GEOGRAPHY AND ENVIRONMENTAL PLANNING (GEOG)

GEOG 101 PHYSICAL GEOGRAPHY (3)
Introductory spatial analysis of fundamental terrestrial natural phenomena, including their impact on humanity. Emphasis on Earth planetary motions, weather and climate, landforms, soils and vegetation. Gen Ed II.A or Core: Biological & Physical Sciences.

GEOG 102 WORLD REGIONAL GEOGRAPHY (3)
Survey of world regions identifying geographical features and area and their significance. GenEd II.D or Core: Global Perspectives.

GEOG 105 GEOGRAPHY OF INTERNATIONAL AFFAIRS (3)
An introductory survey of the changing political map of the world with special emphasis on a geographical comprehension of the major regions of international cooperation and conflict. GenEd II.D or Core: Global Perspectives.

GEOG 109 INTRODUCTION TO HUMAN GEOGRAPHY (3)
Uses the analytical approach of social sciences in the study of institutions of human society to reveal spatial patterns in the responses of people to basic problems and needs. GenEd II.D or Core: Global Perspectives.

GEOG 110 HONORS INTRODUCTION TO HUMAN GEOGRAPHY (3)
Uses the analytical approach of social sciences in the study of institutions of human society to reveal spatial patterns in the responses of people to basic problems and needs. Emphasis on discussion and analyses of problems. Honors College course. GenEd II.D or Core: Global Perspectives.

GEOG 112 HONORS WORLD REGIONAL GEOG (3)
Survey of world regions identifying geographical features and area and their significance. Honors College course. GenEd II.D or Core: Global Perspectives.

GEOG 221 INTRODUCTION TO GEOSPATIAL TECHNOLOGY (3)
Introduction to most effective ways to record and communicate spatial information. Emphasizes geotechniques including digital cartography, remote sensing, GIS and GPS. Includes georeference systems, cartographic representation, and basic skills needed to use and understand geospatial data. Prerequisite: GEOG 101 or consent of instructor.

GEOG 223 PHYSICAL GEOGRAPHY APPLICATIONS (3)
Fundamental concepts explored through laboratory exercises, including earth-sun relationships, weather and climate systems, and landmark characteristics. Prerequisites: GEOG 101 and GEOG 221.

GEOG 232 INTRO TO GEOGRAPHIC INFORMATION SCIENCE (4)
Study and use of selected computer hardware and software for the storage, retrieval, manipulation, analysis, and display of geographic data. Emphasis on practical applications of geographic information systems (GIS). Prerequisite: GEOG 221 or consent of instructor.

GEOG 251 INTRODUCTION TO URBAN PLANNING (3)
The sequential origins of planning and urban design, a study of contemporary urban planning practice, and an analysis of the social, economic and political context of plan formulation and implementation. Core: Metropolitan Perspectives.

GEOG 270 TOPICS IN PLANNING AND GEOGRAPHY (3)
Investigation of various geographic and planning issues. Emphasis on analytical skills through readings and research design. Topics to be announced. May be repeated for a maximum of 6 units provided a different topic is covered.

GEOG 315 GEOMORPHOLOGY (4)
Detailed analysis of the formation, surficial characteristics, and global distributions of the earth's landforms. Labs emphasize interpretation of landform assemblages through use of topographic maps and aerial photographs. Cannot be taken for credit by students who have received credit for PHSC 222 or GEOG 371. Prerequisites: 6 units of geography and/or geology, including either GEOG 101 or GEOL 121.

GEOG 317 ENERGY RESOURCES (3)
Spatial patterns of traditional and alternative forms of energy will be analyzed. The many facets of the energy problem will be analyzed including physical deposits, economic variables, public policy implication, and geographical patterns. Prerequisite: 6 units of geography or consent of instructor.

