

**RES 502 - 202** (3.0 credits)

# Interdisciplinary Case Analysis and Research Design (Master's Level)

2016-2017W, Term 2  
Wednesday 9am-12pm, AERL 107/108

## Instructor

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## Course Overview

This course explores how to design effective, interdisciplinary research for addressing a broad range of problems in the area of environment and sustainability. Case studies are used to develop understanding and insight into research design fundamentals, including developing researchable topics, reviewing relevant literature, and selecting suitable research methods for evidence collection and analysis. Cases are selected to encompass a broad range of research methods (qualitative, quantitative, and mixed), and to demonstrate their strengths and limitations. Students will gain experience in developing and communicating research designs through written proposals and oral presentations. This section of RES 502 is designed for master's students.

## Course Objectives

The goals of this course are to help students gain:

- literacy in research methods;
- familiarity with effective research design; and
- experience in developing a defensible research proposal.

While both qualitative and quantitative methods will be discussed, as well as mixed methods research design, the emphasis will remain on methodological literacy and research design. The course thus serves to complement, rather than substitute for, in-depth courses on research methods.

## Learning Outcomes

By the end of this course, students will be able to:

- Identify different types of research methods and describe their strengths and limitations;
- Explain, using illustrative cases, why different methods might be appropriate and effective in different research contexts;
- Describe the major components of research proposals, differentiating between different types of proposals;
- Critique a research proposal using common evaluation criteria;
- Demonstrate familiarity with effective research design by developing and defending a research proposal.

## Course Organization

### Course Format

This is a seminar course that meets once a week for 3 hours. The first half of the course focuses on acquiring literacy in research methods and familiarity with effective research design. In this part of the course, the class format will typically consist of an informal lecture, discussion of assigned readings, and discussion of topics that are informed by homework assignments. Research methods and design will be introduced through a series of case studies that illustrate how different approaches can be utilized to investigate interdisciplinary problems related to the environment and sustainability.

The second half of the course focuses on developing skills to prepare a defensible proposal for the student's own thesis research. The class format in this part of the course will generally consist of an informal lecture, discussion of an example proposal, and an in-class workshop that focuses on the students' iterative drafts of various sections of their proposals. The workshop format entails presenting draft material, receiving peer feedback, and providing comments in turn on classmates' work. Guidelines for providing peer feedback will be provided.

### Course Schedule

Theme	Week	Topic
<i>I. Research Design</i>	1	Course introduction
	2	Research questions
	3	From literature review to revised questions
	4	Methods and cases I
	5	Methods and cases II
	6	Methods and cases III
	7	Presentations
	8	<i>(Midterm break)</i>
<i>II. Research Proposals</i>	9	Initial research questions
	10	Revised questions and literature review
	11	Initial data and methods
	12	Revised data, methods, and analysis
	13	Proposal presentations
	14	Proposal presentations (cont'd)

## Course Requirements and Grading

There will be two assignments, each of which will take the form of a written research proposal and accompanying presentation (described in Course Assignments, below).

% of grade	Course element	Due date
30%	Assignment #1 – Retrospective proposal	February 15, 2017
30%	Assignment #2 – Research proposal	April 5, 2017
20%	Class preparation (homework)	Throughout term
20%	Class participation	Throughout term

In addition to these two graded assignments, homework will be assigned in some weeks (listed under "preparation" in the Course Outline below) to ensure that students are prepared for the next class. These assignments will be marked only on a Satisfactory/Unsatisfactory basis.

Class participation is essential in this course. Students are expected to attend and participate actively in all classes, including occasionally leading in-class discussions. Peer feedback is an important component of this course, and students are expected to critique their classmates' work in a thoughtful, constructive, and professional manner.

### ***Assessment Criteria***

Assignments will be graded on the following criteria, as applicable:

- Appropriate application of course concepts;
- Identification and use of relevant sources;
- Originality;
- Clarity and completeness of documentation;
- Clarity and logic of explanation, reasoning and argument; and
- Professional writing/presentation.

