

**Descriptions – General Business – Business Law Programs**

**of  
Courses**

- 341. Survey of Business Law**  
(BOA 341.) Fall, Winter, Spring. 4(4-0)  
Juniors. Not open to students with majors in the  
College of Business.  
Historical development of the law; courts, court  
procedures and civil remedies, torts, crimes;  
contracts, agency, sales, negotiable instruments,  
real and personal property, including bailments  
and liens. Textbook and lecture rather than case  
approach.
- 345. Business Ethics**  
Fall. 4(4-0) Juniors. Interdepartmental  
with and administered by the Department of  
Philosophy.  
Ethical dimensions of the relationships be-  
tween a business and employees, consumers,  
other businesses, society, government, and the  
law. Readings from philosophical and business  
sources.
- 400H. Honors Work**  
(BOA 400H.) Fall, Winter, Spring,  
Summer. 1 to 15 credits. Approval of depart-  
ment.  
Independent and informal study in law, office  
administration or business communications.
- 430. Law and Society**  
(BOA 440., 440.) Fall, Winter, Spring,  
Summer. 4(4-0) Seniors or approval of instruc-  
tor; may not earn credit in both GBL 430 and  
GBL 441.  
Legal reasoning and legal institutions. Court  
systems and court procedures. Contracts and  
sales. Sources of and limits on legislative and  
judicial authority. Property, torts, and crimes.
- 431. Law and Business**  
Fall, Winter, Spring, Summer. 4(4-0)  
GBL 430.  
Law of business associations, administrative  
agencies and process, the constitution and the  
business enterprise, liability to consumers, se-  
curities, regulation of business conduct and  
structure, business ethics and social responsi-  
bility.
- 441. Contracts and Sales**  
(BOA 441.) Fall, Winter, Spring,  
Summer. 3(3-0) Seniors or approval of instruc-  
tor; may not earn credit in both GBL 430 and  
GBL 441.  
Contracts, including concept of freedom of con-  
tract and limitations. Sales. Case study method.
- 442. Agency, Partnerships and  
Corporations**  
(BOA 442.) Winter, Spring. 3(3-0) GBL  
441.  
The law dealing with agency and business or-  
ganizations. Case study method.
- 443. Negotiable Instruments, Secured  
Transactions, Property**  
(BOA 443.) Winter, Spring. 3(3-0) GBL  
441.  
The law of negotiable instruments, secured  
transactions, and property. Case study method.
- 447. Hotel Law**  
(BOA 447.) Winter, Spring. 4(4-0) GBL  
440.  
Legal aspects of the hospitality industry.
- 468. Field Studies**  
(BOA 468.) Fall, Winter, Spring,  
Summer. Variable credit. May reenroll for a  
maximum of 8 credits. Approval of department.  
Planned program of observation and work in  
selected business firms. Analysis and reports.

