

Course Outline

EST 603

RESEARCH METHODS & DESIGN

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SUNY College of Environmental Science and Forestry
Fall 2011, TuTh 9:30-10:50 am, Bray 313

DESCRIPTION

Overview

This course surveys foundations of (especially, social) scientific research methods and design. It is designed for first-year graduate students in Environmental Studies, with emphases in environmental policy, environmental communication and related fields; graduate students with a social or policy dimension to their research from other fields are welcome, as well. Topics include the scientific method; research ethics; research design; measurement; sampling; quantitative, qualitative, and mixed data collection techniques; data analysis and interpretation; and research proposal development. Students learn how to define a research question, explore the strengths and limitations of various research methods, gain brief practical experience with several data collection methods, and draft a preliminary research proposal. It is expected that, upon successful completion of this course, students will study in greater depth those particular research method(s) most appropriate for their research topic, question and field(s) of study. Required for students in the MS in Environmental Studies graduate program; enrollment limited to 15 students.

Objectives

By the completion of this course, students should be able to:

- Define a research question, clearly and succinctly;
- Determine appropriate levels and units of analysis for that research question;
- Operationalize a research question, specifying dependent and independent variables;
- Select appropriate method(s) for studying various types of research questions;
- Locate and review relevant peer-reviewed, scholarly literature on a selected question;
- Draft a preliminary research proposal; and
- Demonstrate familiarity with campus policies for the protection of human subjects, including Institutional Review Board (IRB) procedures.

Requirements

- Attend all class sessions;
- Read all required texts;
- Complete all required CITI protection of human subjects training modules (online);
- Complete all course research practica; and
- Write a preliminary research proposal.

Grading

Weekly assignments (11)	35%
Mid-term exam	20%
Research proposal & presentation	35%
Attendance and participation	10%

Communication

Office: Marshall 211B
 Hrs.: TuTh 11:00 am – 12:30 pm, & by appointment
 Tel. 315.470.4931/ 6636, fax 470.6915
 E-mail: <dsonn@esf.edu>, and <DASonnenfeld@gmail.com>
 URL: <http://www.esf.edu/es/sonnenfeld>

TEXTS

Required

Singleton, Royce A., Jr., and Bruce C. Straits. 2009. *Approaches to Social Research*, 5th ed. New York: Oxford Univ. Press. ISBN 0-19-537298-0 *** Must be 5th ed. ***

Recommended

Kuhn, Thomas S. 1996. *The Structure of Scientific Revolutions*, 3rd ed. Chicago: Univ. of Chicago Press. ISBN 0-226-45808-3

Öberg, Gunilla. 2011. *Interdisciplinary Environmental Studies: A Primer*. Hoboken, NJ: Wiley-Blackwell. ISBN 978-1-4443-3687-0

Bui, Yvonne N. 2009. *How To Write a Master's Thesis*. Los Angeles: Sage. ISBN 978-1-4129-5710-6

Meadows, Donella H. 2008. *Thinking in Systems: A Primer*, ed. Diana Wright. White River Junction, VT: Chelsea Green Publishing. ISBN 978-1-60358-055-7

Bookstore

Follett's Orange Bookstore, Marshall Square Mall, 720 University Ave., tel. 478.6821

RESEARCH PROPOSAL

Focus. May take the form of a preliminary research or funding proposal for master's thesis research (for MS students), a draft dissertation research or funding proposal (for PhD students), or a proposal for a research-based internship (for MS, MPS, or PhD students).

Contents. All of the following should be included: title, abstract, statement of problem/ research question, justification, review of the literature, formal statement of research question, dependent and independent variables, hypotheses, proposed research design and methods, measures for protection of human subjects, proposed research schedule, resource requirements, budget, possible funding sources, preliminary bibliography.

