

# Interdisciplinary Case Analysis and Research Design

## (RMES 502)

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### **Purpose in Brief**

This is a course in which students use case studies to learn how sustainability questions are turned into researchable topics and what research methods (qualitative and quantitative), rules of evidence and strategies of proposal development and subsequent research are used to arrive at answers. *The goal of this course is to foster literacy in research methods and bring about familiarity with good research design and proposal development. The end product goal of the course will be a defensible proposal for your own research program.*

### **Learning Objectives and Outcomes**

In this course, students will do the following:

1. Develop the necessary skill set to evaluate the quality of research, including its logical underpinnings, its methodological approach, and the nature of evidence and theory employed.
2. Gain a concrete appreciation, through case study analysis, of how different researchers approach a domain, including question formation, evidence collection and argumentation.
3. Learn the tools to critique, assess, and evaluate the effectiveness of different research strategies, data sources, and representation of ideas for different target journals.
4. Develop your own proposal with the aim of seeking funding, passing the proposal stage of PhD candidacy or MA/MSc research;
5. Learn to communicate your proposal ideas critically and creatively to specialist and nonspecialist audiences, including the art of proposing work either *as against* or *in contribution to* that which has been already achieved in a given field.
6. Upon completion of the course, students will be poised to operate with methodological literacy in interdisciplinary contexts and to convert this knowledge to the analysis of cases and the development of research designs-through-proposals.

## Course Description

This course is designed for students to learn how sustainability questions are turned into researchable topics and what research methods (qualitative and quantitative), rules of evidence and strategies of proposal development are used to arrive at answers. Topics such as counter-factual versus idiographic design will be addressed as will different strategies of topic presentation, theory, research questions and policy relevance. *The end goal of this course is to foster good research design and proposal development.*

It will begin with the evaluation of already funded proposals and an understanding of their successful complement parts. This will be followed by a group case study aimed at developing, collectively, sound research questions and approaches. The case study focus will be of wide interest to RMES students and relevant to their professional careers. This year that case focus will be problems related to climate change and policy. The case study will begin with simple questions and grow in sophistication and complexity.

Given the wide range of incoming academic and professional backgrounds among the students, peer mentoring will be used within the class to help bolster knowledge of and familiarity with qualitative and quantitative methods.

The remaining portions of the course involve an explicit focus on student's own research designs; expectations will be calibrated to enrollment as a Masters versus PhD student. Regardless, students will complete a solid, review-ready draft proposal for their own thesis work and will develop this in stages and through iteration from proposal parts through the whole.

### ***Distribution of Effort Across the Term***

- One week of classes on introduction and basics of proposal writing
- One week on examination of 4 or 5 proposals, which will be evaluated and ranked individually and in teams
- One week of classes on a shared case study examination featuring lectures, group analytic tasks, presentations and tasks by students, discussions, and debates
- Five weeks of workshops on each stage of proposal or project design
- Five weeks of student presentations of proposal ideas and contents at their different stages of revision and completion

The teaching forms involved each week will vary including but not limited to lecture, group problem solving, design workshops, discussion-based identification of core ideas, scenario-based learning, and proposal evaluations. Weekly readings will be assigned and available via hyperlinks in this syllabus and via *Dropbox*.

## Course Policies

As per university requirements:

### ***Attendance***

Following university regulation, regular attendance is expected of students. Students who neglect their academic work and assignments may be excluded from the final examinations (note: there are no exams in this course). Students who are unavoidably absent because of illness or disability should report to their instructors on return to classes.

The University accommodates students with disabilities who have registered with the Disability Resource Centre. The University accommodates students whose religious obligations conflict with attendance, submitting assignments, or completing scheduled assignments. Please let Terre or Gunilla know in advance, preferably in the first week of class, if you will require any accommodation on these grounds. Students who plan to be absent for varsity athletics, family obligations, or other similar commitments, cannot assume they will be accommodated, and should discuss their commitments with the instructor before the drop date.

### ***Late Assignments***

This course is not intended to run or ruin your life. So when exceptional circumstances will prevent you from completing an assignment on time, you may request an extension and it will be granted where possible and appropriate. In the absence of a granted extension, a 5% reduction of grade will be assigned for each day an assignment is late beyond the required due date.