GEOG 319 SOILS AND VEGETATION (3)
A resource study of the world's soils and plant formations with emphasis placed upon their genesis and spatial differentiations. Prerequisites: GEOG 101 and one of the following: CHEM 101, BIOL 200/ BIOL 200L (BIOL 201), or BIOL 205.

GEOG 321 INTERPRETATION OF AERIAL PHOTOGRAPHS (3)
Reading and interpretation of aerial photographs. The application of the aerial photographs in the fields of geography, geology, and photogrammetry. Prerequisite: GEOG 232.

GEOG 323 CARTOGRAPHY AND GRAPHICS I (3)
Study in design, construction, and effective application of maps and charts for analysis and publications; practical exercises in the use of cartographic tools, materials, and techniques. Prerequisite: GEOG 232 or consent of instructor.

GEOG 329 GEOGRAPHIES OF HEALTH (3)
Interrelationship between health and our social and physical environments. Emphasis on geographic approaches to inequalities in health, well-being and care. Prerequisite: 6 units of geography.

GEOG 341 TECHNIQUES AND MATERIALS FOR GEOGRAPHY TEACHERS (3)
A systematic review of geographic concepts in relation to interdisciplinary studies in the physical and social sciences. Examination of the content of geography and problems of presentation.

GEOG 355 HISTORICAL GEOGRAPHY OF URBANIZATION (3)
Spatial and temporal development of urbanization and urban morphology from the rise of civilization in the ancient Near East to the contemporary post industrial city. The entire scope of urban functions is surveyed, with the emphasis on the city as a human-made environment. Prerequisite: 6 units of geography or consent of instructor.

GEOG 356 GEOGRAPHY OF CRIME (3)
Application of geographical methods and procedures to the study of environmental criminology. Explores socio-spatial and environmental data pertaining to crime, victimization, and offenders at the neighborhood, metropolitan, state and national levels. Prerequisites: GEOG 102 or GEOG 105 or GEOG 109.

GEOG 357 CULTURAL GEOGRAPHY (3)
Study of origins and diffusion of cultures and the resulting impact in creating the world's contrasting cultural landscapes. Prerequisite: 6 units of geography or consent of instructor.
GEOG 358 FEMINIST GEOGRAPHIES (3)
Exploration of key works of feminist critique and of the geographies of women and gender; impact of feminism across the discipline of geography. Prerequisite: 6 units of geography or consent of instructor.

GEOG 359 ECONOMIC GEOGRAPHY (3)
Designed to explain the location of economic activities through a series of principles and theories. Emphasis is on the various sectors of the economy, transportation, and economic development. Prerequisite: 6 units of geography or consent of instructor.

GEOG 363 SPAT ORGN EC ACT (4)
Provides an intermediate level coverage of the organization of the economy of space. Draws from basic regional economics to illustrate and explain the geographical patterns of land use, industry, service activities, and regional patterns of economic development.

GEOG 373 CLIMATOLOGY (3)
Analysis of the character, causes, and global distribution of climatic types, chiefly employing the Koppen classification system. Prerequisite: 6 units of geography or consent of instructor.

GEOG 375 QUANTITATIVE METHODS IN GEOGRAPHY (3)
Focus on statistical problems associated with the analysis of geographic data. Emphasis on the unique spatial problems of point pattern analysis, area association, and regionalization. Prerequisite: qualifying score on Math Placement exam or MATH 100 (recommended) or MATH 102 or higher (except MATH 204).

GEOG 376 QUALITATIVE METHODS (3)
Introduction to qualitative methods. Research design, ethical and procedural considerations, data collection methods, data analysis. Prerequisites: 6 units of geography are recommended, or consent of instructor.

GEOG 377 METEOROLOGY (3)
Examines the composition and structure of the atmosphere, thermodynamic processes, forces and related small- and large-scale motions, air masses, fronts, tropical cyclones, solar and terrestrial radiation, general circulation and weather forecasting. Field work may be required. Prerequisite: 6 units of natural science or geography or the equivalent.