Intermediate Deliverables. Preliminary research question and abstract, **Week 3.** Preliminary bibliography, **Week 4.** Research question elaboration, **Week 6.** Research proposal outline & annotated list of possible funding sources, **Week 9.** Literature review, **Week 10.**

Oral Presentation. Present your research proposal in class, 10-15 min., including questions and discussion. **Week 14.** (20% of Research Proposal grade)

Written Proposal. Cover sheet, abstract, spelling and grammar checked, citations and references. Maximum length, 20 pp. double-spaced, inclusive. Due at beginning of the regularly scheduled **Final Exam** period for this course. (80% of Research Proposal grade)

SCHEDULE

PART I: SCIENCE IN CONTEXT

Week 1 – The Scientific Context: Philosophy of Science

Tues., 8/30: Course introduction

Why study research methods?

Aims of this course

Assumptions

Syllabus review

REQUIRED:

Singleton & Straits, *Approaches to Social Research*, preface, ch 1

ADDITIONAL:

Fuller, Steve. 1997. *Science*. Minneapolis: U Minn Press.

Thurs., 9/1: The scientific method

In historical perspective

Scientific revolutions (Kuhn)

Strengths, limitations & critiques

REQUIRED:

Singleton & Straits, *Approaches to Social Research*, ch 2

RECOMMENDED:

Kuhn, *Structure of Scientific Revolutions*

Öberg, *Interdisciplinary Environmental Studies*

ADDITIONAL:

Russell, Bertrand. 1965. *On the Philosophy of Science*. Indianapolis: Bobbs-Merrill.

Law, John. 2004. *After Method: Mess in Social Science Research*. NY: Routledge.

*** Weekly Assignment #1 – Essay: Why Science? (due Tues., 9/6) ***

Week 2 – The Intellectual Context: Selecting a Topic

Tues., 9/6: Selecting a problem/ topic

The relationship between theory and method

What makes a problem/ topic interesting?

What is researchable? Feasibility...

The 'so what?!' factor

The value of simplicity

REQUIRED:

Singleton & Straits, *Approaches to Social Research*, ch 4

RECOMMENDED:

Bui, *How to Write a Master's Thesis*, ch 2

ADDITIONAL:

Alford, Robert. 1998. *The Craft of Inquiry: Theories, Methods, Evidence*. NY: Oxford.

Blaikie, Norman. 2010. *Designing Social Research: The Logic of Anticipation*, 2nd ed. Malden, MA: Polity Press.

Newing, Helen. 2011. *Conducting Research in Conservation: Social Science Methods and Practice*. New York: Routledge.

*** Weekly Assignment #2 – Preliminary Research Question (due Tues., 9/13) ***

Thurs., 9/8: Workshop: selecting a topic

Week 3 – The Context of Research: Scholarship and Ethics

Tues., 9/13: Review of the Literature

Identifying relevant, peer-reviewed journals

Accessing scientific literature

Review essays

Critical perspectives

Properly citing and referencing source material

REQUIRED:

Singleton & Straits, *Approaches to Social Research*, ch 17, pp. 568-573

RECOMMENDED:

Bui, *How to Write a Master's Thesis*, ch 3

*** Weekly Assignment #3 – Preliminary Bibliography (due Tues., 9/20) ***

Thurs., 9/15: Protecting Human Subjects

Who are 'human subjects'?

Why do they need protection, and from whom?

How are they protected, and by whom?

Federal guidelines and regulations, incl. the Belmont Report

Professional codes of conduct

SU/ ESF Institutional Review Board procedures

REQUIRED:

Singleton & Straits, *Approaches to Social Research*, ch 3

National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. 1979. "The Belmont Report. Ethical Principles and Guidelines for the Protection of Human Subjects of Research." National Institutes of Health, April 18. Available: <http://ohsr.od.nih.gov/guidelines/belmont.html>

RECOMMENDED:

Bui, *How to Write a Master's Thesis*, ch 4

*** Weekly Assignment #4 – Complete IRB CITI training (due Tues., 9/20) ***

PART II: RESEARCH DESIGN

Week 4 – Elements of Research Design

Tues., 9/20: Workshop: Research Ethics

REQUIRED:

Collaborative Institutional Training Initiative (CITI) Web-based Training Program, available via on-campus access of the website of Syracuse University's Office of Research Integrity and Protections: <http://orip.syr.edu/humanresearch.php>. Estimated duration: 2-6 hrs. *Must be completed prior to class; bring copy of completion certificate.*

Thurs., 9/22: Levels and units of analysis

Research stages

Levels of analysis; levels of abstraction

Units of analysis

Ecological fallacy

REQUIRED:

Singleton & Straits, *Approaches to Social Research*, ch 4

RECOMMENDED:

Bui, *How to Write a Master's Thesis*, ch 2

ADDITIONAL:

Alford, Robert R., and Roger Friedland. 1985. "Theoretical perspectives as modes of inquiry."
Ch. 1 in *Powers of Theory: Capitalism, the State, and Democracy*. Cambridge, UK:
Cambridge University Press.

