

**GENERAL BUSINESS AND BUSINESS LAW**

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**GBL**

**395\*.** *Law, Public Policy, and Business*  
Fall, Spring, Summer. 3(3-0)  
R: Juniors and Seniors Business or Program for which GBL 395 is a ctg-listed requ.  
Analysis of the structure of the legal system and basic concepts of constitutional law, torts, contracts, product liability, and administrative law and government regulation of business.  
QA: GBL 431 GBL 341 GBL 450

**395H\*.** *Law, Public Policy, and Business - Honors(W)*  
Fall. 3(3-0)  
R: Junior and above Honors Not open to students with credit in GBL 395  
Analysis of the structure of the legal system and basic concepts of constitutional law, torts, contracts, product liability, administrative law, and government regulation of business.  
QA: GBL 431 GBL 341 GBL 450

**420\*.** *Role of Law and Lawyers in Society*  
Fall, Spring. 3(3-0)  
P: GBL 395 R: Senior and Above Business  
Comparative law, analysis of legislative and judicial processes, role of lawyers, law and its relationship to economics and business, social justice. Overview of legal education.  
QP: GBL 430

**447\*.** *Hospitality Law*  
Fall, Spring. 3(3-0)  
P: GBL 395 R: Senior and above HRIM  
Legal aspects of hospitality industry including contracts and sales, torts, commercial paper, and organization. Dynamics of the changing work force and employment discrimination. Franchising.  
QP: GBL 430 QA: GBL 447

**451\*.** *Law of Commercial Transactions*  
Spring. 3(3-0)  
P: GBL 395 R: SENIOR OR ABOVE  
**BUSINESS**  
Law of contracts and sales, commercial paper, secured transactions, consumer credit, and debtor-creditor relationships.  
QP: GBL 450 QA: GBL 451

**460\*.** *International Law and Business*  
Spring. 3(3-0)  
P: GBL 395 R: Senior and above Business  
An overview of international law and its impact on international business. Government regulation of international business.  
QP: GBL 430 QA: GBL 460

**480\*.** *Corporate and Professional Social Responsibility*  
Spring. 3(3-0)  
P: GBL 395 R: Seniors and Above Business  
Institutionalization of American working life, large business institutions and the law, control of large business institutions, social obligations of corporations and professions, impact of institutional values on individual values.  
QP: GBL 430

**490\*.** *Special Problems - Independent Study*  
Fall, Spring, Summer. 1 to 3 credits.  
May reenroll for a maximum of 6 credits.  
P: GBL 395 R: Senior and Above Approval of Department  
Planned program of observation and work in selected business firms and government. Analysis and reports. Independent research on selected legal topics.  
QP: GBL 430 QA: GBL 468

**848\*.** *Legal Environment of Business*  
Fall, Spring. 3(3-0)  
R: Graduate or PPA Business MBA or PPA  
Critical examination of the environment in which business operates. Analysis of the component elements of the legal, political, and social environment of business and the structural framework in which law functions.  
QA: GBL 848

**880\*.** *Corporate and Professional Social Responsibility*  
Fall. 3(3-0)  
R: Graduate Business  
Impact of corporations and professions in societies and across societies; control of business organizations; social and moral responsibilities of organizations; the individual's role in a business organization.

**890\*.** *Special Problems*  
Fall, Spring, Summer. 1 to 3 credits.  
May reenroll for a maximum of 6 credits.  
P: GBL 848 R: Graduate Business Approval of the Department  
Independent study of special topics in business law and public policy.  
QP: GBL 848 QA: GBL 890

**GENETICS GEN**

**800\*.** *Genetics Seminar*  
Fall of odd-numbered years, Spring of odd-numbered years, Summer of odd-numbered years  
May reenroll for a maximum of 12 credits.  
R: Ph. D. students Genetics  
Topics not normally treated in formal courses.  
QA: GEN 800

**880\*.** *Laboratory Rotation*  
Fall of odd-numbered years, Spring of odd-numbered years, Summer of odd-numbered years  
May reenroll for a maximum of 6 credits.  
R: Ph. D. students Genetics  
Lab Rotation for 1st year genetics students only; participation in a research lab of a Genetics faculty member; learn experimental techniques; research approaches; broaden research experience & assess research interests prior to selecting a thesis advisor  
QA: GEN 880

