



WISCONSIN

UNIVERSITY OF WISCONSIN-MADISON

University of Wisconsin - Madison
College of Engineering [EGR]
Last Offered: 2014 Fall [1152]
Direct Link to this Syllabus :

<http://aefis.engr.wisc.edu/index.cfm/page/CourseAdmin.ViewABET?coursecatalogid=191&pdf=True>

1. **GLE 595, Field Methods in Applied and Engineering Geophysics**
 2. **Credits : 1 Contact Hours : 3.0**
 3. **Textbook and Materials :** Introduction to Applied Geophysics. Burger, R. H, Sheehan, A., and Jones, C. (2006). W. W. Norton, 544 pages.
- a. **Other Supplemental Materials :** Class notes
- **Specific Course Information :**
- a. **Brief description of the content of the course (Course Catalog Description) :** The application of geophysical field methods for delineating near-surface features and/or structures as applied to engineering, environmental and exploration problems.
 - b. **Pre-requisites or Co-requisites :** 1 yr coll calc, 1 yr coll physics or EMA 201, 202 & Physics 202, prev or con reg in GLE/Geoscience 594
 - c. **This is a Required course.**
- **Specific Goals for the Course :**
- a. **Course Outcomes :**
1. Design different geophysical surveys
 2. Use different geophysical tools
 3. Understand the limitations of geophysical techniques and tools
 4. Reduce and analyze geophysical data with the help of computer modeling tools
 5. Document and present interpreted information as a consulting report
 6. Additionally, the students will understand problems related to the geology of a site and the requirements for engineering and environmental applications.
- **ABET Student Learning Outcomes :**
- (a) Ability to apply mathematics, science and engineering principles.
 - (b) Ability to design and conduct experiments, analyze and interpret data.
 - (d) Ability to function on multidisciplinary teams.
 - (e) Ability to identify, formulate and solve engineering problems.
 - (f) Understanding of professional and ethical responsibility.
 - (g) Ability to communicate effectively.
 - (i) Recognition of the need for and an ability to engage in life-long learning.
 - (k) Ability to use the techniques, skills and modern engineering tools necessary for engineering practice.
- **Brief List of Topics to be Covered :**

Introduction to Field Geophysical Techniques - Introduction to geophysical instrumentation: Gravimeter, Magnetometer, Electrical resistivity tomography (Ohmmapper)

Introduction to Field Geophysical Techniques - Introduction to geophysical instrumentation: Seismograph, Ground penetrating radar

Field Demonstration - Field data collection (all day long – Back Forty Mine Project – Menominee, MI)

Data reduction and interpretation

Final Project