Course Outline

EST 603

RESEARCH METHODS & DESIGN

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Department of Environmental Studies

SUNY College of Environmental Science and Forestry
Fall 2015, TuTh 9:30-10:50 am, Bray 300

DESCRIPTION

Overview
This course surveys foundations of (especially, social) scientific research methods and design. While designed for first-semester MS in Environmental Studies students, all masters and PhD students with a ‘human dimensions’ or policy aspect to their research are welcome. 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 a variety of social science research methods, gain practical experience with several data collection methods, and draft a preliminary research proposal. Upon successful completion of this course, it is expected that students will conduct further study of those method(s) of data collection and analysis most appropriate to their research topic, question, and field(s) of study.

Prerequisites
While there are no formal prerequisites for this course, prior or concurrent coursework in statistics is recommended.

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 online training modules on protection of human subjects
• Complete all course research practica
• Write a preliminary research proposal

Grading

Weekly assignments (11) 30%
Mid-term exam 30%
Research proposal & presentation 30%
Attendance and participation 10%

Communication

Office: 211-B Marshall
Hrs.: M Tu 3:30–5:20pm & 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


Recommended


Bookstore

ESF Virtual Bookstore, available via myESF. For further information see: http://www.esf.edu/students/books.htm
RESEARCH PROPOSAL

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

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

Intermediate deliverables. Preliminary research question and abstract (Week 3). Preliminary bibliography (Week 5). 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 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., 9/1: 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., 9/3: 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., 9/8: 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., 9/15) ***

**Thurs., 9/10: Workshop: selecting a research topic**

**Week 3a – The Scholarly Context: Reviewing Prior Studies**

**Tues., 9/15: 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 – Complete SU/ IRB CITI training (due Tues., 9/22) ***

*** Weekly Assignment #4 – Preliminary Bibliography (due Thurs., 9/24) ***

**Week 3b – The Ethical Context: Protecting Human Subjects**

**Thurs., 9/17: 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

**Week 4a – The Ethical Context: Protecting Human Subjects (cont'd)**

**Tues., 9/22: Workshop: research ethics**

GUEST SPEAKER:

Representative, Office of Research Integrity and Protections, Syracuse University

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. Estimated duration: 2-6 hrs. Must be completed prior to class; bring copy of completion certificate.

**PART II: RESEARCH DESIGN**

**Week 4b – Units of Analysis & Variables**

**Thurs., 9/24: 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:

*** Weekly Assignment #5 – Research Question Elaboration (due Tues., 9/29) ***

**Week 5 – Units of Analysis & Variables (cont'd)**

**Tues., 9/29: 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:

**Thurs., 10/1: 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., 10/8) ***
Week 6 – Measurement and Sampling

Tues., 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:

Thurs., 10/8: Research design: review & discussion

Research stages
Levels and units of analysis
Variables
Measurement
Sampling

Week 7 – Course Review; Writing Research Proposals

Tues., 10/13: Mid-term examination

*** Bring pencils and an eraser ***

Thurs., 10/15: Elements of a research proposal

Why write a research proposal?
Elements of a research proposal

REQUIRED:

*** Weekly Assignment #7 – Research Proposal Outline (due Tues., 10/20) ***

Week 8 – Research Funding

Tues., 10/20: Workshop: research funding

Research funding
Pivot funding database
GUEST SPEAKER:
Jane Verostek, Moon Library

RECOMMENDED:
"ESF Grants Search" Library Guide:  http://libguides.esf.edu/grants

*** Note: Class session will be in Computer Lab (TBA) ***

Thurs., 10/22: NO CLASS

PART III: RESEARCH METHODS

Week 9 – Overview; Survey Research Design

Tues., 10/27: 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 Tues., 11/3) ***

Thurs., 10/29: 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 9

RECOMMENDED:
Singleton & Straits, Approaches to Social Research, ch's 15-16
Week 10 – Survey Research Methods

Tues., 11/3: 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 Tues., 11/10) ***

Thurs., 11/5: Survey research practicum
*** Note: Class session in Computer Lab (TBA) ***

Week 11 – Field Research Methods

Tues., 11/10: 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 Tues., 11/17) ***

Thurs., 11/12: Participant observation practicum

Week 12 – Using Available Data

Tues., 11/17: 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 Tues., 12/1) ***

**Thurs., 11/19: Available data practicum**

*** Note: Class session in Computer Lab (TBA) ***

**THANKSGIVING BREAK**

**Week 13 – Integrative Research Methods**

**Tues., 12/1: Systems and multimethod research**

- Systems approaches
- Mixed research methods
- Applied research methods
- Meta-analysis

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

RECOMMENDED:
Meadows, *Thinking in Systems*

ADDITIONAL:

**PART IV: RESEARCH PROPOSALS**

**Thurs., 12/3: Research proposals – open workshop**
Week 14 – Student Presentations/ Discussion

Tues., 12/8

Thurs., 12/10

Finals Week – Research Proposals Due

NOTICES

Accommodations

SUNY-ESF works closely with the Office of Disability Services (ODS) at Syracuse University in assisting students with learning and physical disabilities. If you believe that you need accommodations for a disability, you may contact the ESF Office of Student Affairs, 110 Bray Hall, tel. 315.470.6660, for assistance with the process. You may also contact ODS directly, Room 309 of 804 University Avenue, 315.443.4498, to schedule an appointment to discuss your needs and the process for requesting accommodations. ODS is responsible for coordinating disability-related accommodations and will issue students with documented Disabilities Accommodation Authorization Letters, as appropriate. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible. To learn more about ODS, visit http://disabilityservices.syr.edu.

Academic integrity

Plagiarism is presenting others' work as your own without properly acknowledging its source(s). Plagiarism includes verbatim and close paraphrasing of material from course texts and other published materials, cutting and pasting from electronic sources, and unattributed paraphrasing. Acts of academic dishonesty are defined in the ESF Academic Integrity Handbook and violate the College's Code of Student Conduct. Students are accountable for such acts. If you have any questions about how to properly use & cite others' original work, please consult writing reference texts, your instructor, or other campus resources.

Cell phones

This course is intended as an educational experience. To ensure that the classroom learning environment is conducive for all, please turn your cell phone off while class is in session. (If, due to a personal emergency, you need to maintain your phone on silent mode, please notify the instructor in advance.)

Fire alarm procedures

If a fire alarm sounds, exit the building immediately to the designated area for this course. Stay together as a class, until released. Take all personal belongings with you, including electronics, backpacks, coats and keys. Please let your instructor know in advance if you might have any special needs in case of a building evacuation. For further information, contact the Office of Student Affairs, tel. 315.470.6660.