### ***Academic Dishonesty***

Please review the UBC Calendar “Academic regulations” for the university policy on cheating, plagiarism, and other forms of academic dishonesty.

Students should retain a copy of all submitted assignments (in case of loss) and should also retain all their marked assignments in case they wish to apply for a Review of Assigned Standing. Students have the right to view their marked examinations with their instructor, providing they apply to do so within a month of receiving their final grades. This review is for pedagogic purposes. The examination remains the property of the university.

## Course Objectives by Week

### ***Week 1 -- January 6, 2014: Introduction-Course expectations, structure and content***

Opening class discussion on syllabus and general approaches to proposal design including different logics of evidence, counterfactual, experiment, subjective study, objective study, modelling study; attributes for evaluating good quality research [qualitative and quantitative]

### ***Week 2 -- January 13, 2014: Basic Proposal Components (Lecture and Workshop)***

There are many strategies for writing proposals but all depend on the following elements, be the proposal aimed at researching a new topic, solving a problem or developing new methods. This week's goal is to collectively review 4 or 5 proposals individually (submitted in advance) and then collectively – in panels not unlike those struck by funding committees all the time. We will be examining proposals for their ability to address the following qualities or components of successful proposals. These include but are not limited to:

- (1) The proposal has a compelling 'hook' – we read it and think 'that's an interesting problem'! This is the case even though some problems are intrinsically interesting or dramatic, others have to be made so in the proposal proper.
- (2) The proposal indicates good understanding of the 'right' literatures, i.e., those that might help us understand the problem. But we must also be reasonably convinced (even when we don't know the area the author is addressing).
- (3) The proposal must pose research questions that are appropriate to the topic at hand (the proposed work), are answerable in the time proposed and through the methods put forward.
- (4) Methods and data analysis must convincingly portray that (a) the data needed is or can be made available; (b) exactly what the researcher(s) will do, methodologically speaking, is entirely clear. *You can imagine what and how they will do what they say they will do, ie, it's not a trust me exercise.*
- (5) You are convinced that the research proposed is novel has important relevance – to a field, to a problem that needs understanding or solving, or to methods that need developing (before or as part of solving a problem).
- (6) More broadly, all proposals should have good 'narrative flow' – that is, there exists a tight logical sequence of ideas that make for a compelling whole.
- (7) Finally, reviewers must believe the ideas are new, necessary and haven't been done or overdone already. [This can only be addressed by those on the team with a passing knowledge of the proposed work.]

*Assignment Due January 10<sup>th</sup>: Complete in ½- 1 page of narrative or point-form notes evaluating the proposals that were assigned reading for this week using the above criteria for your evaluations.*

#### **Proposal Readings:**

In folder: 'Week 2 proposal readings'

"Mitigation of greenhouse gas emissions and nutrient leaching losses in managed forest landscapes: Assessment of biochar in BC coastal forests" (File name: NRAS Biochar proposal\_

"Strategic Proposal- Coastal Ecosystem Services amongst Trophic Cascades" (File name: NSERC SPG (Coastal Ecosystem Services))

"Risk, Regulation and Agricultural Biotechnology: Controversies Over Genetically Modified Cotton in India" (File name: SSHRC India GM proposal)

"Event Ethnography and Conservation Policy" (File name: SSHRC RDI event ...)

**Week 3 -- January 20, 2014: The Climate Policy Problem and Group Design Brainstorm**

This week we will develop a proposal idea and outline in a group context (bullet points 1,3 and 4 on the previous page). The topic will address climate change science, policy and strategies for behaviour change, adaptation or mitigation. The readings to think with will pertain to the science of climate change, policy debates, and behaviour change. Learning objectives in the context of proposal development include:

- Converting a problem or a proposal idea
- Using the flawed assumptions of different schools of thought for launching a proposal idea
- Developing a clean question that will anchor the research
- Designing research methodologies that follow from the questions

**Case Study 1:**

There are many academic communities that have thought about the framing of the climate change policy problem. The manner in which the climate policy problem is framed influences both how the impacts of climate change are understood and what policy solutions are put forward. One perspective is that the problem is 'scientific' in nature and put forward by the inter-disciplinary community of Earth & Ocean Scientists and Ecologists including members of the Intergovernmental Panel on Climate Change (IPCC). Key concepts include:

