GEOLOGY

Office: 0224 Old Main; 313-577-2506
Chairperson: David Njus
Academic Services Officers: Cody Bailey, David Lowrie
http://www.clas.wayne.edu/Geology/

BASKARAN, MARK: Ph.D., Physical Research Laboratory; M.S., M.K.
University; B.S., V.H.N.S.N. College; Professor

BROWNLEE, SARAH J.: Ph.D., University of California, Berkeley; B.A.,
Princeton University; Assistant Professor

HOWARD, JEFFREY L.: Ph.D., University of California, Santa Barbara;
M.S., B.S., Virginia Polytechnic Institute and State University; Associate
Professor

- Geology (M.S.) (http://bulletins.wayne.edu/graduate/college-liberal-
arts-sciences/geology/geology-ms)

GEL 5000 Geological Site Assessment Cr. 4
Geologic methods for Phase I Environmental Site Assessments.
Application of geostatistics to site characterization. Offered Biannually.
Prerequisites: ([GEL 1010 with a minimum grade of D-] OR [GEL 1000 with
a minimum grade of D-])

GEL 5120 Environmental Geochemistry Cr. 4
Survey of some of the geochemical interactions which take place in Earth
environments (water, soils, atmosphere, etc.) brought about by natural
and human-induced chemical processes. Offered Biannually.
Prerequisites: ([CHM 1000 with a minimum grade of D-]) AND ([GEL 1010
with a minimum grade of D-])

Course Material Fees: $20

GEL 5150 Soils and Soil Pollution Cr. 4
Physical, chemical and mineralogical properties and classification of
soils. Behavior of pollutants in soils and methods for reclamation. Offered
Spring/Summer.
Prerequisites: ([CHM 1220 with a minimum grade of D-]) AND ([CHM 1230
with a minimum grade of D-])

GEL 5210 Applied Geophysics Cr. 4
Introduction to applied geophysical methods used in subsurface
exploration. Students will learn the basics of near-surface seismic,
gravity, magnetic, electrical resistivity, and electromagnetic methods and
data analysis. Offered Biannually.
Prerequisites: ([GEL 1010 with a minimum grade of D-]; PHY 2130
with a minimum grade of D-; and PHY 2140 with a minimum grade of
D-) OR [PHY 2170 with a minimum grade of D- and PHY 2180 with
a minimum grade of D-]) AND ([GEL 3300 with a minimum grade of D-]) AND
([MAT 2010 with a minimum grade of D-])
Restriction(s): Enrollment is limited to Graduate or Undergraduate level
students.
Course Material Fees: $40

GEL 5420 Mathematical Methods in Earth Science Cr. 4
An introduction to mathematical methods in Earth Science focusing on
an introduction to programming in Matlab, using statistical methods,
Monte Carlo, and building towards finite difference numerical methods.
Offered Biannually.

GEL 5450 Hydrogeology Cr. 4
Characteristics and behavior of groundwater in earth materials. Principles
of groundwater flow and solute transport. Introduction to numerical
models and methods. Offered Biannually.
Prerequisites: ([GEL 1010 with a minimum grade of D-]) AND ([MAT 2010 with
a minimum grade of D-])

GEL 5490 Glacial Geology of North America Cr. 4
Survey treatment of glacial processes; emphasis on the impact of the
Laurentide Ice Sheet on the Great Lakes region. Course is offered at
advanced undergraduate and graduate levels. Offered Irregularly.

GEL 5510 Environmental Fate and Transport of Pollutants Cr. 4
Basic principles of chemical behavior in the environment; sources, fate,
and transport of contaminants. Offered Winter.
Prerequisites: ([CHM 1220 with a minimum grade of D-] OR [CHM 1240
with a minimum grade of D-] OR [CHM 1230 with a minimum grade of
D-] OR [CHM 1250 with a minimum grade of D-]) AND ([MAT 2010 with a
minimum grade of D-])

GEL 5600 Special Topics in Geology Cr. 4
Subjects of general interest to geology majors. Topics may include:
mapping; soil and groundwater pollution; petroleum geology; engineering
geology; mathematical methods in Earth Science; or others. Offered
Irregularly.

GEL 5993 (WI) Writing Intensive Course in Geology Cr. 0
Disciplinary writing assignments under the direction of faculty member.
Must be selected in conjunction with course designated as corequisite.
See section listing in Schedule of Classes for corequisites available each
term. Satisfies the University General Education Writing Intensive Course
in the Major requirement. Required for all majors. Offered Every Term.
Prerequisites: (May be taken concurrently: [GEL 3160 with a minimum
grade of D-] OR [GEL 3300 with a minimum grade of D-] OR [GEL 3400 with
a minimum grade of D-] OR [GEL 3540 with a minimum grade of D-] OR
[(AA) Exempt from Gen Ed MACRAO with a test score minimum of 100]
OR [(BA) Competencies Waiver with a test score minimum of 100])
Restriction(s): Enrollment is limited to Undergraduate level students.

GEL 6400 Nuclear Geology Cr. 4
Introduction to various physical and chemical age-dating methods
applied to geological and cosmological objects. Offered Biannually.
Prerequisites: ([PHY 2130 with a minimum grade of D-] OR [PHY 2140 with
a minimum grade of D-] OR [PHY 2170 with a minimum grade of D-] OR [PHY 2180 with
a minimum grade of D-]) AND ([CHM 1220 with a minimum grade of D-] OR
[CHM 1230 with a minimum grade of D-] AND ([GEL 1010 with a
minimum grade of D-])

GEL 6500 Economic Geology Cr. 4
Geology, tectonic setting and genesis of metallic and nonmetallic mineral
and hydrocarbon deposits. Resource economics and environmental
issues related to resource extraction. Check with instructor for field
trip destination; field trip to Canada frequently part of course. Offered
Biannually.
Prerequisites: ([GEL 2130 with a minimum grade of D-]) AND ([GEL 3160
with a minimum grade of D-] AND ([GEL 3300 with a minimum grade of
D-]) AND ([GEL 3400 with a minimum grade of D-])
Course Material Fees: $125

GEL 7990 Directed Study in Geology Cr. 2-8
Offered Every Term.
Restriction(s): Enrollment is limited to Graduate level students.
Repeatable for 8 Credits
GEL 7997 Research in Geology Cr. 3-4
Independent work in laboratory or field. Offered Every Term.
Restriction(s): Enrollment is limited to Graduate level students.
Repeatable for 8 Credits

GEL 8999 Master's Thesis Research and Direction Cr. 1-8
Offered Every Term.
Restriction(s): Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.
Repeatable for 8 Credits