

Rich Bowden, Steffee B203
Office hours: MW 10-12, 3-4; and by appointment

richard.bowden@allegheny.edu

You are free to drop in anytime that I have office hours. Priority will be given to those who have signed up on the office hour sheet posted on my door.

Course Hours and Location: T,R 11:00 – 12:15 Steffee B 208
T 1:30 - 4:20 Steffee B 212

Course Description:

Solving environmental problems, as you are becoming aware, requires integration of expertise in many disciplines, including social, economic, and political sciences, as well as the humanities and natural sciences. As a major in the Environmental Science Department, you may be interested in becoming an environmental lawyer, landscape designer, green architect, environmental artist or writer, forest conservationist, stream ecologist, environmental chemist, or one of any number of potential professionals within the environmental arena. This course will give you background and experience in natural science and social science approaches to identifying, analyzing, and solving environmental problems. Until we have some understanding of the natural and social science principles behind a particular environmental issue, as well as the procedures and limitations of environmental research, we cannot hope to fully appreciate or solve the environmental problem that we face.

Academic Planning

An important component of this class is the academic advising for your ES major. Certainly, you have an advisor, and have already developed a course plan. However, to best serve you as an ES major in this department, we will spend some time planning your science or studies major, your area of focus, and your minor. In addition, we will develop your course plan for the remainder of your tenure at Allegheny.

What you will learn

We will address a number of important skills that you will need to work in the environmental field, including:

- Reading the literature
- Employing the Scientific Method
- Project Design
- Data Analysis
- Data Presentation, both written and oral
- Links between science and policy

How you can expect this class to proceed.

Environmental Science is very much an applied field. You may be studying air pollution, developing conservation plans, crafting legislation, or developing policy. And although there are well-trying approaches, there is almost NEVER a single way to proceed. Real-life environmental problems are much messier. Often we don't know the question, let alone the answer. If we understand the question, there may not be a precedent to tell us what to expect, or existing techniques that help us find an answer. And, there are never any books, classes, or authorities that clearly spell out solutions to problems.

The journey from project inception to completion is filled with different points of view, uncertainty, false leads, new starts, rethinking, and difficult choices. This makes many people uncomfortable, but these characteristics are inherent in the creative process, and are unavoidable components of

success.

Our plans to guide you to successful completion of class projects are carefully conceived, well-tested, and proven to work. But there is no guarantee that the process will be a walk in the park on a warm sunny day. Be prepared. Enjoy the energy, creativity, and freedom from traditional boundaries as we explore the means to deal with real-life environmental issues.

Our Approach

Hard-working individuals, working in teams, confront problems, determine the important questions, and get to work to solve the problem. In this class, then, YOU are as critical to the success of the class as is the professor. You will BE an environmental scientist, and WE will be a scientific team. My role in this class is to serve as an advisor, to guide you through problems that we will explore. Scientists learn by observing, questioning, and quantifying. You, also, will do all these things. We will act as a research team, with each of us having our own responsibilities. I will be the lead scientist, and each of you will also be a participating scientist. In essence, you will be your own teachers. Our goal is to show you how to teach yourselves such that you can approach any issue without relying on a teacher to show you how.

Assignments in this class will show you how environmental scientists examine problem areas, propose projects, gather information, and disseminate information. You are encouraged to discuss assignments with one another, to explore issues together, and to learn from one another. Each assignment you hand in, however, is to be yours and yours alone. Unless noted otherwise, collaboration is to end at the time you begin writing your own assignment.

Texts:

Ambrose, H. W. III, K.P. Ambrose, D.J. Emlen and K.L. Bright. 2007. A Handbook of Biological Investigation. 7th Ed. Hunter Textbooks, Knoxville, TN.

Useful Websites:

Allegheny GIS Lab: <http://webpub.allegheny.edu/dept/envisci/GISLab/>

Laboratory/Field Notebook:

Good research requires careful note taking and data collection. Besides your texts, you are REQUIRED to obtain a spiral-bound notebook in which to keep your lab and field notes and data. Keep this with you at all times.

Field Work:

Some of our work requires us to be in the field collecting data. We may be out when it is cold or hot, rainy or snowy. But, barring hurricane force winds, raging snowstorms, or 100-yr floods, we will be out. So, be prepared. I do not carry with me umbrellas and raingear, or boots, for everyone. Bring your own or borrow from your friends. As high school seniors you all wanted classes that had lots of outside activities, so here's your chance. Whiners will be lashed repeatedly with feathers. Any questions?

Our Syllabus:

Research requires careful planning, but it is impossible to predict everything far in advance, especially in exploring things that are new. Thus, although we have a syllabus, consider it to be a flexible plan, not a contract. Often we will work as a class to decide on what should be done when.

Grading: Grades will be based on experimental plans, laboratory write-ups, class presentations, and

other assorted assignments. Additional assignments may also be assigned.

Return of Assignments: I attempt to get assignments back to you within a week after they are received.

Assignment Rewrites: Writing is hard work, and no single professional in the world ever gets it correct the first time. I know some of you will begin papers at midnight the evening before they are due, but.....

Honor Code: As a member of the Allegheny College community, you are bound by the honor code. If you have never read Article III, Section 3, which pertains to plagiarism, do so NOW. Plagiarism is not acceptable and will not be tolerated in this class. If you have any questions, I'm happy to help you. Ignorance is no excuse. If you have ANY questions concerning referencing formats, correct citations, please review your publications handbook, and see me- I'll be glad to help. Allegheny now subscribes to an on-line plagiarism detection software program, which can detect if you have plagiarized published information. I will use this as needed.

Grading and Assignments:

Assignments and point values are included on the class schedule. Additional assignments may also be assigned. Keep in mind that research cannot be predicted easily. For this reason, our syllabus is always subject to modification, and accordingly, assignment due dates will also change.

Class Participation: Class participation is a substantial component of your grade. You are EXPECTED to contribute to our discussions and deliberations. Your performance will be based on both the quantity and quality of your contributions.

Participation Grading:

- A** Awarded for regularly *initiating* discussion and questions. This means coming to class thoroughly familiar with the assigned reading and, therefore, prepared to raise questions, to open discussion, to identify topics of interest in the reading, and to engage other students in the discussion. (This does not mean monopolizing discussions or talking for its own sake).
- B** For participating regularly and productively in class discussion. For those who are prepared, and are willing to engage.
- C** For participating on a regular basis, though less frequently than the **B** student. **C** discussants will be prepared for class, but their contributions will indicate that less thought has been given to assigned materials.
- D** Infrequent contributions to discussion; contributions do not arise from thoughtful consideration of assignments.
- F** An **F** grade results from non-participation in class discussion.

ES 210 Bowden

Name _____ E-mail _____
Major _____ Year _____ Hometown, State _____

Natural Science comes relatively easy to me (circle one)

Always *Usually* *Sometimes* *Infrequently* *Never*

Social Science comes relatively easy to me (circle one)

Always *Usually* *Sometimes* *Infrequently* *Never*

If you could pick your occupation right now, what would be your top three choices? Why?

If you have any physical or learning challenges that you would like me to know about, please either indicate below, or come to see me about them. I will be happy to accommodate you in any way that I can.

Describe at least one interesting experience that you have had (academic, social, whatever)

List your hobbies and interests