

Instructor: Dr. Lynne Trulio Office: Sci 50
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Class Meets: WSQ 115, W 6:00-8:45pm

ENVIRONMENTAL METHODS FOR GRADUATE STUDENTS

Course Objective

The main focus of this course is to help you develop and write the methods section of your proposal. You should have completed EnvS 297, Thesis Proposal Writing, in which you refined a thesis topic and produced the research questions or hypotheses that you will test. In this course, you will explore the literature in your field to determine the types of methods available for collecting and analyzing data to address your research questions. Ultimately, with the help of your thesis committee, you will determine the specific methods you will use for your research.

The methods that environmental scientists use to conduct their research are as varied as the research questions themselves. Research topics among MS students in this department range from those squarely in the social science realm to topics in scientific fields. Each discipline has typical research methods, but all fields are united by these principles:

- Data/information must be collected by methods that meet the standards of the field;
- Methods must be repeatable;
- Limitations of the methods must be clear;
- Confidence levels of the data/information must be clear; and
- Data and analysis must withstand peer review.

From a purely practical standpoint, the research questions/hypothesis and the methods used to address them are the most essential parts of your thesis; these are the elements that will result in funding. Many government agencies, non-profits, and businesses provide grants for projects. A competitive grant proposal has clearly defined research questions with methods designed to address those questions. By completing your methods section, you will be positioned to seek funding, develop a thesis committee, and begin your research.

Text

Watts, Simon and Lyndsay Halliwell, eds. 1996. *Essential Environmental Science: Methods and Techniques*. Routledge Press. New York, New York.
(Available from Amazon.com)

Course Format

This course is a seminar. You must complete literature research and reading for each class. All students will present their research to the class. Always be prepared to discuss your current work. Be prepared to spend time in the library and at your computer. Assignments must be presented on the day they are due.

Several products are required in this course. First, you will conduct and write a **literature review** of methods used to do research in your thesis topic field. This review will provide you and the class with an understanding of the range of methods available. Based on your research,

you will develop a **methods plan** that details the methods you would most likely use to address your research questions/hypotheses. After I review this plan, you will put it into your proposal from ES 297, so that you will have a complete **draft thesis proposal**. In addition to these formal assignments, on an ad hoc basis, I will ask you to bring in journal articles and discuss their methods.

Office Hours

Please feel free to talk to me during my office hours. You may also see me by special appointment if you can not visit during my regular office hours. Always feel free to email me to set up an appointment or if you have questions I can answer briefly.

Evaluation

In-class assignments/discussion	15 points
Literature review	15 points
Literature review oral presentation	10 points
Methods Plan	20 points
Proposal oral presentation	10 points
Draft thesis proposal with methods	30 points
TOTAL	100 points

Grading

98-up = A+	88-89 = B+	78-79 = C+	58-69 = D
92-97 = A	87-82 = B	72-77 = C	57-below = F
90-91 = A-	80-81 = B-	70-71 = C-	

Environmental Methods for Graduate Students
 Wednesdays, 6:00 - 8:45 pm

Dr. Lynne Trulio
 Room WSQ 115

SYLLABUS

<u>Week #</u>	<u>Date:</u>	<u>Topics/Presentations</u>	<u>Reading/Projects</u>
1	Jan 24	Introduction to Methods	
2	Jan 31	Research Questions/Hypotheses; Methods Structure	Chapter 1 Bring an article
3	Feb 7	Quantitative Methods	Chapter 2
4	Feb 14	Sampling Design and Statistics	Chapter 3 <u>Initial Literature Citations</u>
5	Feb 22	Library Visit: NOTE that this is Thursday! We will not have class on Feb 21, but will join Dr. Cushing's EnvS 297 class for this library visit on Thursday, Feb 22.	
6	Feb 28	Guest Lecture	<u>Literature Review</u>
7	Mar 7	Guest Lecture	
8	Mar 14	<u>Student Presentations</u>	
9	Mar 21	Qualitative Methods	Chapter 9
10	Mar 28	<i>Spring Break!</i>	
11	Apr 4	Sampling Design and Analysis	<u>Methods Plan</u>
12	Apr 11	Field Sampling Techniques: Quantitative	Chapter 8
13	Apr 18	Field Sampling Techniques: Qualitative	To be determined
14	Apr 25	Budget, Timeline, Resume	Sample budget
15	May 2	From proposal to thesis	
16	May 9	<u>Final Presentations</u>	<u>Draft Proposal</u>