Case Studies: Thesis Research Design

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Class times: Tuesdays and Thursdays, 6 - 10 PM—Seminar II D-1107 (additional break-out rooms: Tuesdays, Library 1412; Thursdays, Seminar II D-3107, D-3109)

Individual meetings with faculty: by arrangement—Tuesdays and Thursdays, 4.30-6 pm preferred

<u>Objectives</u>

This class, the last of the required core sequence for Master's in Environmental Studies students, has four major objectives:

- to enhance the understanding of research methods for people headed for professional careers in the environment (work in agencies, non-profits, for-profit companies, and academia);
- to solidify and enhance the learning of quantitative and qualitative analysis accomplished in Methods courses (e.g. Spring 2008);
- to build the skills needed to successfully formulate and execute a thesis; and
- to prepare a polished draft of the Thesis Prospectus for discussion with thesis readers (students not ready to write a Prospectus at this time will complete an alternative assignment).

<u>Case study format</u>

In the first week of the program, students will work through the MES Thesis Handbook to understand what we ask of thesis writers. They may begin the construction of their own Prospectus at this time, but the more important goal will be to understand what each part of the Prospectus is seeking. We will introduce students to the Human Subjects Review process so they understand it as an integral part of research, and we will bring in guests to suggest possible areas for thesis work.

In weeks two through nine, the faculty will present four formal cases, each based on specific topics of research now pursued in environmental studies. We will read a "central" research paper and several relevant auxiliary papers. In each case, students will work through structured assignments designed to deconstruct and critically analyze the research. This will involve coming to grips with the authors' formulation of the research question, the structuring of information gathering, the selection of analytical tools and methods, the placing of the research in its intellectual and sociopolitical context, the framing of the presentation, and the use of text and graphics to communicate the findings. We will orient all discussions to the issues embedded in the Thesis Prospectus. Where possible, we will invite the researcher(s) to speak about their work, either in person or by conference telephone call. By working intensively with high quality research, students will gain the independent capacity to "think like a researcher."

Writing Assignments

For each case study, students will prepare a brief analysis that dissects the research example studied. This paper will provide a critical assessment of the primary research paper examined, place it into its context, and assess its effectiveness. These papers will integrate materials from the lectures, readings, and workshops for the respective cases. A separate handout will provide more details.

In week ten, students will submit their respective drafts of their Thesis Prospectus or alternative paper. They will also give an oral presentation and receive critical feedback from the class.

<u>Selection of cases</u>

The four cases developed in weeks two through nine will illustrate provocative examples of important research in environmental issues. Cases will examine

§ invasive species	\S economic effects of urban environment
§ phytoremediation of pollution	§ regulation of toxic waste

<u>Readings</u> (Aside from the one book (*Silent Scourge*, asigned for right after Thanksgiving), materials will generally be available on the class Moodle site.)

- Theodore M. Porter, Quantification and the accounting ideal in science, *Social Studies of Science*, 22 (4) (November 1992): 633-651
- Longley, Kirsi, The feasibility of poplars for phytoremediation of TCE contaminated groundwater: a cost-effective and natural alternative means of groundwater treatment, Evergreen State College. Graduate Program in Environmental Studies, 2007 (Online pdf file accessible at <u>http://archives.evergreen.edu/masterstheses/</u>Accession86-10MES/Longley_K%20MESThesis%202007.pdf)
- Lee A. Newman et al., Remediation of trichloroethylene in an artificial aquifer with trees: a controlled field study, *Environmental Science & Technology* 33 (13) (1999): 2257-2265
- Xingmao Ma and Joel Burken, Modeling of TCE diffusion to the atmosphere and distribution in plant stems, *Environmental Science & Technology* 38 (17) 2004: 4580-4586
- Sean B. Menke and David A. Holway, Abiotic factors control invasion by Argentine ants at the community scale, *Journal of Animal Ecology* 75 (2006): 368–376
- David A. Holway, Lori Lach, Andrew V. Suarez, Neil D. Tsutsui, and Ted J. Case, The causes and consequences of ant invasions, *Annu. Rev. Ecol. Syst.* 33 (2002): 181–233
- David A. Holway, Andrew V. Suarez, and Ted J. Case, Role of abiotic factors in governing susceptibility to invasion: a test with Argentine ants, *Ecology*, 83(6) (2002): 1610-1619
- Donald Schön, Reflective Practice in the Science-Based Professions, in *The Reflective Practitioner: How* Professionals Think in Action (New York : Basic Books, 1983): 168-203
- Vicki Been and Ioan Voicu, The Effect of Community Gardens on Neighboring Property Values, (Law & Economics Research Paper Series, Working Paper 06-09) (New York: New York University Center for Law and Economics, March 2006)

(NOTE: there will be 1-3 additional readings as the precursor literature for this paper by Been and Voicu.)

