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## EVST 501.01: Scientific Approaches to Environmental Problems

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# **Scientific Approaches to Environmental Problems**

## **EVST 501**

Fall 2002

Tues./Thurs. 9:40–11:00 am

205 Rankin

Facilitator: Steve Allison-Bunnell

Campus office: 102 Rankin

Home office phone: 829-3876

Office Hours: Mon./Weds. 9:00–10:00am or by appointment

### **Purpose of the Class**

The class is designed to introduce students without a science background to the approach, methodology, and concerns of scientists and scientific institutions. Students will do a real world project involving the gathering and translation of scientific/technical information for use in environmental campaigns. Ultimately the purpose of the class is to equip students with enough familiarity with science to interpret basic scientific materials, gather scientific information and effectively incorporate scientific information in an environmental campaign.

### **Schedule**

Sept. 3	Introductions
5	What is science?
Sept. 10	What science isn't / Projects
12	Science and worldviews
17	The hypothetico-deductive method
19	Statistics- type I & II error Select Project
24	Risk assessment (Len Broberg)
26	Science and politics
Oct. 1	Alternatives to risk assessment (Len Broberg) First Project Report Due / Action Plan/Journal Due
3	Biodiversity and conservation biology Action plan feedback returned
8	Science Research-Mansfield Library Info Center (Barry Brown) First reports returned
10	GIS, remote sensing, and data visualization
12	Attend Alliance for the Wild Rockies Rendezvous

	15	Modeling
	17	Values in science Action Plan/Journal Due
	22	Scientists as advocates- barriers & benefits Action plan feedback returned
	24	Conservation biology and activists
	29	Project presentations
	31	Project presentation
Nov.	5	Project presentations
	7	Project presentations / Second Project Report Due
	12	Project presentations / Action Plan/Journal Due
	14	Science and policymaking Action plan feedback returned
	19	Science and the media Second report returned
	21	Citizen science
	26	Science in the courtroom (Broberg)
	28	Thanksgiving Holiday – No Class
Dec.	3	Final presentations
	5	Final presentations
	10	Final presentations
	12	Last Day of Class Final presentations Final Project Report Due
	15	Monday 10:10am - 12:10pm Final exam period Final presentations
Jan.	1	Final reports returned

## **Projects**

Students will work individually on a project for a grassroots environmental organization. A list of potential projects will be distributed in class and posted on my door. In addition, a folder containing information relevant to the projects will be placed in the EVST reading

room, JRH M-3, for your review at your convenience. You must select a project by September 19th. I am happy to discuss projects with you before you choose one. Oftentimes more than one student wants to sign up for a project (or on projects divided between several students- more than the project can support)- I encourage you to seek out your classmates and try and resolve the duplication to your mutual satisfaction. In the event that you cannot decide the issue, the instructor will be the final arbiter.

The projects are designed to be completed in a semester by a single student. Some projects, however, require fieldwork to some degree and others require the acquisition of some biological skills in the field. These projects are excellent learning experiences, but make sure you allow adequate time in your schedule to handle the travel time and inevitable trial and error in the field so that you do not overload yourself.

Please do not contact the individual organizations about the project prior to the approval of your selection by the instructor, unless you gain instructor approval first. The groups are more than happy to hear from you, but we do not wish to burden them with multiple calls asking the same questions. Ask me first and we'll take it from there.

There are several steps to the project process. The timetable for these events is as follows:

#### Select project- September 19

In the first week following selection get in contact with the contact person and schedule a meeting (at least a phone conference) to get together with them and anyone else important to the project.

#### First Project Report- October 1

This report will do the following:

- 1) Identify the group with which you are working.
- 2) Outline the major scientific/technical issues that you will be addressing.
- 3) Identify why this work is important to the organization and the environment.
- 4) Detail what your concerns are about completing the project (what are your strong and weak points).
- 5) Initial operational plans for the project.
- 6) Set forth an ideal timeline for the project.

## Second Project Report- November 7

You will complete a report summarizing your work to date analyzing the scientific issues involved in your project and the political and social impacts of these issues. This will include an itemization of the major scientific issues involved, the needs of the advocates you are working with and the direction that your research/work seems to be leading. By agreement with the grassroots organization, this interim product can take a different form than the standard report.

Oral presentations to the class will be made on October 29 - November 12.

## Final Report- December 12

This will be the final work product you will produce for your client. You will make a final presentation to the class on December 3-12 or the final exam date 12/16 10:10 am- 12:10.

## **Action plan/daily journal**

In a daily journal format you will record the steps taken to complete your project. The journal will be a personal resource and planning tool that tracks your work. Every several weeks following project selection you will turn in the journal and an action plan that identifies the steps you will take in the coming weeks to complete the project so that the facilitator can make suggestions.

Action plan/journal due dates:

Oct. 1  
Oct. 17  
Nov. 12

## **Other exercises**

1. From time to time we will ask you to write your thoughts on issues relevant to the reading for class. These assignments should be typed double-spaced, with 1-inch margins. Length is less important than clarity, thoughtfulness, and organization.
2. There will be one assignment requiring you to use the library or other sources to find scientific support for a response to an article.
3. Students will be required to attend the Alliance for the Wild Rockies Rendezvous on Saturday, October 12<sup>th</sup>. The Rendezvous is at the Snowbowl Ski Area up Grant Creek Road. See <http://www.wildrockiesalliance.org/> for details and registration information. Contact David Bell at AWR (721-5420) to volunteer at the event in return for free registration.

## **Office Hours**

The facilitator has set office hours which are available for drop-in consultation. Steve is also available at other times by appointment. You may make appointments in class or by telephone. Steve will not be available at other times for drop-ins.

## **Grading**

The grade in the class will be based largely on the project and associated work (oral presentations, journal/action plan, and written reports/products). The breakdown is as follows:

Project 70%  
Class participation 20%  
Other assignments 10%

If I do not receive confirmation from your client group that they have received your final product by the end of exam week **YOU WILL RECEIVE AN INCOMPLETE!**

## **Learning Objectives**

By the end of the course students should:

1. Be able to explain and apply the scientific method to environmental problems.
2. Understand and communicate the strengths and limitations of science in resolving those issues.
3. Be able to locate and translate relevant scientific and/or technical material.
4. Be able to locate experts for consultation.
5. Have improved their oral and written communication and presentation skills.