- 805. Business Ethics**  
Spring. 4(4-0) Graduate student in the  
College of Business or approval of instructor.  
Interdepartmental with and administered by  
the Department of Philosophy.  
Ethical dimensions of such topics as corporate  
responsibility, preferential hiring, profit and  
taxation, deception and bribery, self-regulation  
versus government regulation, 'whistleblow-  
ing', and advertising. Readings from philo-  
sophical and business sources.
- 848. The Legal Environment of  
Business**  
(BOA 848.) Fall, Summer. 4(4-0)  
Critical examination of the environment in  
which business operates. Analysis of the com-  
ponent elements of the legal environment of  
business and the structural framework in which  
law functions.
- 878A. Seminar in Business Law**  
(BOA 878A.) Winter. 4(4-0) GBL 848 or  
approval of department.  
Contracts, sales, secured transactions and con-  
sumer legislation viewed from the judicial,  
legislative and executive vantage points.
- 878B. Seminar in Business Law**  
(BOA 878B.) Spring. 4(4-0) GBL 848 or  
approval of department.  
Agency, partnerships and corporations, viewed  
from legislative, judicial and executive vantage  
points, as they affect entrepreneurial decision  
making.
- 890. Special Problems**  
(BOA 890.) Fall, Winter, Spring,  
Summer. Variable credit. Approval of depart-  
ment.
- GENETICS**
- College of Natural Science**
- 800. Genetics Seminar**  
Fall, Winter, Spring. 1(1-0) May reen-  
roll for a maximum of 12 credits. Approval of  
director.  
Student seminar to cover genetics subjects not  
considered in formal courses. Course is also in-  
tended to give students experience in reviewing  
and organizing literature in a subject, and orally  
presenting and defending the analysis.
- 804. Gene Transmission**  
Fall. 3(3-0) ZOL 441 or approval of  
instructor.  
Molecular and formal genetic studies of the re-  
plication, recombination, repair and segregation  
of genetic information in prokaryotes and  
eukaryotes. Experimental design and methodol-  
ogy will be emphasized.
- 805. Genetic Organization, Action  
and Regulation**  
Winter. 3(3-0) GEN 804.  
Molecular and formal genetic studies of the or-  
ganization, expression and regulation of gene  
activity in prokaryotes and eukaryotes. Experi-  
mental design and methodology will be em-  
phasized.

- 806. Population and Quantitative  
Genetics**  
Spring. 3(3-0) ZOL 441 or approval of  
instructor.  
Genetics of quantitative characteristics in  
populations with special reference to polygenic  
variation and its interactions with environment,  
gene action and its measurement, mating sys-  
tems, and selection.
- 880. Special Problems**  
Fall, Winter, Spring, Summer. 1 to 4  
credits. May reenroll for a maximum of 12  
credits. Approval of instructor.  
Students with special interests and abilities may  
study published literature in a selected genetics  
topic or they may carry on research in the  
laboratory on a selected subject in collaboration  
with genetics faculty.
- 890. Selected Topics in Genetics**  
Fall, Winter, Spring, Summer. 2 to 5  
credits. May reenroll for a maximum of 9 cred-  
its. ZOL 441 and approval of instructor.  
Topics will be selected from molecular genet-  
ics, physiological genetics, population genetics,  
quantitative genetics, evolution, radiology and  
mutagenesis, microbial genetics, somatic cell  
genetics, behavioral genetics, and human genet-  
ics.
- 999. Doctoral Dissertation Research**  
Fall, Winter, Spring, Summer. 3 to 12  
credits. Majors.  
Research for the doctoral dissertation in genet-  
ics.
- GEOGRAPHY**
- GEN**
- College of Social Science**  
Courses are classified as follows:  
Cultural—170, 201, 801, 901.  
Economic—213, 409, 435, 809, 835, 906.  
Field Techniques—415, 850.  
Geographic Education—458.  
Historical—310, 810, 910.  
Independent Research—400H, 411, 818, 899,  
918, 999.  
Medical—470, 870, 970.  
Physical—206, 206L, 429, 430, 431, 432, 451,  
834, 902.  
Political—170, 908.  
Population—320, 836, 934.  
Quantitative Methods—427, 428, 811.  
Regional—204, 300, 315, 316, 321, 322, 340, 342,  
360, 365, 812, 912.  
Recreation and Environmental—100, 307,  
309, 828.  
Theory and Philosophy—150, 425, 825, 826.  
Urban—318, 401, 402, 403, 466, 805.  
Visual Media and Techniques—122, 223, 224,  
424, 426, 446.
- 100. People, Location and  
Environment**  
Fall, Winter, Spring. 4(4-0)  
Relationships between people and environ-  
ments, their spatial consequences and resulting  
regional structures across the earth's surface.
- 122. The World of Maps**  
Fall, Winter, Spring. 3(3-0)  
Discussion of types, practical applications, and  
sources of maps.

