

## ***GE 309 – Field Techniques – Fall 2005***

Wednesday: 11:15 to 4:15 DA 165

Monday: 8:00 to 9:00 a.m.

Instructor: Kyle Nichols

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Office hours: Tuesday 1:00 to 2:30 and Thursday 3:00 to 4:30 or by appointment

### **About the course**

Geology is a field science. Therefore, the best way to learn and understand geology is to study it in the field. Such geological field studies offer several distinct advantages over classroom or even laboratory learning including, direct observation and measurements, spatial relationships between geological features, and age relations. By taking advantage of the field setting you can better interpret the geological history and processes that shape the land.

In this course you will learn the process of going into the field for geological study. Specifically, you will learn how to formulate research questions, perform relevant reconnaissance to make field time more efficient, acquire sufficient background knowledge, develop field methods, collect data, analyze and interpret data, and put your research into the larger picture. These tasks are essential to critically analyze the current state of the research and to also critically analyze your own research. By the end of this course you will be comfortable with the geological research **process** and the importance of the field component. Furthermore, you should be able to take your geological research and relate it to broader and interdisciplinary perspectives.

### **Class structure**

The class is mostly based on field learning and experience. Wednesdays are designed for field investigations. Although we have 5 hours scheduled in the field, you will soon learn that this is not sufficient time. Therefore, we will also have a one hour period of project updates and the presentation of field plans for upcoming week.

### **Field exercises**

To be productive and happy in the field you need to be prepared. We will go into the field rain or shine. We will stay inside only if the weather is hazardous (I have never had to cancel a trip, yet). You must be prepared for the weather. You should have good rain gear, sturdy footwear, warm clothes, and anything else you can think of to keep you comfortable in the autumn weather. A snack might be good if you get hungry in the afternoon. You should also have a good field notebook in which you can record data and observations (sturdy cover or clipboard) and that can survive inclement weather. You can purchase these notebooks at <http://www.forestry-suppliers.com>. Just type “waterproof notebook” in search engine and choose the one you want (just make sure there is enough paper for the semester). The cost is ~ \$10.

### **Assignments**

You will be responsible to make steady and substantial progress on your project each week. To ensure such progress your team will have to complete and hand in a weekly progress report detailing the previous week's goals, how you accomplished those goals, this week's goals, how you will accomplish them, progress on the long range goals and the timeline, and who did what. All weekly reports, one per team and completed by the team, will be typed and are due at the **beginning** of the one hour session. If I find out that the entire team did not contribute to the weekly report, everyone on the team will receive a zero (0, goose egg, nada, zilch, nil, nothing). Late assignments will lose 10% per day (including weekends, you can always email me to let me know that you put the assignment under my door). Prepare in advance. Printer problems (unless college wide) is not an acceptable excuse, so don't wait until the last minute to finish the assignment. Hand in your assignment early if need be. A final note, there will be no extensions unless ordered by the Dean. This creates a level playing field for all of you.

### **Disability accommodations**

Any student with special needs requiring accommodations should give me his/her memo of accommodations in a timely manner. It is the student's responsibility to follow up with me regarding all accommodations that require my participation. The Coordinator for Students with Disabilities is located in the Office of Student Academic Services. You can make an appointment with her by calling extension 5180.

Any student with special needs for field work should discuss this with me so we can make the appropriate accommodations.

### **Student Expectations**

You are expected to work *at least* an additional 2 hours for every hour in the field or in class. This course will be time intensive, so please make scheduled times for weekly team meetings and be sure to schedule in time for your individual work. Since this is a process course and not so much a lecture course, you will only get out of it what you put into it. The only way to become a good field scientist is to prepare for the field, think in the field, record observations and measurements in the field, think again in the field, compile your field notes and compare to the literature back in the office, rethink your hypotheses, prepare for the next field period, and think again.

The process that you learn and practice during the semester should yield a quality research product. Your teams' research should be of professional quality and will be presented at the Northeastern Geological Society of America meeting in the spring. Since you are designing, implementing, and completing a research project in 15 weeks, you need to work hard, efficiently, and consistently to complete the course.

### **Final Project and Presentation**

Each of you will be required to write an **individual** final report. Your report will be an inclusive document that will include an Abstract, Introduction, Literature Review, Methods, Results, Discussion, Further Study, and Conclusions. The report should include professional quality figures and maps and be well referenced.

During the last one-hour session each **team** will present the final results of their project.

## **Textbook and Readings**

There are no required textbooks or readings. I will have a copy of Geology in the Field for you to use and I will have some articles on the local geology that may help with your field work. Other than that you are responsible to find and read the appropriate literature.

## **Grading**

Grading percentages are as follows:

Class participation and attendance: 10%

Weekly progress reports: 25%

Draft of field report: 15%

Final report: 10%

Final presentation: 10%

Abstract for NEGSA: 15%

Poster for NEGSA: 15%

Please notice that the abstract and the poster for NEGSA represent a high percentage of the course. Please take this seriously, as I am sure you do not want to embarrass yourselves at a professional conference.

## **Email**

It is very important that you check your Skidmore email account frequently. I will use email for announcements about class activities (at least one day in advance).

## **Student Objectives**

- Read the relevant literature so you understand your field area.
- Plan your semester out so you have reasonable deadlines each week.
- Be a team player (it will be a fact of life when you leave Skidmore).
- Improve your field skills, your oral and written communication skills, and your approach to large projects.
- Understand the technical terms so the class can communicate effectively.
- Become an active and critical thinker about geological processes and how they are expressed in the field.
- Think outside of the box

## **End of course self-assessment (learning goals)**

By the end of the semester you should be able to:

1. Use a number of different surveying and field techniques.
2. Apply the process to other field (geological) studies/locations.
3. Synthesize the geological information collected in the field to effectively communicate the geological history.
4. Relate your research to broader implications (be able to answer “So What?”).
5. Write clear and concise field reports.
6. Draft professional quality figures and posters.
7. Know how to do a thorough literature search.

# GE 309 - Field Techniques

*Meeting times: Wednesday 11:15 to 4:15*

Room: DA 184

## Monday (?)

September 4

Happy Labor Day!

September 12

Intro to projects  
Team selection

September 19

First weekly report  
Literature search approach

September 26

Second weekly report  
Air photo interpretation

October 3

Third weekly report  
Computer map making

October 10

Fourth weekly report  
What good is GIS?

October 17

GSA  
No Class meeting -weekly update in my mailbox

October 24

Sixth weekly report  
Drafting quality figures - and cross sections

October 31

Seventh weekly report  
What to do with data tables

November 7

Eighth weekly report  
How to write a good abstract

## Wednesday

September 7

Class intro  
Tools of the field

September 14

Tools of the field  
Field scouting

September 21

Field investigations at site

September 28

Field investigations

October 5

Field investigations

October 12

Field investigations

October 19

GSA  
No Kyle, but go into the field anyway!

October 26

Field investigations

November 2

Field investigations

November 9

Field investigations

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November 14

Ninth weekly report  
How to layout a poster

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November 16

Field investigations

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November 21

Tenth weekly report  
How to draft a poster

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November 23

No Class - Happy Turkey Day!

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November 28

Eleventh weekly report  
Team 1 - What you have learned that  
you want to share

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November 30

Last Day in the field!

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December 5

Twelfth weekly report  
Team 2 - What you have learned that  
you want to share

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December 7

Office work and report compilation

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December 12

Presentations!

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December 14

Study Days

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December 21

Poster file is due!