

GEOL 414 – Applied Geophysics

Fall Semester 2007

Description: 3 credits. Prerequisites: Geology 101, Mathematics 213, Physics 204 or 206. Principles of various geophysical methods and their application to geologic problems.

Textbook: Burger, Sheehan, and Jones, Introduction to Applied Geophysics, 2006, W.W. Norton & Co. Inc., ISBN 0393-92637-0

Course Goals: To give students an understanding of the physical principles of geophysical methods so that they will appreciate the strengths and limitations of the methods. After certain fundamentals have been mastered, the students study the procedures used in data acquisition and use the department's equipment to conduct geophysical surveys. The final phase of each section of the course gives students training in interpretation of geophysical data.

- Section 1 Introduction to Geophysics
Methods, Units, Applications, Geophysical Societies, Geophysical literature.
- Section 2 Gravity fundamentals
Gravity surveying
Gravity data reduction and analysis
- Section 3 Magnetic fundamentals
Magnetic surveying
Magnetic data reduction and analysis
- Section 4 Combined gravity and magnetic survey field project
- Section 5 Electrical Methods and Surveying
- Section 6 Seismology fundamentals
- Section 7 Refraction seismology
- Section 8 Reflection seismology
- Section 9 Thermal methods