Alford, Robert R. 1998. *The Craft of Inquiry: Theories, Methods, Evidence*. NY: Oxford Univ.
Press.

Blaikie, Norman. 2010. *Designing Social Research: The Logic of Anticipation*, 2nd ed. Malden,
MA: Polity Press.

Week 5 – Research Variables***Tues., 9/27: Variables and Relationships***

Variables

Types of variables

Relationships between variables

Formulating research questions and hypotheses

REQUIRED:

Singleton & Straits, *Approaches to Social Research*, ch 4

ADDITIONAL:

Alford, Robert R. 1998. *The Craft of Inquiry: Theories, Methods, Evidence*. NY: Oxford.

*** Weekly Assignment #5 – Research Question Elaboration (due Tues., 10/4) ***

Thurs., 9/29: NO CLASS**Week 6 – Measurement and Sampling*****Tues., 10/4: Measurement***

The measurement process

Operationalization

Levels of measurement

Reliability

Validity

REQUIRED:

Singleton & Straits, *Approaches to Social Research*, ch 5

*** Weekly Assignment #6 – Measurement/ Sampling Exercise (due Tues., 10/11) ***

Thurs., 10/6: Sampling

Defining the population of interest
Sampling and case study approaches
Data analysis and interpretation
Sampling bias
Generalization

REQUIRED:

Singleton & Straits, *Approaches to Social Research*, ch 6

ADDITIONAL:

Ragin, Charles C., and Howard S. Becker, eds. 1992. *What Is a Case? Exploring the Foundations of Social Inquiry*. NY: Cambridge Univ. Press

Week 7 – Midway Course Review**Tues., 10/11: Research Design: Review and Discussion**

Research stages
Levels and units of analysis
Variables
Measurement
Sampling

Thurs., 10/13: Mid-Term Examination

*** Bring pencils and an eraser ***

Week 8 –Research Proposals and Funding**Tues., 10/18: Elements of a Research Proposal**

Why write a research proposal?
Elements of a research proposal
Research funding
Community of Science (CoS)

REQUIRED:

Pzeworski, Adam, and Frank Salomon. 1998. *The Art of Writing Proposals*. NY: Social Science Research Council. Available: <http://www.ssrc.org/publications/view/7A9CB4F4-815F-DE11-BD80-001CC477EC70/>

*** Weekly Assignment #7 – Research Proposal Development, Next Steps (due Tues., 10/25) ***

Thurs., 10/20: Workshop: Research Funding

PART III: RESEARCH METHODS (Methods of Data Collection)

Week 9 – Introduction: Selecting Appropriate Method(s)

Tues., 10/25: Overview of Research Methods

Overview of research methods

Quantitative (multivariate) methods

Qualitative (interpretive) methods

Using available data

Multimethod and applied research methods

REQUIRED:

Singleton & Straits, *Approaches to Social Research*, ch 1 (review)

RECOMMENDED:

Bui, *How to Write a Master's Thesis*, ch 6

ADDITIONAL:

Alford, Robert R. 1998. *The Craft of Inquiry: Theories, Methods, Evidence*. NY: Oxford.

Newing, Helen. 2011. *Conducting Research in Conservation: Social Science Methods and Practice*. New York: Routledge.

Ragin, Charles C. 2011. *Constructing Social Research: The Unity and Diversity of Method*. Thousand Oaks, CA: Sage.