- 150. Geography of Selected Current Problems**  
Fall, Winter, Spring. 2(2-0)  
The geographic perspective is used to examine U.S. and world problems of major concern such as international conflicts, environment quality, spatial change, and economic development.
- 170. Future Worlds (S)**  
Fall, Spring, Summer. 3(3-0)  
Geographical approach to environmental, biological, economic, social and political problems facing mankind between now and year 2000.
- 201. Geography of Culture**  
Fall, Winter, Spring. 3(3-0)  
A systematic discussion of cultural geography, stressing cultural processes and relationships.
- 203. Resource Ecology**  
(IDC 200.) Fall, Winter, Spring, Summer. 3(3-0) *Interdepartmental with the departments of Fisheries and Wildlife, Forestry, Resource Development, and Zoology. Administered by the Department of Fisheries and Wildlife.*  
Basic concepts of ecology which are the unifying basis for resource management, conservation policy and the analysis of environmental quality. Extensive use of guest lecturers.
- 204. World Regional Geography (S)**  
Fall, Winter, Spring, Summer. 4(4-0)  
Human relationships with natural and cultural environments.
- 206. Physical Geography**  
Fall, Winter, Spring, Summer. 4(4-0)  
Analysis of weather, climate, landforms, soils, water and biotic factors of the human environment, including its spatial, genetic, and functional interrelationships.
- 206L. Physical Geography Laboratory**  
Fall, Winter, Spring. 1(0-2) GEO 206 or concurrently.  
Laboratory study of geographic aspects of map interpretation, aerial photographs, weather, climate, soils, landforms, and vegetation.
- 213. World Economic Geography**  
Fall, Winter, Spring, Summer. 4(4-0)  
Emphasis on distribution of natural resources, industries and service activities, stressing factors of location and economic concepts of locational change.
- 223. Introduction to Cartography**  
Fall, Winter, Spring. 4(2-4)  
Principles and techniques of constructing maps and other graphic devices. Types of map reproduction.
- 224. Remote Sensing: Airphoto Interpretation**  
Fall, Winter, Spring. 4(2-4) *Sophomores.*  
Use of aerial photographs in the identification and interpretation of physical and cultural features of the terrestrial environment. Includes principles of photogrammetry, and stresses application and practice.
- IDC. Introduction to Contemporary China**  
For course description, see *Interdisciplinary Courses.*
- IDC. Contemporary Japan**  
For course description, see *Interdisciplinary Courses.*
- 300. North America**  
Fall, Winter, Spring. 3(3-0)  
Human and physical geography of North America, north of the Mexican border.
- 307. Geography of Environmental Quality**  
Spring. 3(3-0) *Sophomores or approval of department.*  
Identification of the physical, cultural and psychological factors which constitute human environments, and how they vary and may be modified or controlled.
- 309. Geography of Recreation**  
Winter. 3(3-0)  
Natural and cultural factors influencing the use of space for recreation. Emphasis on recreation land use in the United States and current problems and conflicts.
- 310. Historical Geography of the United States**  
Spring. 3(3-0)  
Reconstruction of geographies of the United States as they existed in the past.
- 315. South America**  
Spring. 3(3-0) *Sophomores or approval of department.*  
Regional geography of South America with special attention to contemporary geographic problems.
- 316. Middle America**  
Winter. 3(3-0) *Sophomores or approval of department.*  
Interpretation of physical and cultural environment of Mexico, Central America, and the West Indies. Special attention to contemporary geographic problems.
- 318. Cities of the World**  
Fall, Winter, Spring. 3(3-0)  
A cross-cultural examination of cities, their historic growth, regional functions, and internal dynamics.
- 320. Geography of Population**  
Fall. 3(3-0)  
Relationship of the size, composition, and distribution of population to geographic variations in the nature of places.
- 321. Africa**  
Fall. 3(3-0) *Sophomores or approval of department.*  
Emphasis on continent south of Sahara: environments, peoples, problems, and potentials.
- 322. Africa: Contemporary Problems**  
Spring. 3(3-0) *Sophomores or approval of department. GEO 321 recommended.*  
Major development problems examined from environmental, historical, economic, and social perspectives.
- 340. Western Europe**  
Winter. 3(3-0) *Sophomores or approval of department.*  
Geographic analysis of physical and human character and resources of Western Europe (Scandinavia, British Isles, Benelux, Germany, France and Switzerland). Emphasis on major problems.
- IDC. Contemporary South Asia**  
For course description, see *Interdisciplinary Courses.*
- 342. Eastern and Southern Europe**  
Spring. 3(3-0) *Sophomores or approval of department.*  
A geographical analysis of countries of Eastern and Southern Europe with emphasis on economic, political, social and ethnic problems.
- 351. Weather and Climate**  
Fall. 3(3-0)  
Non-mathematical treatment of general weather processes and patterns, including surface and middle atmospheric (jet stream) features, with emphasis on the U.S.
- 360. The Soviet Union**  
Fall. 3(3-0) *Sophomores or approval of department.*  
A geographical analysis of the Soviet Union and its inhabitants with emphasis on economic, social, political and ethnic problems.
- 365. China**  
Winter. 3(3-0)  
The physical and human geography of China and their relationship to the development problems of the country, with emphasis on the post-1949 period.
- 400H. Honors Work**  
Fall, Winter, Spring. 1 to 16 credits.  
*Approval of department.*
- 401. The Ghetto**  
(UMS 401.) Fall, Spring. 4(4-0) *Juniors or approval of department.*  
Analysis of the ghetto including its spatial organization, structure and distribution of non-white and ethnic populations in cities with emphasis on the United States.
- 402. The Geography of the City**  
Spring. 3(3-0)  
Spatial theories, concepts, and designs of internal urban economic, social, and political structures.
- 403. The American City and Its Region**  
Winter. 3(3-0)  
The regional system of cities in terms of size, spacing, and functional relationships.
- 407. Michigan**  
Fall, Spring. 3(3-0) *Sophomores or approval of department.*  
Selected aspects of the physical and cultural geography of Michigan.
- 408. Canada**  
Spring. 3(3-0) *Sophomores or approval of department.*  
An analysis of the physical, economic and cultural patterns of Canada.
- 409. Geography of Transportation**  
Fall. 3(3-0)  
Analysis of spatial principles of transportation, including theories of interaction, network structures, and the role of transport in space-economy.
- 411. Problems in Geography**  
Fall, Winter, Spring, Summer. 1 to 6 credits. *Approval of department.*  
Research on specialized geographic problems.