GEOG 381 POLITICAL GEOGRAPHY (3)
Effect of political groupings upon human use of the world, and the influence of the geographic base upon political power. Prerequisite: 6 units of geography or consent of instructor.

GEOG 383 NATURAL RESOURCES AND SOCIETY: A GEOGRAPHIC PERSPECTIVE (3)
Social and environmental dimensions of natural resources, their management, and misuse from a geographic perspective. Requires grade of C or better to fulfill Core or GenEd requirement. Prerequisites: ENGL 102 or ENGL 190, 6 units of geography. Core: Advanced Writing Seminar or GenEd I.D.

GEOG 385 POPULATION GEOGRAPHY (3)
General population theory, data sources for population geographers, and the processes of fertility, mortality, and migration. Patterns of population growth and change viewed from both temporal and geographical perspectives. Prerequisite: 6 units of geography or consent of instructor.

GEOG 391 URBAN SYSTEMS (3)
Survey of the structure, functions, forms and development of urban units. Emphasis upon the locational features of social, economic, and cultural phenomena. Field work. Prerequisite: 6 units of geography or consent of instructor.

GEOG 393 TRANSPORTATION AND INFRASTRUCTURE PLANNING (3)
Transportation, water supply, wastewater treatment, and solid waste management systems, their role in the growth and development of urban areas. Policies, programs, and infrastructure planning. Prerequisite: GEOG 391 or consent of instructor.

GEOG 399 GEO LIT & SRC MAT (3)
Library access to texts, graphics, maps, photos, the Internet and the World Wide Web. Not open to students who successfully completed GEOG 299.

GEOG 401 GROWTH OF GEOGRAPHIC THought (3)
History, nature, and methodology of geography as a discipline. Analysis of schools of geographic thought; critical evaluation of important geographic work, skills of written, visual, and oral presentation. Requires grade of C or better to fulfill Core or GenEd requirement. Prerequisites: ENGL 102 or ENGL 190, junior standing, plus 6 units of geography. Core: Advanced Writing Seminar or GenEd I.D.

GEOG 405 COMPREHENSIVE PLANNING (3)
The integration of separate urban systems into the comprehensive design of an urban region. Special emphasis will be placed on neighborhood, community and town planning. Fieldwork may be required. Prerequisite: GEOG 391 or equivalent and consent of instructor.

GEOG 407 THE GEOGRAPHY OF THE AGED (3)
The aged have emerged in contemporary society as a significant minority group. Elements responsible for the increase in the number of older Americans will be examined as well as the forces affecting the distribution of the aged. Particular emphasis will be given to the locational problems of older people in urban areas. Prerequisite: 6 units of geography or consent of instructor.

GEOG 409 APPLIED CLIMATOLOGY (3)
The effects of world climatic patterns on the human and physical environment are analyzed. Special emphasis is devoted to the interactions between climate and the urban environment. Prerequisite: GEOG 373, GEOG 377 or consent of instructor.

GEOG 410 ENVIRONMENTAL GEOGRAPHY (3)
Energy, water, and mass budgets at the surface of the earth. Prerequisites: GEOG 101 and 3 units from one of the following disciplines: BIOL, CHEM, PHSC, PHYS, or GEOL.

GEOG 411 STUDIES IN NATURAL HAZARDS (3)
The nature, frequency of occurrences, and distribution of environmental hazards and their impact on humans. Prerequisite: 6 units of geography or consent of instructor.

GEOG 413 SEVERE AND HAZARDOUS WEATHER (3)
Extreme atmospheric events and phenomena; case study analysis of atmospheric events that shaped history, geography, and environment; scientific explanation of extreme atmospheric event occurrence. Prerequisite: GEOG 101, GEOL 357, or GEOG 377.

GEOG 414 GIS APPLICATIONS (3)
Vector-based GIS software for solving real world problems. Prerequisite: GEOG 412 or consent of instructor.

