ACQUIRING ENVIRONMENTAL KNOWLEDGE

ENST 200 —SPRING 2008

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Knowledge is the beginning of action.

Basic to solving any environmental problems is our confidence that the problems exists, and that we know what causes it. These questions – what is true, what causes what – underlie nearly all parts of environmental studies: science, social science, policy, humanities, and creative expression,

This course seeks to help environmental students understand where knowledge comes from, how we can consume it confidently, and how we can produce more.

THE COURSE MATERIAL

In this course we will learn to become better producers and consumers of environmental knowledge – producers as we do research, and consumers as we read about research in the technical and popular literature. These skills are essential to our capacity to understand environmental issues of any sort, and respond to them in any way.

These skills are the basis of science – the organized pursuit of knowledge. Sciences is often divided into natural science – searching for the principles behind the operation of nature – and social science – searching for the principles that underlie human behavior. Environmental studies, more than any other field, bridges the divide between these two sciences and we typically won't find the division useful, although we will be focusing on techniques that are associated with the social sciences.

The formal study of where knowledge comes from is epistemology. Epistemology asks questions about the relation between truth and believe, between knowledge os observation, between observation and our prior mental structures.

As consumers of knowledge we need to understand the process that gives good research its authority – the standards of scholarship that are enforced by the peer review system. We need to recognize the ways in which these standards are vulnerable to abuse and misunderstanding. It is through these abilities that we will keep from getting fooled, as scholars in our professional lives, as well as as citizens within policy debates. We will consider the issue of global warming as an extended example of the challenges inherent in consuming knowledge.

As producers we need to understand research as a long and intricate process – within which the familiar pieces like data collection, writing, bibliography – are essential steps.

Familiarity with the techniques for analyzing quantitative data is a crucial part of acquiring environmental knowledge as both a consumer and a producer. We will spend much of the semester working through several exercises meant to provide this familiarity. We will also focus on GIS and database processes, important social science research skills. Non-quantitative methods are also central to technical and public understandings of environmental issues.

COURSE ORGANIZATION

The course is centered around ten small and one large projects. We will work on a project about every week for the first 75% of the semester, at which time our focus will shift to the big project. Small projects will introduce specific research tools or other knowledge acquisition techniques such as bibliographic work. The large project will require a compresses excursion through the extended research process involved in writing a thesis or similar work. These projects will be presented to the classes at the end of the semester.

The main text is *Introduction to Social Research: Quantitative and Qualitative Approaches* by Keith F. Punch.

Grading: An aggregate grade will be derived from these weights:

Assignment	**Weight**
Eight to ten small projects	10 points each
Large project	50 points (to be allocated among the sub-tasks)
Mid-term exam on quantitative techniques	15 points
Minor writing exercises, etc.	10 points
Class participation	20 points
Total	175 – 195 points

Your grade will be curved against the performances of your colleagues to get a final letter grade.

TENTATIVE OUTLINE OF TOPICS

Date	*Week*	*Day*	*Tools*	*Task*	*Topic*	*Project stage*	*Text*
1/17	1	Th			Introduction to environmental research		Ch 1 & 2
1/22		Tu	Epistemology	Evaluating GW	Global warming		
1/24	2	Th			Certainty and uncertainty		
1/29		Tu	ArcMap & Excel	Cholera in London	Understanding data/Understanding scholarship		Ch 3
1/31	3	Th			GIS		
2/5		Tu	Measures of central tendancy & dispersal	Permeability of Campus	Pattern and process, causality		Ch 4, 5, 6
2/7	4	Th			Epidemiology		
2/12		Tu	Regression	Dose-response	Research design		Ch 7
2/14	5	Th			Carcinogens, dose response		
2/19		Tu	Sampling, standard error	Simulating cancer clusters	Reading scientific literature		
2/21	6	Th			Theory and research		
2/26		Tu	Bibliography	Semester topic search	Accessing the literatuire		
2/28	7	Th			Peer review process	Research proposal	
3/4		Tu	Qualitatve methods	Risk acceptance questionnaire	Risk perception; qualitative methods		Ch 8 & 9

3/6	8	Th			Policy choices	Bibliography	
3/11		Tu	Break				
3/13		Th	Break				
3/18		Tu	Environmental narrative	Journalism	Creative non-fiction		
3/20	9	Th				Data Sources	
3/25		Tu	Census	Environmental justice	Databases, demography		
3/27	10	Th			Environmental justice	Analysis plan	
4/1		Tu	Modeling	Predicting pollution	Modeling		
4/3	11	Th			Exposure data & models	Outline	
4/8		Tu	GPS & mapping	Field mapping	Field data		
4/10	12	Th			Grant writing		Ch 12
4/15		Tu			Peer review	Draft due to reviewers	
4/17	13	Th			Presentation	Presentation	
4/22		Tu			Presentation	Presentation	
4/24	14	Th			Presentation	Presentation	
4/29		Tu			Data and policy		