## Descriptions – Geography

of

### Courses

#### 415. Field Techniques

Fall. 4(1-7) May reenroll for a maximum of 8 credits. Approval of department.

Basic methods for making physical and cultural observations and measurements including map reading, photo interpretation, field sketch mapping, compass traverses, sampling, questionnaire design, interviewing, analysis and reporting. Requires work off campus.

#### 418. Critical Issues in Contemporary Africa

Fall, Spring. 3(3-0) May reenroll for a maximum of 9 credits if different topics are taken. One course on African subject and approval of instructor. Interdepartmental with African Languages and the departments of Anthropology, History, Political Science, and Sociology. Administered by the Department of History.

Four separate multidisciplinary topics will be offered at different times: The Horn of Africa, Southern Africa, Africa and the Americas, Social Impact Studies.

#### 424. Advanced Remote Sensing Techniques

Spring. 4(2-4) GEO 224.

Extraction, analysis, and interpretation of information obtained from remote sensors including conventional, infrared and radar imagery. Introduction to stereo-plotting devices, stressing theories of remote sensing and applications.

#### 425. Development of Geographic Thought

Spring. 3(3-0) Approval of department.

Evolution of geographic thought from antiquity to the present emphasizing developments in 20th century America. Survey of the theory and methodology of contemporary geography.

#### 426. Advanced Cartography

Spring. 4(1-6) GEO 223.

