



# 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=329&pdf=True>

1. **G L E 594, Introduction to Applied Geophysics**
  2. **Credits : 3    Contact Hours : 2.5**
  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) :** Survey of applied geophysics, including seismic refraction, seismic reflection, electrical resistivity, gravity, and magnetics methods. The course will cover the basic physics of each method and modeling techniques and field procedures.
    - b. **Pre-requisites or Co-requisites :** 1 yr of college calc, 1 yr of college physics
    - c. **This is a Required course.**
  - **Specific Goals for the Course :**
    - a. **Course Outcomes :**
      1. To teach the basic physics underlying different applied geophysical methods and how these methods are used for exploration and characterization.
      2. To present an overview of the field procedures employed to collect different types of geophysical data.
      3. To offer an introduction to the techniques employed to interpret geophysical data collected for applied and engineering purposes
  - **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 :** Approaching the Subsurface;  
Gravity Surveying;  
Magnetic Surveying;  
Seismic Refraction and Reflections Surveys;

Electrical Resistivity Surveys;  
Electromagnetic Methods;  
Ground Penetrating Radar