*** Weekly Assignment #8 – Literature Review (due Tues., 11/1) ***

Thurs., 10/27: Survey Research Design

General features of survey research

Uses and limitations of surveys

Survey research designs

Steps in and forms of survey research

Administering surveys

REQUIRED:

Singleton & Straits, *Approaches to Social Research*, ch's 9, 15-16

Week 10 – Survey Instrumentation

Tues., 11/1: Questionnaire Construction

Designing and developing a survey

Types of questions

Pretesting

REQUIRED:

Singleton & Straits, *Approaches to Social Research*, ch 10

RECOMMENDED:

Singleton & Straits, *Approaches to Social Research*, ch's 15-16

ADDITIONAL:

Dillman, Don, et al. 2008. *Internet, Mail, and Mixed-Mode Surveys: The Tailored Design Method*. Hoboken, NY: John Wiley.

*** Weekly Assignment #9 – Survey Research Exercise (due Tues., 11/8) ***

Thurs., 11/3: Survey Research Practicum

Week 11 – Qualitative Methods I

Tues., 11/8: Field Research Methods

Participant observation/ ethnographic research

Participatory action research

REQUIRED:

Singleton & Straits, *Approaches to Social Research*, ch 11

RECOMMENDED:

Wilmsen, et al., *Partnerships for Empowerment*

ADDITIONAL:

Fetterman, David M. 1998. *Ethnography: Step by Step*, 2nd ed. Thousand Oaks: Sage.

Emerson, Robert M., et al. 1995. *Writing Ethnographic Fieldnotes*. Chicago: Univ. Chicago Press.

Colfer, Carol Pierce, ed. 2005. *The Equitable Forest: Diversity, Community, & Resource Management*. Washington, DC: Resources for the Future

*** Weekly Assignment #10 – Participant Observation Exercise (due Tues., 11/15) ***

Thurs., 11/10: Participant Observation Practicum

Week 12 – Qualitative Methods II

Tues., 11/15: Using Available Data

Discourse/ content analysis

Comparative historical analysis

Case-study based research

What is a case?

REQUIRED:

Singleton & Straits, *Approaches to Social Research*, ch 12

RECOMMENDED:

Ragin, Charles C., and Howard S. Becker. 1992. *What Is a Case? Exploring the Foundations of Social Inquiry*. NY: Cambridge Univ. Press.

ADDITIONAL:

Ragin, Charles C. 1987. *The Comparative Method: Moving Beyond Qualitative and Quantitative Strategies*. Berkeley: UC Press.

Yin, Robert K. 1992. *Case Study Research: Design and Methods*. Thousand Oaks, Calif.: Sage.

*** Weekly Assignment #11 – Available Data Research Exercise (due Tues., 11/29) ***

Thurs., 11/17: Available Data Practicum

THANKSGIVING BREAK

Week 13 – Integrative Research Methods

Tues., 11/29: Multimethod Research

Mixed research methods

Applied research methods

Systems approaches

REQUIRED:

Singleton & Straits, *Approaches to Social Research*, ch 13

RECOMMENDED:

Meadows, *Thinking in Systems*

ADDITIONAL:

Brewer, John, and Albert Hunter. 2006. *Foundations of Multimethod Research: Synthesizing Styles*. Thousand Oaks, Calif.: Sage.

Clark, Tim W. 2002. *The Policy Process: A Practical Guide for Natural Resource Professionals*. New Haven, CT: Yale Univ. Press.

Estrella, Marisol, ed. 2000. *Learning from Change: Issues and Experiences in Participatory Monitoring and Evaluation*. Ottawa: IDRC.

Holling, C.S., ed. 1978. *Adaptive Environmental Assessment and Management*. New York: John Wiley.

Kasemir, Bernd, et al. 2003. *Public Participation in Sustainability Science: A Handbook*. New York: Cambridge Univ. Press.

Scholz, Roland W., and Olaf Tietje. 2002. "System Dynamics". Ch. 10 in *Embedded Case Study Methods: Integrating Quantitative and Qualitative Knowledge*. Thousand Oaks, CA: Sage.

Stoecker, Randy. 2005. *Research Methods for Community Change: A Project-Based Approach*. Thousand Oaks: Sage.

Thurs., 12/1: Research Proposals – Open Workshop

PART IV: RESEARCH PROPOSALS

Week 14 – Student Presentations/ Discussion

Finals Week – Research Proposals Due