Development of advanced skills in construction of maps, including ink drafting, lettering systems, map projections, scribing and photo reproduction.

#### 427. Quantitative Methods in Geography

Fall. 4(4-0) Approval of department.

Basic quantitative techniques used in the analysis and classification of geographic data.

#### 428. Computer Mapping in Geography

Spring. 4(4-0) CPS 120.

The preparation of computer maps and the application of the computer to the development and testing of models in geography.

#### 429. Landforms of North America

Winter, Spring. 3(3-0) May reenroll for a maximum of 6 credits. GEO 206, GLG 201 or approval of department.

Study of the surface features of eastern U.S.A. (winter term) and western U.S.A. (spring term).

#### 430. Climates of the World

Spring. 3(3-0) GEO 206 or approval of department.

Regional analysis of the world's weather and climate.

#### 431. Landform Analysis

Fall. 3(3-0) GEO 206, GLG 201 or approval of department.

A problem approach is utilized to explain classical and contemporary interpretations of the nature of selected landforms, including treatment of related tools and techniques. Option for some field study.

#### 432. Biogeography

Spring. 3(3-0) GEO 206 or approval of department.

Patterns of vegetation, with emphasis on forests of eastern North America. Option for some field study.

#### 435. Land Use and Location Theory

Spring. 3(3-0) GEO 213 or approval of department.

Location principles and theories of economic activities, including methods of regional analysis.

#### 436. Microclimatology

Winter. 3(3-0) MTH 108; GEO 351 recommended. Interdepartmental with and administered by Agricultural Engineering Technology.

Physical environment in the lower few hundred meters of the atmosphere and within the biosphere.

#### 440. Spatial Aspects of Regional Development

Spring. 3(3-0) GEO 213 or one 300 level regional geography course or approval of department.

Spatial and environmental factors in regional development at national and international scales.

#### 446. Production Cartography

Winter. 4(2-4) GEO 223 or approval of department.

Deals with the technical aspects of map and graphics production both as a sequence of operations and as a series of problems of organizations. Theoretical and applied aspects, process photography, typography, and proofing.

#### 451. Climatic Patterns and Atmospheric Circulation

Winter. 3(3-0) GEO 206 or approval of department.

Relationship between weather, climate, and upper air flow, with emphasis on this climatology of North America.

#### 458. Geography for Teachers

Winter. 3(3-0)

Problems and practices of teaching geography in elementary and secondary schools.

#### 466. Social and Spatial Approaches to Community Service

Spring. 3(3-0) GEO 201 or S W 205 or approval of department. Interdepartmental with and administered by the School of Social Work.

Analysis of major themes in social service planning: communities and neighborhoods, public policy administration, social service networks, location of public facilities, evaluation and accountability of service systems.

#### 470. Geography of Health and Disease

Fall, Winter. 3(3-0)

Spatio-environmental concepts and the techniques applied to health problems: disease transmission cycles, community nutrition and health-care planning.

#### 801. Seminar in Cultural Geography

Fall. 3(3-0) Approval of department.

Theory, methodology, and techniques in cultural geography.

#### 805. Seminar in Urban Geography

Spring. 3(3-0) Approval of department.

Selected research topics on the geography of the city.

#### 808. Environmental Measurements

(A E 805, AET 805.) Spring. 4(3-3) Approval of department. Interdepartmental with and administered by Agricultural Engineering Technology.

Methods and techniques for accurate measurement and interpretation of environmental parameters. Temperature, humidity, wind and air flow characteristics, radiation, light intensity, gaseous and particulate concentrations in atmospheric microclimates will be discussed.

#### 809. Seminar in Transportation Geography

Winter. 3(3-0) Approval of department, GEO 409.

Selected research topics.

#### 811. Advanced Quantitative Methods in Geographic Research

Winter. 4(2-4) Approval of department, GEO 427.

Statistical and mathematical approaches to spatial distributions and areal data.

