APPLIED GEOPHYSICS FIELD CLASS
GEOLOGY 437
SPRING 2015

PROFESSOR: JOHN L. SEXTON
TEXT/REFERENCE: AN INTRODUCTION TO GEOPHYSICAL EXPLORATION
BY PHILIP KEARY, MICHAEL BROOKS, AND IAN HILL
3rd EDITION 2002 (OR LATER)
BLACKWELL PUBLISHING

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CREDIT HOURS: 3

PROJECT REPORTS:
50% OF COURSE GRADE

ATTENDANCE/PARTICIPATION IN FIELD TRIPS (UP TO 10) IS REQUIRED:
50% OF COURSE GRADE

COURSE DESCRIPTION: PRACTICE OF GEOPHYSICS AS APPLIED TO SELECTED TOPICS FROM EXPLORATION AND DEVELOPMENT OF NATURAL RESOURCES INCLUDING OIL, COAL, MINERALS AND GROUNDWATER. OTHER APPLICATIONS OF GEOPHYSICS MAY INCLUDE STUDY OF ARCHAEOLOGICAL AND ENVIRONMENTAL SITES, AS WELL AS CRUSTAL STUDIES OF EARTHQUAKE ZONES AND METEORITE IMPACT AREAS. APPLIED GEOPHYSICAL METHODS STUDIED MAY INCLUDE SEISMIC REFRACTION, REFLECTION, AND SURFACE WAVES, AND GRAVITY AND MAGNETIC SURVEYING. ADDITIONAL TOPICS MAY BE SELECTED FROM ELECTRICAL RESISTIVITY, ELECTROMAGNETIC AND GEORADAR SURVEYING AND GEOPHYSICAL WELL LOGGING. SELECTED TOPICS WILL VARY FOR DIFFERENT SEMESTERS. BASIC THEORY OF GEOPHYSICS FOR METHODS TO BE USED WILL BE REVIEWED AND DEVELOPED IF REQUESTED BY THE CLASS.

UP TO TEN ONE DAY FIELD TRIPS WILL BE CONDUCTED ON SELECTED SATURDAYS. FIELD TRIPS WILL INVOLVE USE OF GEOPHYSICAL INSTRUMENTS FOR DATA COLLECTION. SOME SATURDAY MORNINGS WILL BE USED FOR COMPUTER AIDED INTERPRETATION OF THE COLLECTED DATA. ALSO DEPENDING ON AVAILABILITY, FIELD TRIPS MAY BE MADE TO PROFESSIONAL GEOPHYSICAL SERVICE COMPANIES CONDUCTING DATA ACQUISITION IN THE AREA. ALSO, IF AVAILABLE, WE WILL VISIT AN OIL DRILLING RIG IN OPERATION. DATES FOR THE FIELD TRIPS WILL DEPEND ON THE WEATHER.

ABSENCES FROM CLASSES AND FIELD TRIPS WILL AFFECT THE STUDENTS GRADE UNLESS THE ABSENCE HAS BEEN PREVIOUSLY APPROVED. IF A STUDENT IS ABSENT DUE TO ILLNESS THEN INFORMATION FROM STUDENT'S DOCTOR MUST BE PROVIDED. OTHERWISE STUDENTS MUST ATTEND ALL SCHEDULED ACTIVITIES.

TENTATIVE SCHEDULE (DEPENDING ON WEATHER)

WEEKS: 1, 2, 3, 4, 5 I. Magnetic data acquisition at Southeastern Illinois and vicinity
WEEKS: 6, 7, 8 II. Gravity data acquisition at Southeastern Illinois and vicinity
WEEK: 9 III. Spring Break Saturday March 8 through Sunday March 16
WEEK: 10 IV. Computer lab work
WEEKS: 11, 12 V. Visit oil drilling rig, seismic reflection crew, and/or computer lab work
WEEKS: 13, 14, 15 VI. Resistivity data acquisition at Clear Creek
WEEKS: 16 VII. Computer lab work
Emergency Procedures:
Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the SIUC Emergency Response Plan and Building Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings on campus, available on BERT's website at www.bert.siu.edu, Department of Safety’s website www.dps.siu.edu (disaster drop down) and in Emergency Response Guideline pamphlet. Know how to respond to each type of emergency.