

**Appendix 3: ENVS 83**  
Social-ecological research methods

**Dartmouth College**

**Instructor:** Michael Cox  
**Class periods:** T-Th 10:00-11:50  
**Class location:** Reed 107  
**Office location:** 105 Fairchild  
**X-hours:** W 3-3:50

**Course description and background**

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This course is designed to train students in some of the skills that are important in research in human-environment interactions. Such interactions include humans extracting important renewable and non-renewable natural resources such as fish and forests, as well as producing wastes, such as greenhouse gases. This course is particularly recommended for students planning to conduct graduate-level research or senior theses related to human-environment interactions.

The course is oriented around one major activity, which is an individual project in which students will develop research proposals to answer questions regarding some aspect of human-environment interactions.

**Readings**

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We will be using the following textbooks:

Fowler, F.J. 2014. Survey Research Methods, 5<sup>th</sup> edition. SAGE Publications.

Yin, R.K. 2009. Case Study Research: Design and Methods, 4<sup>th</sup> edition. SAGE Publications.

**Course policies**

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(excluded here)

**Expectations, Grading and Assignments**

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Your grade will be based on the following components:

**Class participation: 15%**

Class participation will be evaluated based on your attendance to class periods and your level of activity within those periods. In a course this size I take this part of student evaluation seriously.

**Research proposals (85%)**

The primary project in the class will consist of a research proposal, which you will essentially be working on throughout the term. This project is broken down into many assignments, listed below. The due date for each assignment is listed below in the schedule. Each assignment is due by 5pm on the date indicated. Please hand in the assignments by emailing them directly to me.

Additional information on my expectations for each assignment will be discussed in the days leading up to the due date for that assignment.

Research question draft 1	(5%)
Research question draft 2	(5%)
Literature review	(5%)
Sampling draft	(10%)
Survey draft	(10%)
Analysis draft	(10%)
Presentations	(10%)
Proposal final draft	(30%)

## Course Schedule

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### March 25: Introduction to the class

**Reading:** No reading assignment

**Discussion:**

- 1) The approach of this class
- 2) Major expectations
- 3) Basic vocabulary for scientific research
- 4) Architecture of a research proposal/project
- 5) Skills that are important for human-environment research
- 6) Brainstorming possibilities for research projects

### March 27: Introduction to multi-method research and discussion of acequias project

**Reading:** Young, O. R., et al. 2006. A portfolio approach to analyzing complex human-environment interactions: institutions and land change. *Ecology and Society* 11:31 (online). (<http://www.ecologyandsociety.org/vol11/iss2/art31/>)

**Discussion:**

- 1) The different types of methods and data available for the analysis of human-environment interaction
- 2) Introduction to causal inference
- 3) Presentation of acequias research in New Mexico as a demonstration of a multi-method research project
- 4) Brainstorming possibilities for research projects

### April 1: Conducting research

**Reading:** Yin, chapter 2

**Discussion:**

- 1) The basic steps to conducting “normal” research
- 2) Elements of a research design

3) Types of research designs

**April 3: Evaluating research**

**Reading:** Research evaluation hand-out

**Discussion:** Criteria for evaluating research

**April 8: Types of data and types of analysis**

**Reading:** Yin, chapters 4 and 5

**Discussion:**

- 1) Different sources of evidence for research
- 2) Triangulation
- 3) Data storage and organization (review of software)
- 4) Different types of data analysis (review of software)

**April 10: Sampling and survey design**

**Reading:** Fowler chapters 2 and 3

**Discussion:**

- 1) More construct validity
- 2) Goals and methods of sampling
- 3) Types of sampling strategies

**Assignment:** Research questions draft 1 due

**April 15: Types of surveys**

**Reading:** Fowler chapter 5

**Discussion:**

- 1) Methods/types of surveys
- 2) Research questions thoughts

**April 17: Survey design**

**Reading:** Fowler chapters 6 and 7

**Discussion:**

- 1) How to write good survey questions
- 2) Social network analysis

**Assignment:** Research questions draft 2 due

**April 22: Statistics!**

**Reading:** No reading assignment

**Discussion:**

- 1) Review of foundations of statistical thinking
- 2) Any additional thoughts on research questions

**April 24: Statistics!**

**Reading:** No reading assignment

**Discussion:** Demonstration of statistical analysis of survey data in Stata

**Assignment:** Literature reviews due

**April 29: Statistics!**

**Reading:** No reading assignment  
**Discussion:** In-class statistical exercise on survey data

**May 1: Work on sampling drafts and surveys**

**Reading:** No reading assignment  
**Discussion:** Q&A on sampling drafts and surveys.  
**Assignment:** Sampling draft due

**May 6: Research an Buen Hombre fisheries**

**Reading:** No reading assignment  
**Discussion:** Molly Wilson guest lecture on Buen Hombre fishery project

**May 8: Guest lecture/discussion**

**Reading:** No reading assignment  
**Discussion:** TBD  
**Assignment:** Survey draft due

**May 13: Work on proposed analysis**

**Reading:** No reading assignment  
**Discussion:**  
1) Comments on surveys  
2) Q&A on analysis sections

**May 15: Work on projects in class and receive feedback**

**Reading:** No reading assignment  
**Discussion:** Discussion of class projects  
**Assignment:** Analysis draft due

**May 20: Presentations of final proposals**

**Reading:** No reading assignment  
**Discussion:** Student presentations

**May 22: Presentations of final proposals**

**Reading:** No reading assignment  
**Discussion:** Student presentations

**May 27: Office hours and wrap-up**

**Reading:** No reading assignment  
**Discussion:** Meet to discuss concerns and issues

**PROPOSAL FINAL DRAFT DUE JUNE 3<sup>rd</sup> AT 5PM**