BIOSC 1180: ECOLOGY OF AMPHIBIANS AND REPTILES (3 cr.)
PYMATUNING LABORATORY OF ECOLOGY
24 June – 12 July, 2013

Instructor: Dr. Kurt J. Regester
Clarion University
Email: kregester@clarion.edu
Phone: 814-393-1636

Meeting Location and Time: Lecture: MTWRF 8:00-12:00; Field: MTWRF 1:00-5:00

Course Description: An exploration of the ecology, evolution, natural history, and management of amphibians and reptiles. Lecture organization will parallel the text, focusing on three units asking "what are amphibians and reptiles?", "how do amphibians and reptiles work?", and "what do amphibians and reptiles do?" Students will develop their own amphibian or reptile management plan. Laboratory and field trips include identification and natural history of Pennsylvania species, designing and implementing a habitat suitability assessment, and group projects on hellbender disease ecology, estimating biomass and nutrients associated with amphibian assemblages, and chemical communication.

Textbook: F.Harvey Pough, et al. 2001. *Herpetology*, 2nd edition. Prentice Hall.

Field Guide: Arthur Hulse et al. 2001. *Amphibians and Reptiles of Pennsylvania and the Northeast*, 1st edition. Comstock Publishing Associates.

Required for field participation: each student must possess a 2013 PA Fish and Boat Commission Fishing License

Equipment: Hip waders AND wading shoes are required.

Attendance: Attendance is essential. If you miss a class you are responsible for obtaining lectures notes, handouts or assignments you may have missed. If you miss a class for a legitimate reason, you must notify the instructor *within 24 hours* of the absence and provide valid documentation of the absence as defined by university policy. In doing so, reasonable and fair accommodations will be discussed on an individual basis. No make-ups will be given for field trips or after materials have been graded and returned.

Grading Scale: A maximum of 600 points can be earned and are distributed among the following categories.

Exam 1	100	A	90–100%
Exam 2	100	B	80–89%
Practical Exam 1	100	C	70–79%
Practical Exam 2	100	D	60–69%
Project proposal	15	F	<59%
Project report and presentation	85		
Lab report 1	50		
Lab report 2	50		

I. Examinations:

Exams will be given at announced times. Exams will not be given after the first exam is completed, so arrive on time. Format will include a variety of multiple choice, short answer, and essay questions. Graphs, flowcharts, and other figures are strongly encouraged for maximum credit.

II. Habitat Suitability and Species Management Plan:

All students should expect to gain experience in implementing a basic habitat assessment, writing concisely in a scientific style, searching the scientific literature for articles on a topic, and reading original research articles from journals of wildlife professionals.

STEP 1: Groups of students will collaboratively produce a species management plan that includes original results from a habitat suitability assessment project. The particular amphibian or reptile species must be approved by the instructor. Groups will have scheduled meetings during lab and field periods and should use this time wisely to coordinate efforts among individual members.

STEP 2: Each group will draft a proposal describing methods for quantifying five aspects of habitat associated with their species. Detail on objectives, sampling design, and data collection and analysis are expected. The proposal should include a list of required equipment. This **proposal is due June 28** and must be approved before you begin data collection. Each group will produce five habitat suitability index functions and combine functions into one simple model for their species (results and report to be included in management plan).

STEP 3: The **final draft of the species management plan is due July 12** and must be a complete plan. The plan will consist of a cover page, table of contents, executive summary, and 8 sections: (1) introduction, history of human impact, prior management, population status and distribution in Pennsylvania and worldwide, (2) habitat associations and food requirements, (3) population processes, (4) behavior and space use, (5) ecological and economic importance, (6) habitat suitability report, (7) management goals, objectives, recommendations, and monitoring, and (8) literature cited. Each of the first five sections will be the responsibility of one group member. After reviewing the basic information on the species and conducting the habitat suitability project, all group members will provide input for the last three sections and contribute to writing the recommendations. The final plan should be ~10-15 pages in length (not counting Literature Cited), double spaced throughout, 12-point Times New Roman font. For literature cited, consult current *Journal of Wildlife Management* issues and closely follow the formatting guidelines. The paper will be evaluated on content, completeness, quality of writing, organization, format, execution of the habitat assessment, and synthesis of literature. If a section of the final plan is not turned in on time, ten points will be deducted for each day late.

We will read plans produced by US Fish and Wildlife Service, Idaho Fish and Game, and Minnesota Department of Natural Resources, and use these as models. Detailed handouts for writing your plan, along with suggestions for content, will be provided.

III. Labs:

During laboratory meetings, students will be given information on the natural history of PA amphibians and reptiles, with an emphasis on local species. Students will be expected to correctly identify representatives of taxonomic groups during practical exams. Be prepared to identify animals to scientific name. Museum specimens will be provided for study and should be handled with care. Guidelines for handling museum specimens will be reviewed in lab and must be adhered to throughout the semester. Please come prepared for current weather and field conditions; this may include bringing boots, parkas, additional clothing, a backpack, drinking water, and snacks. Field trips are required and may be rescheduled due to unfavorable weather conditions. Departure times for field trips are firm; if you are late, you may be left behind. Missed labs, field trips, and practical exams cannot be made up.

V. Disabled Student Services:

If you have physical or medical needs or learning disabilities that affect your ability to perform in this class, please inform me at the conclusion of the first class meeting. If you require assistance or accommodations for testing, please notify me at the conclusion of the first class meeting.

VI. Other Information:

The syllabus is a general outline for the course and any deviations will be announced. All academic work must meet PLE standards with regard to academic honesty and integrity. Students are responsible for educating themselves about these standards and policies.

TENTATIVE SCHEDULE

Date	Lecture Topic	PA Identification/Natural History Topic	Field Topic	
24-Jun	Introduction	Order Caudata: salamanders	Sampling designs: **project development**	
25-Jun	Evolution of Amphibians and Reptiles	Order Caudata: salamanders	Mark-recapture methods: **project development**	
26-Jun	Amphibian and Reptile Diversity	Order Caudata: salamanders	Disease ecology: French Creek	
27-Jun	Temperature and Water Relations	Order Anura: frogs and toads	Disease ecology: Tionesta Creek	
28-Jun	Energetics and Performance	Order Anura: frogs and toads	Disease ecology: SGL 69	**Project proposal due**
1-Jul	Reproduction and Life History	Order Anura: frogs and toads	Field identification of amphibians: **project execution**	
2-Jul	Body Support and Locomotion	Amphibian Review	Field identification of amphibians: **project execution**	**Lab report 1 due**
3-Jul	Feeding	Order Testudines: turtles	Amphibian biomass and nutrients: introduction	**Exam 1; Practical 1**
4-Jul	Movements and Orientation	Order Testudines: turtles	Amphibian biomass and nutrients: SGL 69	
5-Jul	Communication	Order Testudines: turtles	Amphibian biomass and nutrients: SGL 70	
8-Jul	Mating Systems and Sexual Selection	Order Squamata: lizards and snakes	Field identification of reptiles: **project analysis**	
9-Jul	Foraging Ecology and Predation	Order Squamata: lizards and snakes	Field identification of reptiles: **project analysis**	**Lab report 2 due**
10-Jul	Species Assemblages	Order Squamata: lizards and snakes	Amphibian Chemical Ecology: PLE	
11-Jul	Conservation	Reptile Review	Amphibian Chemical Ecology: PLE	
12-Jul	Conclusions		**Project presentations and reports due**	**Exam 2; Practical 2**