Field Methods in the Earth Sciences
GEOL 311
Fall 2015

Wednesday 5-5:50 p.m.                  Friday 1-5 p.m.
C. M. Bailey                         cmbail@wm.edu
Office- McStreet Hall 215           x12445

Purpose
Geology differs from many branches of science in that field research is important. Although techniques for studying the Earth have become more sophisticated and laboratory research is critical to the success of many projects, the field provides our primary data. At the end of this course you will be competent at doing fieldwork in a variety of settings. You will improve your powers of observation, become familiar with making geologic maps and geologic cross sections, logging drill core, measuring stratigraphic sections, and conducting a geophysical survey. This course will focus on both traditional geologic fieldwork, as well as applied geological skills that are used in geotechnical fields. In this course you’ll learn how to use programs to manage and plot field data. We will produce digital maps and overview posters of the study sites. The skills and the savvy that you acquire in this course will be useful in more ways than you know.

The Plan

Week 1
Wed, Fri., Aug 26 & 28
Introduction & Purpose, Messages from Space- Using GPS, Becoming One with the Brunton Compass
Campus Field Excursion #1

Week 2
Wed, Fri., Sept 2 & 4
Quality field notes, surveying, topographic maps, and soils- the basics
Surveying & Soils- 308 Buford Road Project- Field Notes Due

Week 3
Wed, Fri., Sept 9 & 11
Rocks, Sediments, & Structures- a review?
Piedmont Field Trip- Field Notes Due

Week 4
Wed, Fri., Sept 16 & 18
Computer Programs
Buford Rd. Project Due, Fri. Sept. 18th
NO CLASS- Friday    Departmental Field Trip to the Blue Ridge

Week 5
Wed, Fri., Sept. 23 & 25
Geology of the Coastal Plain
Greensprings Project Trip #1

Week 6
Wed, Fri., Sept. 30 & Oct. 2nd
Measuring stratigraphic sections
NO CLASS- Friday
Menokin Trip#1- Saturday, Oct. 3rd

Week 7
Wed, Fri., Oct. 7th & 9th
Geophysical surveying- magnetics
NO CLASS- Friday    Beginning of Fall Break

Week 8
Wed, Fri., Oct. 14 & 16-18
Geology of the Piedmont/James River State Park Project
James River State Park Project Weekend Field Trip

Week 9
Wed, Fri., Oct. 21st & 23rd
Learning to log drill core data
Greensprings Project Trip #2
Week 10  
**Wed, Fri., Oct. 28 & 30**  
Project Reviews- where are we and where are we going!  
*Greensprings Project Trip #3*  
*James River SP Project Due, Wed. Oct. 28*

Week 11  
**Wed, Fri., Nov. 4 & 6**  
NO CLASS- GSA meeting in Baltimore  
*Greensprings Project Due, Fri. Nov. 6*

Week 12  
**Wed, Fri., Nov. 11 & 13**  
Poster Project Expectations  
*NO CLASS- Friday,*  
*Menokin Trip#2- Saturday, Nov. 14*

Week 13  
**Wed, Fri., Nov. 18 & 20**  
Poster Project Planning  
*Menokin Project Due, Fri. Nov. 20*  
*Petersburg Battefield Field Trip- Field Notes Due*

Week 14  
**Wed, Fri., Nov. 25 & 27**  
NO CLASS  
Thanksgiving Break

Week 15  
**Wed, Fri., Dec. 2 & 4**  
Group work on Poster Presentation  
*POSTER SESSION + PARTY = ?*

Grading  
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<tbody>
<tr>
<td>Field Notes &amp; Maps</td>
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<td>Buford Rd. Project</td>
<td>10%</td>
<td>Greensprings Project</td>
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<td>Attitude/Participation</td>
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Readings  
There is no assigned textbook for this course; however there will be a number of reading assignments. Reading assignments will be posted to Blackboard. Assignments should be read for comprehension and before the trips in which the material will be discussed.

Required Supplies  
- field book  
- ruler  
- protractor  
- 10x hand lens  
- mechanical pencils  
- colored pencils (12 pk)  
- small pencil sharpener  
- raingear  
- belt  
- field pack  
- sturdy walking shoes  
- field safety kit

Other Helpful Equipment  
- rock hammer (a hardrock hammer)