

NRME 5115/GEOL 5790 FIELD METHODS IN HYDROGEOLOGY SPRING 2009

Credit hrs. 3 Lecture: 3 hours/ 4 hours lab as scheduled, Field Trips

Instructor: Dr. Gary A. Robbins
Office hrs: T 9-10 am, W 9-10 am, or by arrangement

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Texts: Expedited Site Assessment: The CD, Readings as Assigned

Exams: Midterm and Final

Field Reports: Each student shall maintain a loose-leaf notebook for field reports. Field notebooks will be collected four times during the semester for grading as indicated below by the letters FN next to dates. Each field exercise shall be graded on a scale of 0 to 100%.

Attendance: If you miss a field exercise you are required to make it up ON YOUR OWN TIME.

Snow and other miserable days: If in doubt, call me.

Final grade = 10%(midterm) + 10%(final) + 75%(field reports) + 5% class participation.

Date	Lecture	Exercise
Week 1	Admin., site assessment overview, drilling, soil sampling, logging, geologic correlation	
Week 2	Design and installation of wells and multilevel samplers	1/27 Soil and rock logging, correlation computer based logs and correlation
Week 3	Water level measurement (sounders, p-transducers) and interpretation and slug testing	2/3 Well drilling and logging
Week 4 FN	Pneumatic slug testing and oscillatory response	
Week 5	Pump Testing	2/17 Water level exercise and slug testing
Week 6	Water quality sampling , types of sampling pumps, passive sampling, Midterm take home	
Week 7	Measurement of T, EC, pH, ORP, DO, turbidity, filtering, preservation, midterm due	3/3 well development and pneumatic slug tests
Week 8	NO CLASS	
Week 9 FN	Colorimetric methods (metals), specific ion electrodes, Titration	3/17 Pumping test
Week 10	Screening water and soil for VOCs Portable GC, TOVD	
Week 11	Other methods—portable XRF, downhole methods (MIPs, fluorescence, UV, Troll 9000	3/31 Low flow sampling and field analysis T, EC, pH, ORP, DO turbidity, filtering, preservation
Week 12	Laboratory Analyses (Mobile Lab)	
Week 13	Soil gas surveying, Kair Testing	4/14 Mobile Lab VOCs
Week 14 FN	Soil gas monitoring	
Week 15	Final Due	4/28 Soil gas surveying, K air Testing

Dress: As appropriate for weather and weather changes (have rain and snow gear with you), wear pants and rubber or field boots, work gloves, hard hats.

Supplies: These are a must! loose leaf paper for field notes, pens, pencils, clip board, plastic sheeting for weather

protection, graph paper 10X10, 2- and 3- cycle semilog, Calculators, stop watch.

Field Report outline:

Reports should be typed or printed ever so neatly. Neatness and grammar count. About 10 pages of written text maximum.

Field report notebook:

1. looseleaf
2. each report should be separated by labeled partitions.
3. title page, with title, your name (and team member)
4. table of contents--list report titles and page number (report number 1 begins at page 1.0, report 2 at 2.0, etc).

Field reports:

Title page, with title, date conducted, and exercise number

- I. INTRODUCTION--overall purpose
- II. PROCEDURES--describe in detail what was done, how it was done and why it was done. Cite references as appropriate, e.g. [USGS, 1987].
- III. SAMPLE CALCULATIONS--if calculations are performed, show equations, and make up example.
- III. RESULTS--provide results in verbal, graphical or tabular form as appropriate--just data no discussion.
- IV. DISCUSSION--be creative, discuss results in context of theory, problems encountered in performing the exercise, limitations of methods used, comparisons with other approaches, how effort may be improved, sources of error, etc.
- V. CONCLUSIONS--summarize effort or draw conclusions
- VI. REFERENCES--full citations
- VII. APPENDICES--lab assignment sheet, original field notes.