GEOG 416 PRINCIPLES OF REMOTE SENSING AND DIGITAL IMAGE PROCESSING (3)
Obtaining quantitative information from remotely sensed images; visual and automated techniques in study of spatial and environmental relationships. Prerequisite: GEOG 232.
GEOG 417 OUTDOOR RECREATION AND PLANNING MANAGEMENT (3)
A study of outdoor recreation in terms of relationships between people, land, and leisure. Emphasis on the principles of planning, designing and maintaining outdoor recreation areas and facilities. Prerequisite: 6 units of geography or consent of instructor.

GEOG 419 CLIMATE CHANGE: SCIENCE TO POLICY (3)
A survey of past, current, and future climate change. Emphasis on Earth's radiation balance, causes of climate change, observed and predicted signals of climate change, and impacts and mitigation of climate change. Prerequisite: 6 units of geography or natural science or consent of the instructor.

GEOG 420 GEOGRAPHY OF THE UNITED STATES AND CANADA (3)
Physical and cultural landscapes of the United States and Canada, including patterns of economic development of each region and their relationship to their environmental setting. Prerequisite: 6 units of geography or consent of instructor.

GEOG 421 GEOGRAPHY OF MARYLAND (3)
Physical and human geographical elements of the Maryland landscape which explain current patterns and environmental problems. Particular emphasis on historical geographical background of the present landscape. Prerequisite: 6 units of geography or consent of instructor.

GEOG 422 HISTORICAL GEOGRAPHY OF ATLANTIC CANADA (3)
The development of the Atlantic Provinces is followed through to the period of Confederation in 1867 with emphasis on the pivotal role the area played in the geopolitical interests of France and Britain in North America. Prerequisite: 6 units of geography or consent of instructor.

GEOG 423 GIS DATABASE DESIGN (3)
Introduction to Geographic Information System (GIS) databases. System design, database design and implementation. Data requirements gathering and design principles. Prerequisites: GEOG 221 and GEOG 232.

GEOG 424 THE GLOBAL ECONOMY (3)
Geographical patterns of spatial interactions in the global economy; roles of the state, transnational corporations, and intergovernmental organization. Prerequisite: 6 units of geography or consent of instructor.

GEOG 425 PYTHON SCRIPTING FOR ARCGIS (3)
Python programming and scripting techniques for GIS. Fundamentals of Python, basic geoprocessing in GIS, key modules of ArcPy for mapping and spatial analysis, skills required to design script tools for ArcGIS. Prerequisites: GEOG 232 or equivalent skills, or instructor consent; GEOG 414 recommended.

GEOG 426 GEOGRAPHY OF AFRICA (3)
A systematic and regional approach to the study of people and environment of Africa, south of the Sahara. Special focus is placed on the distribution of natural resources and the historical-political development of each country as important background for the understanding of current African affairs. Prerequisite: 6 units of geography or consent of instructor.

GEOG 427 THE TWO DOWN-UNDERS: GEOGRAPHIES OF AUSTRALIA AND AOTEAROA-NEW ZEALAND (3)
Analysis of the physical and cultural landscapes of Australia and Aotearoa/New Zealand, including patterns of settlement and economic development and the relationship of these patterns to their environmental settings. Emphasis on the historical backgrounds of these countries' present landscapes. Prerequisites: 6 units of Geography or consent of the instructor.

GEOG 428 GEOGRAPHY OF LATIN AMERICA (3)
Regional analysis of Latin America: physical geography, historical evolution, industry and agriculture, social and cultural factors, and role in world affairs. Problems of nationality, economic development, gender and cultural conflicts. Prerequisites: 6 units of geography or consent of instructor.

GEOG 429 GEOGRAPHY OF THE MIDDLE EAST (3)
Analysis of the Middle East and North Africa, including major natural and cultural resources, related patterns of spatial organization, economic and political development, and associated problems. Prerequisite: 6 units of geography or consent of instructor.