#### 812. Regional Seminar

Fall, Winter, Spring, Summer. 1 to 3 credits. May reenroll for a maximum of 9 credits. Approval of department.

Selected research topics in regional geography.

#### 818. Readings in Geography

Fall, Winter, Spring, Summer. Variable credit. May reenroll for a maximum of 15 credits. Approval of department.

#### 825. History and Philosophy of Geography

Fall. 3(3-0) Approval of department.

Analysis of the monographic and serial literature dealing with the theory and evolution of geographic science.

#### 826. Research Design in Geography

Winter, Spring. 3(3-0) Approval of department.

Formalized approach to research and writing in geography: Identification of geographic problems and their relative importance, structuring and stating hypotheses, data acquisitions, and tests for validity.

#### 828. Seminar in Recreation Geography

Spring. 3(3-0) GEO 309 or approval of instructor.

Selected current problems in recreation geography in the U.S. and abroad.

#### 834. Seminar in Physical Geography

Winter, Spring. 3(3-0) May reenroll for a maximum of 9 credits. Approval of department.

Analysis of classical and contemporary problems in physical geography treated as follows: climatology (winter), biogeography (spring), geomorphology (spring).

**835. Seminar in Location Theory**  
Fall. 3(3-0) Approval of department, GEO 435.  
Recent developments and research in location analysis and regional science.

**839. African Research**  
(IDC 838.) Fall, Winter, Spring. 2 to 4 credits. May reenroll for a maximum of 8 credits. Graduate standing or approval of instructor. Interdepartmental with African Languages and the departments of Administration and Curriculum, Anthropology, History, Political Science, and Sociology. Administered by the Department of Anthropology.  
African-related archival and field research topics and methodologies viewed from perspective of relevant social science and humanistic disciplines associated with the African Studies Center.

**846. Seminar in Cartography**  
Winter. 3(3-0) May reenroll for a maximum of 12 credits. Approval of department.  
Selected research topics in cartographic theory and map design.

**850. Advanced Field Techniques**  
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 8 credits.  
Instruction and practical training in the selection, data-gathering, on-site analysis, and presentation of geographic field problems.

**870. Seminar in Medical Geography**  
Winter. 3(3-0)  
Spatio-environmental analysis of selected health problems.

**899. Master's Thesis Research**  
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

**901. Problems in Cultural Geography**  
Fall, Winter, Spring. 1 to 3 credits. May reenroll for a maximum of 6 credits. Approval of department.  
Special research problems.

**902. Problems in Physical Geography**  
Fall, Winter, Spring, Summer. 1 to 3 credits. May reenroll for a maximum of 6 credits.  
Supervised research in specific topics of physical geography.

**906. Problems in Economic Geography**  
Fall, Winter, Spring, Summer. 1 to 3 credits. May reenroll for a maximum of 6 credits. Approval of department.  
Special research problems.

**910. Problems in Historical Geography**  
Fall, Winter, Spring, Summer. 1 to 3 credits. May reenroll for a maximum of 6 credits. Approval of department.  
Special research problems in historical geography.

**912. Independent Study in Regional Geography**  
Fall, Winter, Spring, Summer. 1 to 3 credits. May reenroll for a maximum of 15 credits. Approval of department.  
Individual studies in regional geography.

**918. Problems in Geography**  
Fall, Winter, Spring, Summer. 1 to 3 credits. May reenroll for a maximum of 9 credits. Approval of department.  
Research on specific geographical problems.

**934. Problems in Population**  
Fall, Winter, Spring, Summer. 1 to 3 credits. May reenroll for a maximum of 9 credits. Approval of department.  
Special research problems.

**999. Doctoral Dissertation Research**  
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

## GEOLOGICAL SCIENCES

(Name changed effective July 1, 1983. Formerly the Department of Geology.)

### College of Natural Science

**Geology** **GLG**

**200. The Geology of Our Environment**  
Fall, Winter, Spring, Summer. 3(3-0)  
Not open to Geology majors. Credit will be given in only one of the following: GLG 200, GLG 201, GLG 306.