**890\*.** *Selected Topics in Genetics*  
Fall of odd-numbered years, Spring of odd-numbered years, Summer of odd-numbered years  
May reenroll for a maximum of 9 credits.  
P: ZOL 341 R: Ph. D. students Genetics  
Topics will be selected from molecular genetics, physiological genetics, population genetics, quantitative genetics, evolution, radiology and mutagenesis, microbial genetics, somatic cell genetics, behavioral genetics and human genetics.  
QP: ZOL 341 QA: GEN 890

**999\*.** *Doctoral Dissertation Research*  
Fall of odd-numbered years, Spring of odd-numbered years, Summer of odd-numbered years  
May reenroll for a maximum of 99 credits.  
R: Ph. D students Genetics  
Research for the doctoral dissertation in genetics.  
QA: GEN 999

**GEOGRAPHY**

**GEO**

**113\*.** *Introduction to Economic Geography*  
Fall, Spring. 3(3-0)

Spatial distribution of resources, population, enterprise, trade, consumption, and production. Interaction of those distributions at local to global scale.  
QA: GEO 213

**151\*.** *Cultural Geography*  
Fall. 3(3-0)

Systematic approach to the spatial distribution of cultural features, processes, and relationships.  
QA: GEO 201

**203\*.** *Introduction to Meteorology*  
Fall, Spring. 3(3-0)

Fundamentals of meteorology. Energy balance, adiabatic processes, horizontal motion, cyclogenesis, and severe weather.  
QA: GEO 351

**206.** *Physical Geography*  
Fall, Spring. 3(3-0)  
R: NONE NONE NONE NONE

Geographic and functional interrelationships within the physical environment: Earth-sun relationships, weather, climate, soils, vegetation and landforms (terrain characteristics).  
QA: GEO 206

**206L.** *Physical Geography Laboratory*  
Fall, Spring. 1(0-2)  
P: GEO 206 or concurrently. R: NONE  
NONE NONE NONE  
Geographic aspects of weather, climate, soil, vegetation, and terrain. Interpretation and application of maps and remotely sensed imagery.  
QA: GEO 206L

**223\*.** *Introduction to Cartography*  
Fall, Spring. 4(2-4)

Cartographic principles and techniques of making maps. Cartographic decision-making and methods for both conventional and computer mapping.  
QA: GEO 223

**224\*.** *Introduction to Remote Sensing*  
Fall, Spring. 4(2-4)  
R: Not open to freshmen.

Conventional airphoto characteristics and interpretation techniques. Basic features of radar, thermal, and multispectral imagery. Applications in professional fields such as agriculture, archaeology, forestry, geography, planning, wildlife.  
QA: GEO 224

**225\*.** *Introduction to Geographic Information Systems*  
Fall, Spring. 4(03-02)  
R: none none none none

GEOGRAPHIC INFORMATION SYSTEMS; COMPONENTS, DATA STRUCTURES, BASIC OPERATIONS, AND APPLICATIONS; LABORATORY EXERCISES WITH A VARIETY OF SOFTWARE SYSTEMS.  
QP: NONE

**230\*.** *Geography of the United States and Canada*  
Fall, Spring, Summer. 3(3-0)

Regional analysis. Evolution and status of environmental, demographic, economic, and sociocultural patterns and processes.  
QA: GEO 300

