



Natural Research: Using the Environment for Student-Driven Investigations

August 2-6

9:00am - 4:00pm

Mary Baldwin College Course ED618

Class Syllabus



The goal of this course is to provide upper elementary, middle, and high school educators the skills needed to work with students as they design and perform their own science experiments related to the local environment. Educators will participate in watershed-based field investigations, develop experiments, collect and analyze data, and present results and conclusions. Teachers will plan curriculum for effective “environment-based learning” instruction by implementing strategies and techniques presented in class. The course will address learning standards in the natural sciences.

Instructor:

Dr. Michael Pelton
MBC Adjunct Professor
Wildlife Science

MBC Contact Person: Dr. Tamra Willis
Mary Baldwin College, Assistant Professor
Graduate Teacher Education

Tentative Course Schedule:

Monday August 2- Staunton (MBC)

- Course Overview
 - Basics of field research (observation, collection, sample size, repetition)
 - Study site selection (criteria, size, location)
 - Research Techniques
- Field Experience: Insect Population and Soil Studies at local farm.
- Buoy Project Discussion

Tuesday August 3 - Bear Run Farm

- Conducting population and habitat studies
 - Field Experience: Mammal/pond data collection
 - Field and Forest- Plant and Wildlife Habitat studies.
- Taxonomy and Identification

Wednesday August 4 – Hays Creek

- Conducting population and habitat studies
 - Field Experience: Bird and Reptile Studies.
 - Leaf Pack, Macro and Chemical Study at Hays Creek

Thursday August 5 – Staunton (MBC)

- Student-Driven Investigations- Buoy Projects
- Research Design
- Schoolyard Research
- Discussion and reflection of EBL and investigation opportunities

Friday August 6 – Staunton (MBC)

- Designing/Sharing Research Project Plan
- Implementation planning and idea sharing
- Assignments/Blackboard

Summer – Complete course assignments and participate in discussions via Blackboard.

Course Texts:

Glenn, D.D. & Dickmann, D.L (2009) *Forestry field studies: A manual for science teachers*. Washington, DC: NSTA Press.

McGlashan, P., Gasser, K., Dow, P., Hartney, D., Rogers, B. (2007). *Outdoor Inquiries: Taking Science Investigations Outside the Classroom*. Portsmouth, NH: Heinemann.

Tentative Assignments:

1. Design an environment-based research study that you could do with 6th -12th grade students. Write-up a plan for the study including background science and resources. Begin conducting the study and report on the early results. 30 pts.
2. Develop a detailed lesson plan for student-driven research. The plan may be based on the research study design in Assignment One or on another topic of your choice. How can you promote student involvement in the project? What kinds of activities will you do and what will you ask of each student? Consider your objectives carefully and explain how you will measure student learning. 20 pts.
3. Keep a field journal for recording observations, data, etc. The journal will be graded for content and data collection details. 10 pts.
4. Respond to questions on blackboard. These will relate to the readings and class discussions. 20 pts.
5. Participate in discussion board with other educators and instructors. 20 pts.
6. Any other assignments we decide on as a group.

Note: You will submit all assignments via blackboard. We may work on them during the week in class, but they will not be due until the end of second summer session.

Course Details:

1. Wear comfortable clothing and walking shoes. Bring a hat, rain coat and one pair of shoes that you do not mind getting dirty or wet. We will go outside and get into a stream. Bring sunscreen and bug repellent.
2. Please bring a reusable water bottle and coffee mug if possible. We are trying to “practice what we preach!”
3. Please bring a copy of your grade-level science standards. Also, if applicable, bring your year-long calendar/pacing guide for your subject(s) you teach (something that tells what you teach when)
4. You might want to bring a digital camera to record ideas on these trips and binoculars.
5. Lunches and snacks will be provided most days during class.

Please review the MBC Honor Code- located in your student manual.

Grading Scale 96-100A 94-95A- 89-93B 87-88 B- 82-86C 80-81 C-