### ***Course Policies***

Points will be taken off for late assignments as follows:

<b>Days past due</b>	<b>Points deducted (/100)</b>
1-7 days	10 points
8-14 days	20 points
>14 days	assignment will not be graded

Students with extenuating circumstances should notify the instructor as soon as possible.

## **Course Materials**

There is no textbook for this course. Readings will be compiled in a course reader and will be available electronically through Blackboard Connect. Readings will generally consist of academic journal articles and book chapters. These will be supplemented by examples and resources presented in class.

### ***Readings***

(in order of assignment)

1. Oberg, G. 2011. "Marking Your Playground," ch.7 in *Interdisciplinary Environmental Studies: A Primer*. Chichester, UK: Wiley-Blackwell.
2. du Toit, J. 2014. "Research Design," ch.2.2 in E.A. Silva, P. Healey, and N. Harris, eds. *The Routledge Handbook of Planning Research Methods*. Florence, US: Routledge.
3. Farthing, S. 2016. "A Justification for Your Research Question," ch.4 in *Research Design in Urban Planning: A Student's Guide*. London: Sage Publications Ltd.
4. Chang, S.E., J. Stone, K. Demes, and M. Piscitelli. 2014. "Consequences of Oil Spills: A Review and Framework for Informing Planning," *Ecology and Society* 19(2): 26.
5. Silliman, B.R., J. van de Koppel, M.W. McCoy, J. Diller, G.N. Kasozi, K. Earl, P.N. Adams, and A.R. Zimmerman. 2012. "Degradation and Resilience in Louisiana Salt Marshes after the BP-Deepwater Horizon Oil Spill," *Proc. National Academy of Sciences* 109(28): 11234–11239.
6. Frynas, J.G. 2012. "Corporate Social Responsibility or Government Regulation? Evidence on Oil Spill Prevention," *Ecology and Society* 17(4):4.
7. Gill, D.A., J.S. Picou, and L.A. Ritchie. 2012. "The Exxon Valdez and BP Oil Spills: A Comparison of Initial Social and Psychological Impacts," *American Behavioral Scientist* 56(1): 3-23.

8. Mayer, B., K. Running, and K. Bergstrand. 2015. "Compensation and Community Corrosion: Perceived Inequalities, Social Comparisons, and Competition Following the Deepwater Horizon Oil Spill," *Sociological Forum* 30(2). DOI: 10.1111/socf.12167
9. Mekonnen, M.M. and A.Y. Hoekstra. 2012. "A Global Assessment of the Water Footprint of Farm Animal Products," *Ecosystems* 15: 401-415.
10. Fielding, K.S., A. Spinks, S. Russell, R. McCrea, R. Stewart, and J. Gardner. 2013. "An Experimental Test of Voluntary Strategies to Promote Urban Water Demand Management," *Journal of Environmental Management* 114: 343-351.
11. Harris-Lovett, S.R., C. Binz, D.L. Sedlak, M. Kiparsky, and B. Truffer. 2015. "Beyond User Acceptance: A Legitimacy Framework for Potable Water Reuse in California," *Environmental Science & Technology* 49: 7552-7561.
12. Wutich, A. and C.C. Gravlee. 2010. "Water Decision-Makers in a Desert City: Text Analysis and Environmental Social Science," Ch.10 in I. Vaccaro, E.A. Smith, and S. Aswani, eds. *Environmental Social Sciences: Methods and Research Design*. Cambridge, UK: Cambridge University Press.

## Course Assignments

No.	Topic	Learning objective
1	Retrospective proposal	Develop familiarity with essential elements of a research proposal. Practice writing and defending a proposal.
2	Own research proposal	Gain experience developing a research proposal. Produce a proposal suitable for a master's thesis.

