

Audience: Elementary, Middle, and High School Science Teachers.

COURSE ANNOUNCEMENT for Summer 2003:

Field Ecology for Teachers (ScED 585)

course meeting times 9:30-4:00, Monday-Thursday, July 7-17, 2003

meeting at Kirkbride Hall 420, Widener University, Chester, PA

3 graduate credits (or you may audit).

Instructors:

Bruce W. Grant, Ecologist, Associate Professor, Department of Biology, Widener University, (610-499-4017, grant@pop1.science.widener.edu (note it's "pop one" not "pop-L"))

Wayne Norton, Plant Biologist, Associate Professor, Widener University and Williamson Free School, Middletown, PA, (610-566-1776, wnorton4@comcast.net)

course web site: <http://www.science.widener.edu/~grant/courses/fieldecol.html>

Course Objectives:

- (1) to improve your ecological literacy and to better communicate ecological knowledge to your students.** Topics include biodiversity, community ecology, ecosystem structure and function, conservation biology with an emphasis on human ecology. Participants will have an improved understanding of ecological processes and the effects of humans on the natural world.

- (2) to improve your tools at teaching the process of ecological inquiry** which is the scientific method, through which natural phenomena are observed, interpreted, and reported. Participants will learn techniques in engaging their students in meaningful research inquiries about ecological concepts outdoors in schoolyards as well as in class using experimental ecosystems. These techniques are designed to meet the new science content and process skills standards at the state and national level.

Course Structure:

A major component of this course will involve hands-on workshops in how to engage students in the processes of ecological inquiry outdoors on their school grounds and indoors using experimental ecosystems. Participants will learn research techniques in ecological sampling of plants and animals. Participants will learn activities in "schoolyard ecology" available from nationally recognized sources, and by using site visits we will translate these activities to the schoolyards of participants. Participants will also learn classroom activities in experimental ecology and ecosystem management using bottle ecosystems. Lastly, participants will learn important techniques in data management, graphics, statistics, making scientific presentations, and classroom management for facilitating individual and group ecological inquiries.

(over please)

Syllabus: ScED 585, Field Ecology for Teachers, 9:30-4:00

Monday 7 July, 2003

1. Discussion: Student Active Learning - What excites students about learning and teachers about teaching?
2. Activity: Termites and the Scientific Method.
3. Activity: The Rapid Ecological Study.

Tuesday 8 July, 2003

1. Discussion: Student Active Learning I. Inquiry, cognition, critical thinking, and ownership.
2. Activity: Introduction to the field study of biodiversity and the role of biodiversity in terrestrial ecosystem structure and function - part 1, animals.
3. Activity: Introduction to the field study of biodiversity and the role of biodiversity in terrestrial ecosystem structure and function - part 2, plants.
4. Activity: Return to ecology lab at Widener to learn sample identification and preservation.

Wednesday 9 July, 2003

1. Discussion: Student Active Learning II. Advanced Instructional Technology.
2. Activity: Field study of the role of biodiversity in aquatic ecosystems.
3. Activity: Return to ecology lab at Widener to continue with sample identification.

Thursday 10 July, 2003

1. Discussion: Authentic Assessment, Part 1: Rubrics Demystified.
2. Activity: Beginning of ecological research inquiry projects.
3. Activity: Oral project proposal symposium.

Optional Field Trip Friday 11 July, 2003: Field trip to the New Jersey Pine Barrens.

Monday 14 July, 2003

1. Discussion: Authentic Assessment, Part 2: Portfolios and Reflective Journaling.
2. Activity: Brief project updates.
3. Activity: Work on research inquiry projects.
4. Activity: School visits.
5. Activity: Workshop on data analysis and visual presentation.

Tuesday 15 July, 2003

1. Discussion: Formative Evaluation and the Scholarship of Teaching.
2. Activity: Brief project updates.
3. Activity: Work on research inquiry projects.
4. Activity: School visits.
5. Activity: Workshop on computer data analysis and visual presentation.

Wednesday 16 July, 2003

1. Discussion: Teaching to the Standards.
2. Activity: Brief project updates.
3. Activity: Work on research inquiry projects.
4. Activity: Workshop on oral and poster presentations.

Thursday 17 July, 2003

1. Activity: Ecological research symposium.
2. Discussion: Overcoming the challenges to implementing "ecological research inquiries as curriculum" in schools.