

Syllabus for Geoscience Research Techniques Spring 2010

GEOLOGY 390-01, CRN: 123

Credits: 3.0

Lecture meets: T,Th 10:00-10:50 a.m., and Tues 8:00-9:50 pm, 205 Science 1

Prerequisites: Jr. standing and 15 s.h. of Geoscience courses (LA, CPA)

Instructor

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Textbook : *None*

This course uses **Angel** (<https://angel.oneonta.edu/>) to transmit information such as the syllabus and lecture schedule, lecture notes, exercises, and links to online information. You will use your SUCO email ID and password to access course information on Angel.

Course Description (from the Undergraduate Catalog, April 2008)

The choice and design of research projects are examined in lecture and seminar formats. Techniques employed in geoscience research, including searching and evaluating the primary literature, collecting field data, sampling design and techniques and laboratory analysis of samples are explored in preparation for ESCI 398: Senior Thesis. Scientific writing skills are developed through peer review, preparation of a formal thesis proposal and the introduction and previous work sections of the thesis. (LA, CPA)

Grading

Grades will be based on exercises, a research proposal, and your oral presentation of that proposal as the final examination.

Exercises. These will involve laboratory and field exercises, and will involve short write-ups. The exercises will be graded via a rubric which ranks the student's effort for various aspects of the project. Each aspect will be weighted according to its level of importance. Rubrics will be handed out each with each assignment to guide student efforts.

Research Proposal. Each student will generate a research proposal as the major part of the grade for this course. The student will develop the proposal as a written document, and then present the proposal to the class as the "final examination". The written research proposal will be graded by a rubric, where separate aspects of the paper will receive a mark ranging from excellent to no credit. Each aspect will have a weight (content and analysis is more important than spelling, for instance). Graded aspects of the paper might include grammar, scientific writing style, content, analytical treatment, overview of the problem, summary of the project, recommendation for action, and the like. Grades for rubric-assessed exercises will be

rescaled to the standard university curve and combined with other components of your course grade as below. The rubric will be handed out along with the assignment of the research proposal to guide student efforts.

Oral Presentation. Each student will present the research proposal to the class using a powerpoint presentation as the final examination. Presentations will range from 20-30 minutes. The oral presentation will be graded by a rubric, which will handed out well in advance of the date of the presentation (May 13).

Grades for rubric-assessed projects will be rescaled to the standard university curve and combined with other components of your course grade as below.

Here's the breakdown on grading:

- 25% Lab Exercises
- 20% Oral Presentation
- 55% Research paper
- 100%

Final grade assignments will be guided by the standard University curve given below.

Percent	Grade	Percent	Grade	Percent	Grade	Percent	Grade
93-100	A	87-89.9	B+	77-79.9	C+	67-69.9	D+
90-92.9	A-	83-86.9	B	73-76.9	C	63-66.9	D
< 60	F	80-82.9	B-	70-72.9	C-	60-62.9	D-

Lecture and Lab Schedule (this schedule is subject to change if more time is required for some topics).

Date	Day	Topic
Jan 21	Th	Philosophy of Science; truth, inference, data, hypotheses
Jan 26	T/lab	Philosophy of research: Discuss Gilbert, Chamberlin
Jan 28	Th	Research designs, and science articles
Feb 2	T/lab	Design of geoscience research: Read <i>Waterfall Persistence</i> (Lamb/Dietrich); select next set of papers
Feb 4	Th	Read/Discuss current papers in Geoscience
Feb 9	T/lab	Writing Exercise: Abstracting an article; Critiquing abstracts
Feb 11	Th	Writing Lab: Re-writing bad paragraphs
Feb 16	T/lab	Introduction to library services
Feb 18	Th	Searching for information: bibliographies; Research topics due!!
Feb 23/25	T/Th	NO CLASS!! SPRING BREAK 1
Mar 2	T/lab	Lab: Saving your searches and references; Begin researches...
Mar 4	Th	Developing a topical outline from your search
Mar 9	T/lab	Expanding your topical outline into a relational one
Mar 11	Th	Defining the goal of your project—Identifying hypotheses
Mar 16	T/lab	Developing the outline and building topic sentences
Mar 18	Th	Research Paper Outline and topic sentences DUE!!