**233\*.** *Geography of Michigan*  
Fall. 3(3-0)

Physical and cultural geography of Michigan.  
QA: GEO 407

**GEOGRAPHY**

- 259\*.** **Geography of Recreation and Tourism**  
Fall. 3(3-0)  
Cultural, physical, and biotic factors affecting the distribution of recreation and tourism resources and participation. U.S. and international examples and case studies.  
QA: GEO 309
- 330.** **United States and Canada**  
Fall, Spring, Summer. 3(3-0)  
R: SOPHOMORES OR ABOVE  
Regional analysis of United States and Canada; evolution and status of environmental, demographic, economic, and sociocultural patterns and processes.  
QA: GEO 300 GEO 408
- 335\*.** **Geography of Latin America**  
Fall. 3(3-0)  
R: Not open to freshmen.  
Physical and human geography of Latin America. Current development issues, especially people-environment interaction in urban and rural areas. Topics include migration, urbanization, and industrialization.  
QA: GEO 315 GEO 316
- 336\*.** **Geography of Europe**  
Fall. 3(3-0)  
R: Not open to freshmen.  
Major regions and nations, including their physical resources, peoples, political structures, and economies.  
QA: GEO 340 GEO 342
- 337\*.** **Geography of East Asia**  
Spring. 3(3-0)  
R: Not open to freshmen.  
Spatial patterns and processes of physical and human geography in China, Japan, Korea, and Taiwan. Emphasis on development problems, especially since 1950.  
QA: GEO 364 GEO 365
- 338\*.** **Geography of Africa**  
Fall. 3(3-0)  
R: Not open to freshmen.  
Physical and human geography of Africa. Current development issues, especially people-environment interaction in urban and rural areas. Topics include drought, agricultural patterns, hunger, rural development, migration, and urbanization.  
QA: GEO 321 GEO 322
- 401\*.** **Plant Geography**  
Spring of even-numbered years.  
3(03-00)  
R: not open to Freshmen or Sophomores  
NONE NONE NONE  
GEOGRAPHY OF FORESTS IN NORTH AMERICA WITH EMPHASIS ON THE EAST. RELATED ECOLOGICAL PRINCIPLES, SOILS, AND POST-CRETACEOUS GEOLOGIC HISTORY. SOME FIELD INSTRUCTION.  
QA: GEO432
- 402\*.** **Agricultural Climatology**  
Fall of even-numbered years. 3(3-0)  
Interdepartmental with the Department(s) of Agricultural Engineering.  
P: MTH 116 R: NO FRESHMENT; NO SOPHOMORES  
RELATIONSHIPS BETWEEN CLIMATE & AGRICULTURE AS RELATED TO RESOURCE ASSESSMENT, WATER BUDGET ANALYSIS, METEOROLOGICAL HAZARDS, PESTS, CROP-YIELD MODELING, AND IMPACTS OF GLOBAL CLIMATE CHANGE.  
QP: MTH 109 ORMTH 111
- 404\*.** **Synoptic Climatology**  
Fall. 4(04-00)  
P: GEO 203  
GLOBAL CLIMATE PATTERNS AND THEIR CONTROLS; EMPHASIS ON THE RELATIONSHIP BETWEEN UPPER AIR FLOW AND WEATHER IN THE NORTHERN HEMISPHERE WESTERLIES.  
QP: GEO 206 GEO 351 QA: GEO 451
- 405\*.** **Applied Synoptic Climatology: Principles and Methods**  
Spring. 4(3-2)  
P: GEO 203; Math 116  
Dynamic and thermodynamic principles of atmospheric science applied to the development and evolution of extratropical cyclones. Laboratory sessions include analysis of current observations and satellite imagery.  
QP: GEO 351 ANDMTH 109ORMTH 111 QA: GEO 452
- 406\*.** **Environmental Geomorphology**  
Spring. 3(3-0) Interdepartmental with the Department(s) of Geological Sciences.  
P: GEO 106, GEO 406, ICSP 203, GLG 201, or GLG 301  
Relationships of running water, weathering, gravity, ice, waves, wind, and biota to terrain and soils. Evolution of landscapes. Classical and modern interpretations. Field study optional.  
QP: GEO 206 ORGLG 201ORGLG 200 QA: GEO 431
- 407\*.** **Regional Geomorphology of the United States**  
Fall. 3(03-0)  
P: GEO 106 or GEO 406 or GLG 201 or GLG 301 or ISP 203.  
Geomorphic characteristics of physiographic regions of the United States.  
QP: GEO 206 GLG 201 QA: GEO 429
- 408\*.** **Soil Geomorphology Field Study**  
Fall. 4(2-4)  
P: GEO 106 or GLG 201 or CSS 210. R: Not open to freshmen and sophomores.  
Common geographic relationships among soils, landforms, and vegetation in lower Michigan. Description, analysis, and genesis of soils and landscapes. Surficial processes. Required field trips, incurring some student expenses.  