- "Dangerous" climate change
- Ecological and Human impacts

**Readings:**

Smith, Joel B., Stephen H. Schneider, Michael Oppenheimer, Gary W. Yohe, William Hare, Michael D. Mastrandrea, Anand Patwardhan, et al. 2009. "Assessing dangerous climate change through an update of the Intergovernmental Panel on Climate Change (IPCC) 'reasons for concern'." *Proceedings of the National Academy of Sciences* 106 (11) (March 17): 4133–4137. doi:10.1073/pnas.0812355106.

<http://www.pnas.org/content/106/11/4133.full.pdf+html>

Mann, Michael E. 2009. "Defining dangerous anthropogenic interference." *Proceedings of the National Academy of Sciences* 106 (11) (March 17): 4065–4066. doi:10.1073/pnas.0901303106.

<http://www.pnas.org/content/106/11/4065.full.pdf+html>

**Case Study 2:**

Similarly, economists are a powerful research community whose ideas have much influence on policy communities. This is because they claim to present quantitative answers to thorny public policy questions, i.e., those involving societal tradeoffs. Economists have been involved in the climate policy debate, with positions that have sometimes been polar opposites. Here we will study the recent Stern-Nordhaus debate to understand how economists view the climate policy problem, how they differ from each other, and from the Earth Science community. Key concepts:

- Cost-benefit analysis
- Intergenerational Equity
- Valuation

**Readings:**

Stern, N., and C. Taylor. 2007. "ECONOMICS: Climate Change: Risk, Ethics, and the Stern Review." *Science* 317 (5835) (July 13): 203–204. doi:10.1126/science.1142920.

<http://www.sciencemag.org/content/317/5835/203.full.pdf?sid=4c628a7c-e8ca-4c22-b288-ab31d52bd4fa>

Nordhaus, W. 2007. "ECONOMICS: Critical Assumptions in the Stern Review on Climate Change." *Science* 317 (5835) (July 13): 201–202. doi:10.1126/science.1137316.

<http://www.sciencemag.org/content/317/5835/201.full.pdf?sid=1aa5fd00-91a5-4d30-9d4c-511a6c03512e>

**Case Study 3:**

Finally, all policy regarding climate change need necessarily influence what people do. But we often know little about why people behave as they do including the link between perceptions and behaviour; incentives that work and fail; assumptions about behaviour across research fields and their accuracy?

**Readings:**

Adger, N (2003) Social Capital, Collective Action and Adaptation to Climate Change. *Economic Geography*, 79 (4): 387-404 <http://onlinelibrary.wiley.com/doi/10.1111/j.1944-8287.2003.tb00220.x/abstract>

Sterman & Sweeney (2007) Understanding Public Complacency about Climate Change. *Climatic Change* 80 (3): 213-238 <http://www.springerlink.com/content/f367413412565006/>

**Case study 4**

Something about skeptics: this is not as large a problem as we think (Lomborg, others?)

***Discussion Questions for Group Proposal Brainstorm***

To what extent does the scientific community choose (or not) to think of human behaviour as a part of the 'dangerous' climate change framing?

What are the implicit and explicit models of human behaviour underpin the 'scientific' framing of the climate policy problem?

What models of human behaviour do economists bring to the climate problem?

What assumptions do economists make about the ability of institutions to respond to and shape human behaviour?

What working assumptions about behaviour change are assumed on behalf of social sciences?

How fully do these correspond to social science approaches (or fear of approaches) to behaviour change?

What do both natural scientists and economists assume about behaviour change are they consistent with regard to understandings of human behaviour in the social sciences?

**Week 4 - January 27, 2014: Developing Your Problem Context and Initial Questions (Lecture and Workshop)**

**Assignment:**

Apply the following questions to the purpose statement of the proposals below

- What makes for a compelling topic or case?
- Writing good purpose statements
- What's the difference between a problem and popular jargon?
- Defining your problem, generating questions, identifying unwieldy questions
- What makes for a compelling framing?
- Speculation, Propositions and Hypothesis
- What makes for a 'do-able' research question?
- What makes a research question worth pursuing?