Mar 23	T/lab	Hypothesis testing: example of drainage basin erosion dynamics
Mar 25	Th	Feedback on Outlines handed back
Mar 30	T/lab	Conceptual and mathematical models and predictions
Apr 1	Th	Physical Experiments: Stick-slip behavior
Apr 6/8	T/Th	NO CLASS!! SPRING BREAK 2
Apr 13	T/lab	Physical experiments: Micro Flume
Apr 15	Th	Data collection and analysis: measurements, errors, predictions
Apr 20	T/lab	Geologic modeling in Excel
Apr 22	Th	Geologic data and hypothesis generation
Apr 27	T/lab	Lab: Geomorphic Field Mapping
Apr 29	Th	Research techniques: Write up Mapping Project
May 4	T/lab	Work on paper
May 6	Th	Work on paper
May 11	T/lab	Work on Paper
May 13	Th	Final Paper Due: Student Presentations 8:00-10:30 am

Emergency Evacuation/Shelter-in-Place Procedures

In the event of an emergency evacuation (i.e. fire or other emergency), classes meeting in Science I are directed to **reassemble at Chase Gymnasium** so that all persons can be accounted for. Complete details of the College's emergency evacuation, shelter-in-place, and other emergency procedures can be found at <http://www.oneonta.edu/security>.

Course Guidelines and Expectations for Students

The following list provides a baseline of what is expected from students in this course (quoted section from the list of *Student Responsibilities* approved by SUNY Oneonta).

"In class responsibilities

Students will:

- Attend all classes and arrive punctually.
- If unavoidably late for a class, enter quietly and unobtrusively, and behave in other required ways to minimize distraction.
- Remain alert and attentive during lectures, discussions, and other class/lab activities.
- Avoid unnecessary conversation during lectures, discussions, and other class/lab activities.
- Contribute to class experiences by asking relevant questions, offering relevant examples or views, adequately answering questions posed by others, engaging in critical and independent thought, and challenging both the instructor and the curriculum materials assigned for the course.
- Demonstrate courtesy and respect in dealing with instructors and classmates.
- Recognize and seek to understand diverse points-of-view.

Out-of-class responsibilities

Students will:

- Place academic obligations at the top of the list of college-related priorities.
- Plan to spend 2 to 3 hours out-of-class time in academic study for every one hour of class attendance.
- Thoroughly plan and prepare for classes.

- Notify the instructor in advance, if possible, or in a timely fashion, if unable to attend a class or lab, take a scheduled exam or quiz, submit a scheduled assignment, or remain in the classroom for the entire class meeting because of unavoidable circumstances.”
- You are expected to **read each chapter before we cover it in class**. This will allow you to formulate questions concerning material that is not clear, or that you would like to have covered in greater detail. I use lectures to focus on the most important aspects of the topic. I strongly encourage you to ask questions during lecture. There are no ‘dumb’ or ‘stupid’ questions. Often the questions you have are shared by others. You should view lectures as the time and place for discussion, and I welcome your thoughts and questions!
- Any reasonable accommodation will be provided for students with physical, sensory, learning, or psychiatric disabilities. Please contact me for assistance as early as possible.
- If English is not your primary language and you would like to have additional time in which to take the exams, let me know. Anyone who needs additional time for the exams will be extended the same courtesy.
- **Turn off cell phones and other communication devices during class!** Your class time is meant for focused learning, and out of class distractions must be left outside...Of course, medical conditions can override this requirement.

College Calendar, Spring 2010

January 17-19	Sunday-Tuesday	New student arrival & orientation
January 20	Wednesday	Classes begin
February 19	Friday	College closes after last class
March 1	Monday	Classes resume
April 2	Friday	College closes after last class
April 12	Monday	Classes resume
May 12	Wednesday	Study Day
May 13-19	Thursday-Wednesday	Finals
May 22	Saturday	Commencement

Final Exam Week Class Schedule, May 13–19, 2010

During the last week of the semester, day classes will meet for 2 1/2 hour periods according to the schedule below.

These periods are to be used for instruction and/or examination.

Date and Time	Thursday May 13	Friday May 14	Monday May 17	Tuesday May 18	Wednesday May 19
8:00 am–10:30 am	10 Tu Th	10 MWF	9 MWF	8 Tu Th	8 MWF
11:00 am–1:30 pm	4 Tu Th	2 MWF	1 MWF	2 Tu Th	3 MWF
2:00 pm–4:30 pm	12 Tu Th		12 MWF		11 MWF