GEOG 430 GEOGRAPHY OF SOUTHEAST ASIA (3)
Regional analysis of Southeast Asia: physical geography, historical evolution, industry and agriculture, social and cultural factors, and role in world affairs. Problems of nationality, economic development, gender and cultural conflicts. Prerequisites: 6 units of geography or consent of instructor.

GEOG 431 GEOGRAPHY OF AFRICA (3)
Regional analysis of Africa: physical geography, historical evolution, industry and agriculture, social and cultural factors, and role in world affairs. Problems of nationality, economic development, gender and cultural conflicts. Prerequisites: 6 units of geography or consent of instructor.

GEOG 432 HISTORICAL GEOGRAPHY OF ATLANTIC CANADA (3)
The development of the Atlantic Provinces is followed through to the period of Confederation in 1867 with emphasis on the pivotal role the area played in the geopolitical interests of France and Britain in North America. Prerequisite: 6 units of geography or consent of instructor.

GEOG 433 GEOGRAPHY OF MARYLAND (3)
Physical and human geographical elements of the Maryland landscape which explain current patterns and environmental problems. Particular emphasis on historical geographical background of the present landscape. Prerequisite: 6 units of geography or consent of instructor.

GEOG 434 GIS DATABASE DESIGN (3)
Introduction to Geographic Information System (GIS) databases. System design, database design and implementation. Data requirements gathering and design principles. Prerequisites: GEOG 221 and GEOG 232.

GEOG 435 THE GLOBAL ECONOMY (3)
Geographical patterns of spatial interactions in the global economy; roles of the state, transnational corporations, and intergovernmental organization. Prerequisite: 6 units of geography or consent of instructor.

GEOG 436 PYTHON SCRIPTING FOR ARCGIS (3)
Python programming and scripting techniques for GIS. Fundamentals of Python, basic geoprocessing in GIS, key modules of ArcPy for mapping and spatial analysis, skills required to design script tools for ArcGIS. Prerequisites: GEOG 232 or equivalent skills, or instructor consent; GEOG 414 recommended.

GEOG 437 GEOGRAPHY OF AFRICA (3)
A systematic and regional approach to the study of people and environment of Africa, south of the Sahara. Special focus is placed on the distribution of natural resources and the historical-political development of each country as important background for the understanding of current African affairs. Prerequisite: 6 units of geography or consent of instructor.

GEOG 438 THE TWO DOWN-UNDERS: GEOGRAPHIES OF AUSTRALIA AND AOTEAROA-NEW ZEALAND (3)
Analysis of the physical and cultural landscapes of Australia and Aotearoa/New Zealand, including patterns of settlement and economic development and the relationship of these patterns to their environmental settings. Emphasis on the historical backgrounds of these countries' present landscapes. Prerequisites: 6 units of Geography or consent of the instructor.

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Regional analysis of Latin America: physical geography, historical evolution, industry and agriculture, social and cultural factors, and role in world affairs. Problems of nationality, economic development, gender and cultural conflicts. Prerequisites: 6 units of geography or consent of instructor.

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Regional analysis of Southeast Asia: physical geography, historical evolution, industry and agriculture, social and cultural factors, and role in world affairs. Problems of nationality, economic development, gender and cultural conflicts. Prerequisites: 6 units of geography or consent of instructor.

GEOG 441 CLIMATE CHANGE: SCIENCE TO POLICY (3)
A survey of past, current, and future climate change. Emphasis on Earth's radiation balance, causes of climate change, observed and predicted signals of climate change, and impacts and mitigation of climate change. Prerequisite: 6 units of geography or natural science or consent of the instructor.

GEOG 442 HISTORICAL GEOGRAPHY OF ATLANTIC CANADA (3)
The development of the Atlantic Provinces is followed through to the period of Confederation in 1867 with emphasis on the pivotal role the area played in the geopolitical interests of France and Britain in North America. Prerequisite: 6 units of geography or consent of instructor.