Assignment #1 will take the form of a concise research proposal. Students will select a published paper and retrospectively write a proposal for the research described in that paper. The retrospective proposals will be presented in class and be defended in a Q&A session. The topic should be different from the student's intended master's thesis.

In Assignment #2, students will work on a proposal for their own master's thesis. Weekly homework (listed under "preparation" in the Course Outline below), together with in-class discussion and feedback, are designed to help students develop this proposal iteratively and progressively throughout the second half of the course.

## Course Outline

Week Date Topics, Readings, and Preparation/Assignments for Week

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### I. Research Design

1 W 1/4 *Course introduction*

Topics: Self-introductions; syllabus; interdisciplinary research

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2 W 1/11 *Research questions*

Topics: Inspiration; types, scope, scale; "researchable" questions

Readings: Oberg (2011), Ch.7 "Marking Your Playground"  
du Toit (2014), Ch.2.2 "Research Design"

Preparation: Select paper/thesis; be prepared to discuss its research questions

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3 W 1/18 *From literature review to revised questions*

Topics: Reading and writing literature reviews; gaps and contributions

Readings: Farthing (2016) Ch.4 "A Justification for Your Research Question"  
Chang et al. (2014) "Consequences of Oil Spills"

Preparation: For selected paper/thesis, be prepared to discuss its literature review, findings, and contributions

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4 W 1/25 *Methods and cases (I) - oil spills*

Topics: Research methods and design

Readings: Silliman et al. (2012) "Degradation and resilience in Louisiana salt marshes after the BP-Deepwater Horizon oil spill"

Frynas, J.G. (2012) "Corporate social responsibility or government regulation? Evidence on oil spill prevention"

Gill et al. (2012) "The Exxon Valdez and BP oil spills:... social and psychological impacts"

Mayer et al. (2015) "Compensation and community corrosion:... the Deepwater Horizon oil spill"

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5 W 2/1 *Methods and cases (II) - water scarcity*

Topics: Research methods and design (cont'd)

Readings: Mekonnen and Hoekstra (2012) "A Global Assessment of the Water Footprint of Farm Animal Products"

Fielding et al. (2013) "An Experimental Test of Voluntary Strategies to Promote Urban Water Demand Management"

Harris-Lovett et al. (2015) "Beyond User Acceptance: A Legitimacy Framework for Potable Water Reuse in California"

Wutich and Gravlee (2010) Ch.9 "Water Decision-Makers in a Desert City: Text Analysis and Environmental Social Science"

Assignments: #1 (retrospective proposal) distributed

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6 W 2/8 *Methods and cases (III) - synthesis*

Topics: Research methods and design (cont'd); proposal types and elements  
Preparation: Identify a master's thesis related to either oil spills or water scarcity; summarize its research design  
Assignments: Identify and read published paper for Assignment #1

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7 W 2/15 *Presentations*

Topics: Student presentations of Assignment #1  
Assignments: #1 due

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8 W 2/22 *NO CLASS – Midterm break*

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## II. Research Proposals

9 W 3/1 *Initial research questions*

Topics: Problem context, research ideas, initial research questions; literature review strategies  
Preparation: Initial research question for master's thesis  
Assignments: #2 (own research proposal) distributed

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10 W 3/8 *Revised research questions and literature review*

Topics: Draft literature reviews; justifying research questions  
Preparation: Draft literature review (organized notes), revised questions

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11 W 3/15 *Initial data and methods*

Topics: Data types, data collection strategies; research ethics; feasibility, contingency plans; justifying data collection methods  
Preparation: Detailed outline of data collection

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12 W 3/22 *Revised data, methods, and analysis*

Topics: Connecting research questions, data collection, and analysis  
Preparation: Revised data collection plan, outline of analysis

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13 W 3/29 *Presentations*

Topics: Student presentations of Assignment #2

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14 W 4/5 *Presentations (cont'd)*

Topics: Student presentations of Assignment #2 (cont'd)  
Assignments: #2 due

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