

## **Biol 535. Teaching Ecology, Evolution and the Diversity of Life**

### **Course description:**

This course will explore ecology, evolution, and the diversity of life, building on current and future curricula at the middle and secondary school levels, as well as State and National standards for teaching biology. Subject matter will include: mechanisms behind evolution, population dynamics, interactions among organisms, and flow of matter and energy through ecosystems. Specific Course topics will include:

- microevolution,
- macroevolution,
- population growth,
- life history,
- species interactions & invasive species
- global climate & biomes (marine & terrestrial) – ecosystem diversity & productivity
- global climate change
- biogeographic cycles
- Conservation Biology

“Ecology and Evolution” will expose students to current knowledge through laboratory and field activities, outside reading, classroom presentations, and challenging class discussions. Exercises will provide an opportunity to review these teaching materials and methods and discuss research-based strategies for communicating with students.

“Ecology and Evolution” will emphasize science content, providing teachers with a rigorous understanding of basic biological concepts that underlie ecology and evolutionary biology. Pedagogical approaches used will provide opportunities for science inquiry, model ways of presenting concepts to students, and, in general, link scientific content to classroom experience.

“Ecology and Evolution” is designed for middle and high school teachers, and can be counted as a graduate level science content course in any of the following programs in Teacher Education, Department of Curriculum & Instruction, Graduate College of Education:

- \* M.Ed. Track B (initial licensure)
- \* graduate certificate in Track C (professional licensure)
- \* M.Ed. Track C (professional licensure).

Students in these programs should look over the requirements in their student handbooks and consult with their advisors and the Teacher Education office to determine how many science content courses they may take for these programs. Biology 2 may not be counted toward the 24-credit graduate certificate in Track B (initial licensure) in Teacher Education and cannot be used as an elective for M.S. and Ph.D. students in science.

**Meeting Location, Dates and Times:**

The course will meet for ten days: June 28 – July 12, 2012 (\*\*NO CLASS JULY 4, 2012).

8:30 Begin class

11:45-12:30 LUNCH (not provided)

3:00 End

Location: TBA. Some classes will meet at the UMass Boston Campus or in a local school district (Everett, Malden or Medford)

***Whenever possible, take your laptop computer to class.***

**Credit Hours:** 3 graduate credits (PDPs: 60 hours)

**Instructors:**

Solange Brault, Ph.D., University of Massachusetts, Boston (Solange.brault@umb.edu)

John Ebersole, Ph.D., University of Massachusetts, Boston (john.ebersole@umb.edu)

2 Peer Instructors: TBA

1 Graduate Teaching assistant: TBA