Course Outline

EST 603

RESEARCH METHODS & DESIGN

David A. Sonnenfeld, Ph.D.
Department of Environmental Studies

SUNY College of Environmental Science and Forestry
Fall 2010, TuTh 12:30-1:50 pm, Marshall 319

DESCRIPTION

Overview

This graduate course comprehensively surveys the foundations of (especially, social) scientific research methods and design. It is designed for first-year graduate students in Environmental Studies, with emphases in environmental communication, environmental policy and related fields. Topics include the scientific method; research ethics; research design; research design; measurement; sampling; research proposal development; quantitative, qualitative, and mixed data collection techniques; and data analysis and interpretation. Students will learn how to define a research question, explore the strengths and limitations of various research methods, gain brief practical experience with several methods, and draft a preliminary research proposal. It is expected that subsequent to this course students will conduct additional studies on method(s) most appropriate for their research.

Objectives

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

- Clearly and succinctly define a research question;
- Determine appropriate levels and units of analysis for that question;
- Operationalize a research question, defining independent and dependent variables;
- Select research method(s) appropriate to answering various research questions;
- Complete a review of relevant literature on a selected research question;
- Draft a preliminary master's (or doctoral) research proposal; and
- Demonstrate familiarity with policies for protection of human subjects, including Institutional Review Board (IRB) procedures.
Requirements

- Attend all class sessions;
- Read all required texts;
- Complete all course research practica;
- Complete a preliminary research proposal.

Grading

- Weekly assignments (12) 40%
- Mid-term exam 20%
- Preliminary research proposal & presentation 20%
- Final exam 20%

Communication

Office: TBA
Hrs.: M 3-5 pm; W 2-3:30 pm & by appointment
Tel. 315.470.4931, fax 315.470.6915
E-mail: <dsonn@esf.edu>, and <DASonnenfeld@gmail.com>
URL: http://www.esf.edu/es/sonnenfeld

TEXTS

Required


Recommended


Bookstore

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

PART I: SCIENCE IN CONTEXT

Week 1 – The Scientific Context: Philosophy of Science

Course introduction

The scientific method

In historical perspective
Scientific revolutions (Kuhn)
Strengths, limitations & critiques

REQUIRED:
Singleton & Straits, Approaches to Social Research, ch's 1, 2

RECOMMENDED:
Kuhn, Structure of Scientific Revolutions

ADDITIONAL:

*** Weekly Assignment #1 – Essay: Why Science? ***

Week 2 – The Intellectual Context: What Is a Research Question?

The relationship between theory and method

What makes a question interesting?

What is researchable? Feasibility...

The 'so what' factor

The value of simplicity

REQUIRED:
Singleton & Straits, Approaches to Social Research, ch 4

RECOMMENDED:
Booth et al., The Craft of Research, ch's 1-4
Bui, How to Write a Master's Thesis, ch 2

ADDITIONAL:

*** Weekly Assignment #2 – Research Question & Abstract ***
Week 3 – The Scholarly Context: Understanding the Literature

*Identifying relevant journals*

*Accessing scientific literature*

*The peer-review process*

*Review essays*

*Critical perspectives*

REQUIRED:
Singleton & Straits, *Approaches to Social Research*, ch 17

RECOMMENDED:
Booth et al., *The Craft of Research*, ch's 5-6
Bui, *How to Write a Master's Thesis*, ch 3

*** Weekly Assignment #3 – Preliminary Bibliography ***

Week 4 – The Ethical Context: Research Ethics

*Protecting human subjects*

*Historical perspectives*

*Contemporary institutions*

*Professional codes of conduct*

*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 – Draft IRB Proposal ***

PART II: RESEARCH DESIGN

Week 5 – Elements of Research Design

*Units of Analysis*

*Variables*

*Relationships between variables*

*Formulating questions and hypotheses*
Research stages

REQUIRED:
Singleton & Straits, Approaches to Social Research, ch 4

ADDITIONAL:

*** Weekly Assignment #5 – Research Question Elaboration ***

Week 6 – Measurement

REQUIRED:
Singleton & Straits, Approaches to Social Research, ch 5

*** Weekly Assignment #6 – Measurement Exercise ***

Week 7 – Sampling

Defining the population of interest

Sampling approaches

Case study approaches

Data analysis

Interpretation
Bias
Generalization

REQUIRED:
Singleton & Straits, Approaches to Social Research, ch 6

ADDITIONAL:

MID-TERM EXAMINATION

Week 8 – Writing a Research Proposal

Elements of a Research Proposal

Research Funding

Community of Science (CoS)

REQUIRED:
http://www.ssrc.org/publications/view/7A9CB4F4-815F-DE11-BD80-001CC477EC70/
PART III: DATA COLLECTION & ANALYSIS

Week 9 – Introduction: Selecting Appropriate Method(s)

*Overview of research methods*

*Using available quantitative datasets*

_Inter-University Consortium for Political and Social Research (ICPSR)_

REQUIRED:
Singleton & Straits, _Approaches to Social Research_, ch's 12, 15-16

*** Weekly Assignment #9 – Inventory of Available Data(sets) ***

Week 10 – Quantitative Methods: Survey Research

*Planning for survey research*

*Designing a survey/ developing the survey instrument*

Interpreting quantitative results

REQUIRED:
Singleton & Straits, _Approaches to Social Research_, ch's 9-10

ADDITIONAL:

*** Weekly Assignment #10 – Survey Research Design ***

Week 11 – Qualitative Methods: Participatory Research

*Participant observation/ ethnographic research*

*Participatory action research*

REQUIRED:
Singleton & Straits, _Approaches to Social Research_, ch 11

ADDITIONAL:

*** Weekly Assignment #11 – Participant Observation Practicum ***
Week 12 – Qualitative Methods: Using Available Data

Discourse/ content analysis
Comparative historical analysis

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

ADDITIONAL:

*** Weekly Assignment #12 – Content Analysis ***

Week 13 – Integrative, Mixed and Applied Research Methods

*Systems analysis*

*Spatial analysis*

*Mixed research methods*

*Applied research methods*

REQUIRED:
Singleton & Straits, *Approaches to Social Research*, ch's 13-14

ADDITIONAL:

*** Weekly Assignment #13 – Research Design ***

PART IV: CONCLUSION

Week 14 – Student Presentations/ Discussion

*Preliminary Research Proposals (Masters students)*

*Draft Grant Proposals (PhD students)*

FINAL EXAMINATION