QP: GEO 206 ORGLG 200ORCSS 210 QA: GEO 420
- 413\*.** **Urban Geography**  
Fall. 3(3-0)  
P: GEO 113  
Theories and models of urban spatial form. Underlying structures and processes. Socio-spatial dimensions of modern urbanites. Differentiation and locational conflict in residential, commercial, and industrial space.  
QP: GEO 213 QA: GEO 403
- 414\*.** **Geography of Transportation**  
Spring. 3(3-0)  
P: GEO 113. R: Not open to freshmen.  
Spatial principles of transportation. Theories of interaction, network structures, and location-allocation models. Role of transport and transport planning.  
QP: GEO 213 QA: GEO 409
- 415\*.** **Location Theory and Land Use Analysis**  
Fall. 3(3-0)  
P: GEO 113. R: Not open to freshmen.  
Classical and neoclassical, static and dynamic models of industrial location and spatial organization. Land rent theory. Central place theory. Multi-locational organization. Growth transmission.  
QP: GEO 213 QA: GEO 435
- 416\*.** **Principles of Regional Planning**  
Spring of even-numbered years. 3(3-0)  
Interdepartmental with the Department(s) of Urban Planning.  
P: GEO 113 or approved equivalent R: no freshmen, no sophomores  
Will develop the principle theoretical issues of regional planning; scope and definition, applied spatial analysis techniques, research on policies and procedures.
- 417\*.** **Geography of Transnational Corporations**  
Spring. 3(3-0)  
P: Juniors and above  
Emergence of transnational corporations and their impact on economic development and the international division of labor.  
QP: GEO 213
- 418\*.** **The Ghetto**  
Fall. 3(3-0)  
P: sophomores or above  
Analysis of the ghetto including its spatial organization, structure and distribution of nonwhite and ethnic populations with an emphasis on U.S. cities.  
QA: GEO401
- 423\*.** **Map Production and Design**  
Spring. 4(2-4)  
P: GEO 223.  
Manual and automated techniques. Design solutions, map planning, overlay construction, user issues, typography, color theory, and color selection.  
QP: GEO 223 QA: GEO 446 GEO 456
- 424\*.** **Advanced Remote Sensing**  
Fall. 4(3-2)  
P: GEO 224. R: Not open to freshmen and sophomores.  
Interaction of solar radiation with the atmosphere, lithosphere, hydrosphere, and biosphere. Introductory digital image processing. Earth-resources satellite sensors, data products, and applications. Radar and thermal remote sensing.  
QP: GEO 224 QA: GEO 424
- 425\*.** **Advanced Geography Information Systems**  
Spring. 4(03-02)  
P: GEO 225.  
Technical and theoretical issues in the design, evaluation, and implementation of geographic information systems for research and application.
- 426\*.** **Topics in Cartographic Research**  
Fall. 3(3-0)  
P: GEO 223.  
Major research trends in modern cartography. Map perception, cognition, and innovation. Library work, proposal and paper writing, cartographic experimentation, and oral presentation.  
QP: GEO 223 QA: GEO 447
- 436\*.** **Geography of Health and Disease**  
Fall. 3(03-0)  
R: Not open to freshmen, sophomores, juniors.  
Spatio-environmental concepts and techniques applied to health problems. Disease transmission cycles, community nutrition, and health-care planning.  
QA: GEO 470
- 452\*.** **Population and Development**  
Spring of odd-numbered years. 3(3-0)  
P: GEO113, OR GEO151, OR GEO230, OR GEO233, OR GEO335, OR GEO336, OR GEO 337  
21MOGRAPHIC ISSUES RELATED TO ECONOMIC DEVELOPMENT AND ENVIRONMENTAL SUSTAINABILITY IN SELECTED WORLD REGIONS.  
QP: GEO 201 GEO 213GEO 300GEO 315GEO 316 GEO 365 OR GEO 407 QA: GEO 320
- 453\*.** **Environment and Development Policy**  
Spring of even-numbered years. 3(3-0)  
Interdepartmental with the Department(s) of Resource Development.  
P: GEO113, OR GEO151, OR GEO230, OR GEO233, OR GEO335, OR GEO336, OR GEO337.  
INTERACTION BETWEEN ENVIRONMENTAL AND DEVELOPMENT POLICIES AND PROCESSES IN SELECTED WORLD AREAS  
QA: RD 429