Jason Scott Johnston, The promise and limits of voluntary management-based programs, Institute for Law and Economics Research Paper 05-17 (Philadelphia: University of Pennsylvania, April 2005)

This paper can be downloaded without charge from the Social Science Research Network Electronic Paper Collection: <u>http://ssrn.com/abstract=712103</u>

- Kathleen Segerson and Thomas J. Miceli, Voluntary Environmental Agreements: Good or Bad News for Environmental Protection? *Journal of Environmental Economics and Management*, 36 (1998): 109-130
- Cary Coglianese and Laurie K. Allen, Does consensus make common sense? An analysis of EPA's Common Sense program, *Environment* 46 (1) (January/February 2004): 11-25
- Moore, Colleen, *Silent Scourge: Children, Pollution, and Why Scientists Disagree* (New York: Oxford University Press, 2003), 320 pp. ISBN-10: 019515391X; ISBN-13: 978-0195153910.

Detailed Weekly Schedule

Week	D – D – M	Activity	Reading
1	Tue-30-Sept	Lecture—Introductions and Reintroductions Program House-keeping Workshop: Understanding the Thesis Handbook Discussion: Human Subjects Review Performance: The Bayard Interview	none
	Thu-2-Oct	The MES Thesis: a panel Seminar: Porter	Porter, "Quantification and the Accounting Ideal in Science"
2	Tue-7-Oct	Lecture—Groundwater and Toxics (Jim Stroh) Commentary—Peter Workshop: Translations; Question, Framing, Methods	Longley, The Feasibility of Poplars for Phytoremediation of TCE Contaminated Groundwater
	Thu-9-Oct	Lecture and Discussion—Kirsi Longley Workshop: Situating the research in the literature review (QFM for prior articles; background accepted— background contested; intended consequences of new research)	Newman et al., "Remediation in an artificial aquifer" Ma and Burken, "Modeling of TCE diffusion"
3	Tue-14-Oct	Panel—research needs in state agencies Workshop: Understanding the methods used in Longley	Review Longley
	Thu-16-Oct	Lecture—Current Topics in Groundwater and Health (Maria Bastaki) Commentary—Rob Workshop: Assessing the successes, weaknesses, effectiveness, and reasons Due: Case Study Assessment No. 1	
4	Tue-21-Oct	Lecture—Ants (Jack Longino) Commentary—Rob Workshop: Translations; Question, Framing, Methods	Menke and Holway, "Abiotic factors control invasion by Argentine ants at the community scale"
	Thu-23-Oct	Lecture and Discussion—Sean Menke Workshop: Situating the research in the literature review (QFM for prior articles; background accepted— background contested; intended consequences of new research)	Holway et al., "Causes and consequences" and Holway et al., "Role of abiotic factors"

Week	D – D – M	Activity	Reading
5	Tue-28-Oct	Lecture—Invasive Species in Washington (Bridget Moran, Department of Fish and Wildlife) Commentary—Peter	
		Workshop: Understanding the methods used in Menke- Holway	Review Meke and Holway [methods chapter]
	Thu-30-Oct	Seminar: Schön Workshop: Assessing the successes, weaknesses, effectiveness, and reasons	Schön, Reflective Practice in the Science-Based Professions
		Due: Case Study Assessment No. 2	
6	Tue4 Nov	Lecture—Urban Environment and Real Estate Markets (Peter) Workshop: Translations; Question, Framing, Methods	Been and Voicu, "The Effect of Community Gardens on Neighboring Property
		Discussion—Election Night In-House Punditry: What Might the Results Mean for Environmental Issues?— Faculty and Students	Values"
	Thu-6-Nov	Lecture and Discussion—Been	Been and Voicu
		Workshop: Situating the research in the literature review (QFM for prior articles; background accepted— background contested; intended consequences of new research)	precusors. That
7	Tue-11-Nov	Lecture—A Non-algebra Guide to the Econometrics in Been and Voicu	
		Workshop: Understanding the methods used in Been and Voicu	Review Been and Voicu [methods chapter]
	Thu-13-Nov	Lecture—Urban Design (Jennifer Gerend and Rob) Comentary—Peter	
		Workshop/Seminar: Assessing the successes, weaknesses, effectiveness, and reasons	
		Due: Case Study Assessment # 3	
8	Tue-18-Nov	Lecture—Environmental Regulation (Peter) Commentary—Rob	Johnston, "The Promise and Limits of Voluntary
		Workshop: Translations; Inferring Questions and Framing; Methods	Management-Based Programs"
	Thu-20-Nov	Lecture and Discussion—Johnston	Segerson and Miceli, "Voluntary
		Workshop: Situating the research in the literature review (QFM for prior articles; background accepted— background contested; intended consequences of new research)	Agreements" and Coglianese and Allen, "Consensus"

Week	D – D – M	Activity	Reading
	24-28 Nov	Thanksgiving Week—No classes	
9	Tue-2-Dec	Workshop: Understanding the methods used in Johnston Seminar: <i>Silent Scourge</i>	Moore, Colleen, Silent Scourge: Children, Pollution, and Why Scientists Disagree
	Thu-4-Dec	Lecture—Private/Public Approaches to Puget Sound (Duane Fagergren, Puget Sound Partnership) Workshop/Seminar: Assessing the successes, weaknesses, effectiveness, and reasons Due: Case Study Assessment #4	
10	Tue-9-Dec	Student presentations-prospectus or alternative	
	Thu-11-Dec	Student presentations-prospectus or alternative	
	15-19 Dec	Evaluation Week	