**Readings:**

Öberg, G. 2011. Interdisciplinary studies – a primer. Blackwell & Wiley Ltd.

(Chapter 2: Beyond CP Snow. pp 11-23)

Chapter 7: Marking your playground. pp 74-85

(Chapter 12: Being interdisciplinary. pp 142-151)

Chapter 6 in Creswell, J. 2008. Research design: qualitative, quantitative, and mixed methods approaches. SAGE Publications, Inc. ISBN-10: 1412965578 (*NOTE: the general description is good but the examples are a bit boring and far too narrow*).

**Proposal Readings:**

Same as week 2 readings plus selected pages in the proposals in folder 'Week 4 proposal readings'

ADD TWO SUITABLE PROPOSALS

**Week 5 – February 3, 2014: From Literature Review to Revised Questions (Lecture and Workshop)**

Aim of week:

- Understanding the difference between a diagnostic v descriptive literature review
- Importing theories from elsewhere
- Identifying your audience and literature
- Identifying a model study which you might reasonably emulate
- Contextualizing your problem in an extant literature versus building across literatures
- Understanding the role of 'theory' in interdisciplinary contexts
- Anticipating Methods

**Readings:**

Öberg, G. 2011. Interdisciplinary studies – a primer. Blackwell & Wiley Ltd.

Chapter 9: Anchoring your canoe

Chapter 6 in Creswell, J. 2008. Research design: qualitative, quantitative, and mixed methods approaches. SAGE Publications, Inc. ISBN-10: 1412965578

**Proposal Readings:**

Same as week 2 and 4 readings plus the proposals in folder 'Week 5 proposal readings'

"Reasserting 'Namgis food sovereignty in an era of climate change" (File name: Final Namgis ...)

"Can solar power become a tool for pro-poor development in India?" (File name: Piper-Final MK)

**Week 6 -- February 10, 2014: Presentations: Defending your Problem, Literature and Questions**

**Week 7 -- February 17, 2014: Reading Week**

**Week 8 -- February 24, 2014: Presentations: Defending your Problem, Literature and Questions**

**Week 9 – March 3, 2014: Defining your Data, Methods and Analysis**

Assignment: Before class: Interview a recognized scholar to learn:

- What type of data they count as evidence and how its legitimacy might be defended?
- How do they articulate the methods they have used in reference to norms of their field?
- How to move from generic to succinct representations of methods (i.e., making your research tasks visible to the unaided and linking them to your research questions)

Workshop: discuss

**Readings:**

Öberg, G. 2011. Interdisciplinary studies – a primer. Blackwell & Wiley Ltd.  
Chapter 10: Analysis

**Week 10 -- March 10, 2014: Brief Presentations on Methods and Analysis**

**Week 11 -- March 17, 2014: Creating Statements of Study Outcomes and Relevance**

- Anticipating your contributions and defending their legitimacy as interdisciplinary projects
- Who should care about your research and why
- Publications and conferences
- Career advancement and capacity building
- Addressing specific intellectual, policy and lay communities
- Defining a communications strategy for disseminating research findings
- Defending the policy relevance of ideas

**Week 12 -- March 24, 2014: Workshop- Aggregating the Pieces into a Coherent Whole**

- Creating a narrative across content or rendering the link between context, lit review, and proposed work clear
- Clarifying strategies for data analysis
- Common errors and ‘no go zones’ in disciplinary and interdisciplinary contexts

**Week 13 – March 31, 2014: Proposal Presentations**

**Week 14 -- April 7, 2014: Proposal Presentations**

## Assignments

### Overview (% of total marks) and Schedule (Due Dates Below)

1. Proposal Reviews and Panel Evaluation Due January 10<sup>th</sup> in class ..... 10%
2. Problem Context, Rough Questions & Literatures Due January 22<sup>nd</sup>/28th ..... 10%
3. Problem Statement Revised + Literature Review and Revised Research Questions Due February 5<sup>th</sup>.. 15%
4. Presentations: Proposal 'Pitch' -- Problem Context, Literature and Questions Due February 7 or 14.. 10%
5. Interview on Methods (due Feb 26<sup>th</sup>) + Methods and Analysis as Linked to Research Questions -- Due March 5<sup>th</sup> ..... 10%
6. Brief Methods Presentation -- Due March 7 ..... 5%
7. 1<sup>st</sup>/Draft Proposal -- Due March 26, ..... 20%
8. Proposal Presentation Due March 28 or April 4, ..... 10%
9. Final Proposal-Improvements from Draft, Due April 12<sup>th</sup>, ..... 10%