**GEOGRAPHY**

**454\*.** **Spatial Aspects of Regional Development**  
 Spring of odd-numbered years. 3(3-0)  
 P: GEO 113, or GEO 151, or GEO 230,  
 or GEO 233, or GEO 335, or GEO 336, or GEO 337.

Spatial patterns and processes associated with regional development in selected world areas.  
 QP: GEO 201 GEO 213GEO 300GEO 315GEO 316  
 GEO 364 OR GEO 365 QA: GEO 440

**459\*.** **Tourism in Development**  
 Fall. 3(3-0)

Analysis of the distribution, nature, and impacts of tourism. Environmental considerations and the role of tourism in regional development. Examples from Michigan, the United States and other nations.

**465\*.** **Introduction to Quantitative Methods for Geographers and Planners**

Fall. 3(03-00) Interdisciplinary with the Department(s) of Urban Planning.  
 R: GEO, UP, LA  
 Basic quantitative techniques in the analysis and classification of geographic data.  
 QA: GEO 427

**480\*.** **Senior Seminar**  
 Spring. 3(3-0)

R: Open only to seniors in Geography.  
 History, philosophy, and methodology of the geographic discipline as it has evolved within academic and social contexts.  
 QA: GEO 425

**491\*.** **Readings in Geography**  
 Fall, Spring, Summer. 1 to 4 credits.  
 May reenroll for a maximum of 12 credits.

**492\*.** **Geographic Research Problems**  
 Fall, Spring, Summer. 1 to 4 credits.  
 May reenroll for a maximum of 16 credits.

Research on selected aspects of Geography.

**495\*.** **Field Study**  
 Fall, Spring, Summer. 1 to 4 credits.  
 May reenroll for a maximum of 8 credits.

Supervised field study in Geography.

**498\*.** **Internship in Geography**  
 Fall, Spring, Summer. 1 to 4 credits.  
 May reenroll for a maximum of 8 credits.  
 P: Approval of Department R: juniors and

above  
 Individual experience in Geography at an approved agency, firm, or other entity.

**809\*.** **Seminar in Physical Geography**  
 Fall, Spring, Summer. 3(3-0) May  
 reenroll for a maximum of 9 credits.  
 P: Consent of instructor R: graduate

standing  
 Research on topics in physical geography, specifically climatology, geomorphology, soils, and plant geography.  
 QA: GEO 834

**813\*.** **Seminar in Urban and Economic Geography**  
 Fall. 3(3-0)  
 P: Two of GEO 413, GEO 414, GEO 415,  
 GEO 416, GEO 417, GEO 418 or equivalent.

Research on selected topics in urban and economic geography.  
 QP: TWO OF GEO 401GEO 403GEO 435  
 QA: GEO 805

**815\*.** **Seminar in Location Theory and Transportation Geography**  
 Spring. 3(3-0)  
 P: Two of GEO 413, GEO 414, GEO 415,  
 GEO 416, GEO 417, GEO 418

Research on selected topics in location theory and transportation geography.  
 QP: TWO OF GEO 401GEO 403GEO 435  
 QA: GEO 835

**823\*.** **Map Automation**  
 Fall. 3(02-02)  
 P: GEO 223 R: Graduate Students

The use of computers in cartography. Cartographic algorithms, interpolation, line generalization, program intelligence, cartographic data bases.  
 QP: GEO 223 QA: GEO 449

**825\*.** **Geoprocessing**  
 Spring of even-numbered years.  
 4(04-00)  
 P: GEO 225, GEO 424.

Integration of digital remote sensing data, geographic information systems, spatial analysis, and expert systems in solving research problems. Class research project.  
 QP: GEO 424