Our geologic environment: earthquakes, volcanoes, landslides, subsidence, flooding, coastal erosion, hydrology and human use, waste disposal, geologic aspects of environmental health, resources and energy, environmental law.

**200L. Laboratory-Geology of Our Environment**  
Fall, Winter, Spring, Summer. 1(0-3)  
GLG 200 or concurrently.

Laboratory study of geologic processes associated with environmental hazards. Emphasis placed on land-use planning, applying geologic criteria to evaluate land potentials.

**201. Earth Processes**  
Fall, Winter, Spring, 4(4-2) Credit will be given for only one of the following: GLG 200, GLG 201, GLG 306.

Physical processes concerning evolution of Earth and its environments. Conservation and interaction of energy and matter through time. Laboratory stresses interpretation of process through studies of geologic data.

**202. Evolution of the Earth**  
Fall, Winter, Spring. 4(4-2) GLG 200; or GLG 201; or GLG 306.

Integration of physical, chemical and biological processes from which our present environment has evolved; problems and controversies in the development of ideas of geologic and organic evolution.

**205. Oceanology-The Marine Environment**  
Fall. 3(3-0)

Physical oceanography, including origin, hydrologic, chemical, geological properties; and environmental quality of the oceans. Human-sea interactions are emphasized including resource utilization and pollution.

**282. Energy Resources of the Earth**  
Winter. 3(3-0)  
World energy resources of petroleum, coal, and atomic fuel. Social, political, economic and environmental problems of fuels.

**300. Solar System Geology**  
Winter. 4(4-0) AST 119 or AST 217 or AST 229; GLG 200 or GLG 201.  
The origin, relationships, make-up and features of the bodies in the solar system emphasizing recent space exploration results and developing theories.

**302. Vertebrate Life of the Past**  
Fall. 3(3-0) One course in a physical or biological science or Juniors. Interdepartmental with the Department of Zoology.  
Fossil vertebrates from fish to humans.

**304. Geology of Michigan**  
Fall. 3(3-0) GLG 200 or GLG 201 and/or GLG 202; or approval of department.  
A historical accounting of the physical, historical and economic geology of Michigan and its environs; a course designed for students seeking an overall picture of the rather unique Michigan geological environment.

**306. Engineering Geology**  
Fall, Spring. 3(3-2) Credit will be given for only one of the following: GLG 200, GLG 201, GLG 306. Sophomore Engineering students.

Fundamental principles of geology as applied to civil engineering practice. Minerals and rocks, aerial photographs, topographic and areal geologic maps and geologic cross sections studied in laboratory. Source of geologic literature and maps.

**307. Geology Central Appalachians**  
Winter. 1(0-2) GLG 200, or GLG 201, or GLG 202, or concurrently.

General geology of the Central Appalachians. A preparatory course for GLG 308. Field excursions—Central Appalachians during spring vacation.

**308. Field Excursion-Central Appalachians**  
Spring. 2 or 3 credits. GLG 307.

Training in stratigraphic, sedimentological, paleontologic, and structural principles as applied to field methods.

**321. Mineralogy**  
Fall. 5(4-4) One term of chemistry.

Basics of crystallography, crystallography, and crystal chemistry. The classification, occurrence, composition and identification of minerals. Mineral genesis.

**323. Introduction to Optical Mineralogy**  
Winter. 1(0-3) GLG 321.

Basic principles underlying the use of the polarizing microscope. Recognition and understanding fundamental optical properties. Identification of minerals and texture in thin sections of rocks.

**327. Introduction to Geochemistry**  
(495.) Winter. 3(3-0) CEM 152, GLG 321.

Geochemical evolution of the universe, solar system, earth. Application of crystal field theory and thermodynamics to the solution of geological problems. Factors affecting the distribution of elements on earth. Principles of isotope geology.