Course Outline

EST 603

RESEARCH METHODS & DESIGN

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Department of Environmental Studies

SUNY College of Environmental Science and Forestry

Fall 2012, TuTh 9:30-10:50 am, Bray 300

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 the CITI online protection of human subjects training module;
- 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: 211-B Marshall
Hrs.: TuTh 11:00am–12:20pm
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E-mail: <dsonn@esf.edu>, and <DASonnenfeld@gmail.com>
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TEXTS

Required


Recommended


Bookstore

Syracuse University Bookstore, Schine Student Center, tel. 315.443.9900, http://bookstore.syr.edu/
RESEARCH PROPOSAL

Focus. This major assignment 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 MPS 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.


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

SCHEDULE

PART I: SCIENCE IN CONTEXT

Week 1 – The Scientific Context: Philosophy of Science

Tues., 8/28: Course introduction

Why study research methods?
Aims of this course
Assumptions
Syllabus review
REQUIRED:
Singleton & Straits, Approaches to Social Research, preface, ch 1
ADDITIONAL:

Thurs., 8/30: 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:


**Week 2 – The Intellectual Context: Selecting a Research Topic**

**Tues., 9/4: Selecting a problem or 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:

*** Weekly Assignment #2 – Preliminary Research Question (due Tues., 9/11) ***

**Thurs., 9/6: Workshop: selecting a research topic**

**Week 3 – The Context of Research: Scholarship and Ethics**

**Tues., 9/11: Review of prior scholarship**

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., 9/18) ***

**Thurs., 9/13: Protecting human subjects**

Who are 'human subjects'? (definition)
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


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

*** Weekly Assignment #4 – Complete SU/ IRB CITI training (due Tues., 9/18) ***

**PART II: RESEARCH DESIGN**

**Week 4 – Elements of Research Design**

**Tues., 9/18: Workshop: research ethics**

GUEST SPEAKER:
Tracy Cromp & Jeanne Diederich, Office of Research Integrity and Protections, Syracuse University

REQUIRED:

**Thurs., 9/20: 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:


**Week 5 – Research Variables and Measurement**

**Tues., 9/25: 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:

*** Weekly Assignment #5 – Research Question Elaboration (due Tues., 10/2) ***

**Thurs., 9/27: 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 Thurs., 10/4) ***
Week 6 – Sampling and Course Review

**Tues., 10/2: 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:**

**Thurs., 10/4: Research design: review & discussion**
- Research stages
- Levels and units of analysis
- Variables
- Measurement
- Sampling

Week 7 – Mid-term Exam; Intro to Research Proposals

**Tues., 10/9: Mid-term examination**
*** Bring pencils and an eraser ***

**Thurs., 10/11: Elements of a research proposal**
- Why write a research proposal?
- Elements of a research proposal
- Research funding
- Community of Science (CoS)

**REQUIRED:**

*** Weekly Assignment #7 – Research Proposal Development (due Thurs., 10/18) ***
Week 8 – Funding; Intro to Research Methods

Tues., 10/16: Workshop: research funding

GUEST SPEAKER:
Jane Verostek, Moon Library

RECOMMENDED:
"ESF Grants Search" Library Guide: [http://libguides.esf.edu/grants](http://libguides.esf.edu/grants)

*** Note: Class session will be in Baker 314 (computer lab) ***

Thurs., 10/18: 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:

*** Weekly Assignment #8 – Literature Review (due Thurs., 10/25) ***

PART III: RESEARCH METHODS (Methods of Data Collection)

Week 9 – Survey Research Methods

Tues., 10/23: 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
**Thurs., 10/25: 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:**

*** Weekly Assignment #9 – Survey Research Exercise (due Thurs., 11/1) ***

**Week 10 – Qualitative Methods I**

**Tues., 10/30: Survey research practicum**

*** Note: Class session in Moon 14 (computer lab) ***

**Thurs., 11/1: 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:**

*** Weekly Assignment #10 – Participant Observation Exercise (due Thurs., 11/8) ***

**Week 11 – Qualitative Methods II**

**Tues., 11/6: Participant observation practicum**

**Thurs., 11/8: 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:

ADDITIONAL:

*** Weekly Assignment #11 – Available Data Research Exercise (due Thurs., 11/15) ***

Week 12 – Integrative Research Methods

Tues., 11/13: Available data practicum

*** Note: Class session in Moon 14 (computer lab) ***

Thurs., 11/15: Multimethod research

Mixed research methods
Applied research methods
Meta-analysis

REQUIRED:
Singleton & Straits, Approaches to Social Research, ch 13

ADDITIONAL:

THANKSGIVING BREAK
Week 13 – Integrative Research Methods (cont’d)

**Tues., 11/27: Systems approaches**

GUEST SPEAKER:

Myrna Hall, Dept. of Environmental Studies

RECOMMENDED:

Meadows, *Thinking in Systems*

ADDITIONAL:


**Thurs., 11/29: Research proposals – open workshop**

PART IV: RESEARCH PROPOSALS

Week 14 – Student Presentations/ Discussion

Finals Week – Research Proposals Due