Course Syllabus

Department: Science and Technology
Date: 30 August 2011

I. Course Prefix and Number: BIO 210

Course Name: Winter Ecological Adaptations and Field Techniques

Credit Hours and Contact Hours: 3 Credits / 5 ½ Days Residential Course

Catalog Description including pre- and co-requisites:

A combination of lecture and field work will be used to gain a proficiency in the over wintering adaptations of organisms in the northeast, specifically the Finger Lakes region. Adaptations of mammals will be emphasized. Lectures will focus on identification, natural history, behavior, physiology and ecology of mammals. Laboratory will include field trips to various habitats in and around Honeoye, NY, identification of animal signs, and mark & recapture techniques to assess habitat selection of small mammals residing in the subnivean environment. Prerequisites: BIO 122

II. Course Outcomes and Objectives

Student Learning Outcomes:

Students will:

- Recall the natural history of various mammals whose home ranges include the Finger Lakes region.
- Describe morphological, physiological and behavioral adaptations to cold weather thermal regulation.
- Articulate the importance of attributes of snow, vegetation and landform to survival of mammals in winter.
- Demonstrate proficiency in field techniques associated with ecology, winter population processes, and the identification of small mammals.
- Apply knowledge in observational techniques and identification of animal signs during class field trips.
- Discuss proficiently concepts in small mammal ecology and habitat requirements that enhance winter survivorship.
Relationship to Academic Programs and Curriculum:

Winter Ecological Adaptations and Field Techniques, BIO 210 is a science elective.

**College Learning Outcomes Addressed by the Course:**

- X writing
- X oral communications
- X reading
- X mathematics
- X critical thinking
- X computer literacy
- ☐ ethics/values
- ☐ citizenship
- ☐ global concerns
- ☐ information resources

III. Instructional Materials and Methods

**Types of Course Materials:**

An appropriate course book, as well as various peer reviewed published articles relevant to thermal regulation, cold weather adaptations, and winter ecological principals.

**Methods of Instruction (e.g. Lecture, Lab, Seminar ...):**

This is a 5 ½ day (8 AM Monday – noon Saturday) residential course at Muller Field station. The course will be offered during Winter Session. A combination of lecture, case study evaluation, relevant literature research, oral presentations field natural history and field research methodology experience over a 5 ½ day residential time period will be the method of instruction.

Generally the day will begin at 7am with checking the live traps and continue throughout the day till approximately 9pm with doing a final night check of live traps. One night during the week will be an overnight field work with checking traps approximately every 1-2 hrs. The final day is a half day set aside for group presentations on data collected throughout the week.
IV. Assessment Measures (Summarize how the college and student learning outcomes will be assessed):

Students may be assessed using a variety of tools including but not limited to;
A. Proficiency in oral communication gained in:
   1. individual oral presentations of relevant literature
   2. Group presentations of summary of data collected
B. Comprehension of relevant literature through oral presentations
C. Competence in the basic statistical tools in the analysis of data sets
D. Critical thinking through:
   1. scrutiny of relevant published literature through discussions
   2. scrutiny of relevant published literature through oral presentations
   3. analysis of data collected from field work
E. Aptitude in writing by maintaining a working field journal

V. General Outline of Topics Covered:

Being a residential course, the flexibility of time will be implemented throughout the 51/2 days at Muller. Time will be divided up between: a) field work, approximately four times per day baiting, setting and checking live traps, processing organisms, marking and releasing individuals; b) lecture on snow morphology, other physical characteristics of winter, and the various adaptation of organisms in the northeast, including, plants, amphibians, reptiles, birds, but emphasizing mammals; c) student oral presentation on specific adaptations related to cold weather thermal regulation; d) Students scientifically analyzing and summarizing data collected throughout week.