### **Details**

All assignments should be submitted by email to all co-leaders of this seminar (Satterfield and Oberg) by **noon** on the date noted as MS Word-compatible attachments (rich text format, rtf, is fine; to enable commenting and suggested changes). Please include your name and assignment # or title in the filenames.

### **Review of Proposals/Proposal Panel**

See Week 2 Details

### **Problem Context, Rough Questions and Suggested Areas of Literature**

The purpose of this assignment is to demonstrate that you have selected your research area and have defined a researchable problem; have some sense of the literatures you will look at for this area of research; and have developed some initial thinking as to what research questions you might propose. Potential literatures can be drawn from the topic area in which you're working or from other areas (i.e. because there exists an approach in another domain that might be imported into your own area or work) 2 – 4 pages single spaced

### **Literature Review and Revised Research Questions**

Add to your problem statement and questions handed in on January 28<sup>th</sup>, a 4-7 pages single-spaced diagnostic literature review as discussed in Week 5. Your literature review should include or be followed by passages that link your review to your earlier 'big questions' in such a way as to restate or develop these questions in reference to your literature, puzzle and opening questions.

### **Presentations: Proposal 'Pitch'**

Oral presentation of your initial proposal ideas; treat this as the kind of 'pitch' you might do to your supervisory committee in order to seek support/permission to proceed with a full proposal. Your presentation should cover all content covered in class thus far (e.g., puzzle or problem statement, initial large scale Q's, diagnostic literature review, and derivative and usually more specific questions). Methods can be hinted at but not covered in this presentation UNLESS your proposal is indeed a methods proposal. Please discuss with instructors if not clear on this last point. You will have 30 minutes total: 15 minutes for presentation and similar time for peer review and feedback.

### **Interview with mentor, supervisor or late career PhD student as approved by Gunilla or Terre**

Conduct and make notes on an interview with an active academic scholar on how they think about evidence and methods. What, for them, constitutes good methodological practice – meaning, good quality evidence or 'data', ideal methodological approaches (i.e., those they think meet the 'gold standard' in their field), and/or best practices regarding analysis of 'data' however defined.

***Methods and Analysis as Linked to Research Questions + Brief Methods Presentation***

*1 – 2 single-spaced pages covering your methods and data analysis as follows from your prior proposal segments (puzzle, lit review, questions, etc.). You will each have 10 minutes to present your methods ideas and approach to your peers aimed at improving this portion of your proposal in advance of your first entire draft.*

***Draft Proposal***

MA/MSc students will be expected to complete a 4-6 page, single spaced, proposal appropriate for their field, whereas the expectation for PhD students will be approximately 6-10 pages single spaced. Details forthcoming. 6-10 pages single-spaced depending on Masters vs PhD

***Proposal Presentation***

Presenting your full proposal to your peers and professors in a manner similar to a proposal ‘pitch’ where you have fleshed out the entirely proposal in the draft and you are now pitching it to your funders verbally. You will have 30 minutes for your presentation, using visual aids as preferred or needed. 20-30 minutes of feedback from the group will follow and will be provided in written form as well. Feed back on your presentation and your draft are expected to drive your revisions to your final proposal.

***Final Proposal***

Same as draft but clear response to suggested revisions of the draft.

***Class participation***

This is an interactive seminar in which discussions of case study material and research design dilemmas are primary. Robust and consistent participation and attendance is thus expected of all students. No grade will be assigned for participation, but we will take notes weekly as to the quality of participation offered by students. These records will affect grades only to the extent that a student sitting at the margin of two grade ranges (e.g., a B+ and an A-) might well be raised to the higher level as a reward for consistent high quality participation.