians & Reptiles of Pennsylvania - http://www.fish.state.pa.us/amp_rep.htm

- Website with information on the distribution, natural history, and conservation of the PA herpetofauna; includes herpetofauna-specific lesson plans for K-12 classrooms.

Society for the Study of Amphibians and Reptiles - <http://www.ssarherps.org/>

The Herpetologist's League - <http://www.herpetologistsleague.org/en/index.php>

American Society of Ichthyologists and Herpetologists - <http://www.asih.org/>