**826\*.** **Seminar in Cartography and Geoprocessing**  
 Spring. 3(03-00)  
 R: Graduate students  
 Research in cartography, geographic information systems, and remote sensing.  
 QA: GEO 846

**850\*.** **Regional Seminar**  
 Fall, Spring. 3(3-0)  
 P: Approval of department R: Graduate  
 students  
 Research on contemporary geographic issues in different world regions.  
 QA: GEO 840

**860\*.** **Methods and Modeling in Regional Science**  
 Spring of even-numbered years. 3(3-0)  
 Interdepartmental with the  
 Department(s) of Resource  
 Development.  
 P: multivariate statistics R: graduate  
 status

Advanced methods for regional scientists including spatial aspects of linear programming, input-output methods, spatial forecasting and simulation models.

**865\*.** **Advanced Quantitative Methods in Geography**  
 Spring. 4(4-0)  
 P: GEO 465

Advanced methods applied to geographic data. Multiple regression, principle components and factor analysis, discriminant analysis, and related taxonomic methods.  
 QP: GEO 427 QA: GEO 811

**886\*.** **Research Design in Geography**  
 Spring. 3(3-0)  
 R: graduate students GEO and UP Ap-  
 proval of the Dept  
 Research and writing in geography. Identification of geographic problems and their relative importance. Structuring and stating hypotheses. Data acquisition and tests for validity.  
 QA: GEO 826

**891\*.** **Advanced Readings in Geography**  
 Fall, Spring, Summer. 1 to 8 credits.  
 May reenroll for a maximum of 12  
 credits.  
 R: Graduate Students Geography

QA: GEO 818

**892\*.** **Advanced Geographic Research**  
 Fall, Spring, Summer. 1 to 4 credits.  
 May reenroll for a maximum of 16  
 credits.  
 R: graduate status  
 Advanced research on selected aspects of geography.

**899\*.** **Master's Thesis Research**  
 Fall, Spring, Summer. 1 to 12 credits.  
 May reenroll for a maximum of 30  
 credits.  
 R: Open only to graduate students in  
 Geography.

QA: GEO 899

**986\*.** **Theory and Methods in Geography**  
 Spring. 3(3-0)  
 R: Ph.D. GEO  
 Historical development of the geographic discipline within social and intellectual contexts. Current methodological and philosophical approaches to geographic research.  
 QA: GEO 926 GEO 825

**999\*.** **Doctoral Dissertation Research**  
 Fall, Spring, Summer. 1 to 12 credits.  
 May reenroll for a maximum of 36  
 credits.  
 R: Phd students only Geography

QA: GEO 999

**GEOLOGY** **GLG**

**201.** **Earth Processes and History**  
 Fall, Spring. 4(3-2)

Physical, chemical and biological processes related to the evolution of the Earth. The roles of solar energy, Earth's internal heat and the process of natural selection in controlling these processes.  
 QA: GLG 201 GLG 202 GLG 306

**301.** **Engineering Geology**  
 Fall. 4(3-2)  
 R: Not open to freshmen. Open only to  
 College of Engineering students. Not open to students  
 with credit in GLG 201.  
 Principles of geology as applied to civil engineering  
 practice. Minerals, rocks, surficial and internal pro-  
 cesses, mitigation of destructive geological processes.  
 Air photos, topographic-geologic maps, cross sections.  
 QA: GLG 200 GLG 201 GLG 306

**321.** **Mineralogy and Geochemistry**  
 Fall. 4(3-2)  
 P: CEM 142 or CEM 152.  
 Geochemical properties and processes in the origin,  
 modification, structure, dynamics and history of Earth  
 materials. Crystallography and crystal chemistry.  
 Mineral classification and identification.  
 QP: CEM 141 ORCEM 151ORLBS 161 QA:  
 GLG 321 GLG 323 GLG 327

**331.** **Vertebrate Life of the Past**  
 Spring. 3(3-0) Interdepartmental with  
 the Department(s) of Zoology.  
 P: BS 110 or BS 111 or juniors and above.  
 R: Not open to students with credit in GLG 433.  
 Evolution and diversity of fossil vertebrates from fish  
 to humans with emphasis on dinosaurs and Pleisto-  
 cene events.  
 QA: GLG 302