GEOG 443 GEOGRAPHY OF EAST ASIA (3)
Regional studies of the physical and cultural foundations in China, Japan, and Korea. Emphasis upon human and economic resources, and role in world affairs. Prerequisite: 6 units of geography or consent of instructor.

GEOG 444 GEOGRAPHY OF SOUTH ASIA (3)
Survey of the physical and cultural geographies of Pakistan, India, Bangladesh, Nepal, Bhutan, Sri Lanka and the Maldives. Thematic and regional approaches are applied in the study of the cultures, politics, environments, social structures, and economies of the South Asian Subcontinent.
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<tr>
<td>GEOG 465</td>
<td>ADVANCED TECHNIQUES IN GIS (3)</td>
<td>Project-based learning within the spatial framework of GIS. Emphasis on advanced GIS techniques for spatial analysis and on quantifying geographic patterns and relationships. Prerequisite: GEOG 232.</td>
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<td>GEOG 470</td>
<td>SPECIAL TOPICS IN GEOGRAPHY (1-3)</td>
<td>Reading and research in selected topics in the field of geography. Seminar topics will be announced. May be repeated provided a different topic is taken each time.</td>
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<td>GEOG 471</td>
<td>GEOSPATIAL TECHNOLOGIES SPECIAL TOPICS (1-3)</td>
<td>Reading and research in selected geospatial technological topics in the field of geography. Seminar topics will be announced. May be repeated for a maximum of 6 units provided a different topic is covered.</td>
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<td>GEOG 472</td>
<td>SPECIAL TOPICS IN SPACE AND SOCIETY (1-3)</td>
<td>Reading and research in selected topics in the field of geography. Seminar topics will be announced. May be repeated for a maximum of 6 units provided a different topic is covered.</td>
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<td>GEOG 473</td>
<td>SPECIAL TOPICS IN ENVIRONMENTAL SYSTEMS AND SUSTAINABILITY (1-3)</td>
<td>Reading and research in selected topics in the field of geography. Seminar topics will be announced. May be repeated for a maximum of 6 units provided a different topic is covered.</td>
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<td>GEOG 481</td>
<td>ENVIRONMENTAL IMPACT ANALYSIS (3)</td>
<td>The collection, collation, analysis, and incorporation of physical, social, biological, and economic information for the reviewing and the preparing of environmental impact statement (EIS) reports. Prerequisite: 6 units of geography or consent of instructor.</td>
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<td>GEOG 484</td>
<td>LAND USE PLANNING (3)</td>
<td>Contemporary land use planning, emphasizing the problematic nature of land development, the environmental land use planning process, and related growth management, issues and techniques. Prerequisite: GEOG 251 or consent of instructor.</td>
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<td>GEOG 491</td>
<td>GEOGRAPHY/ENVIRONMENTAL PLANNING INTERNSHIP (1-6)</td>
<td>Supervised placement and research in selected public and private agencies at appropriate institutions. May be repeated for a maximum of 6 units. Prerequisite: 6 units of geography and consent of department chair.</td>
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<td>GEOG 493</td>
<td>FIELD GEOGRAPHY (2-6)</td>
<td>Practical laboratory experience in techniques in the collection and analysis of data by observations, measurements, mapping, and photographic records. Such techniques are to be applied to selected geographic problems. Prerequisite: 6 units of geography or consent of instructor.</td>
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<td>GEOG 494</td>
<td>TRAVEL AND STUDY (3-6)</td>
<td>Countries and topics to be selected by departments and instructors sponsoring the program. For complete information, contact the chair of the department. May be repeated for a maximum of 6 units.</td>
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<td>GEOG 495</td>
<td>DIRECTED READINGS IN GEOGRAPHY (3)</td>
<td>Independent reading in selected areas of geography. Open by invitation of the Geography Department to students taking a major or minor in geography. May be repeated for a maximum of 6 units.</td>
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<td>GEOG 496</td>
<td>INDEPENDENT STUDY IN GEOGRAPHY (1-6)</td>
<td>Independent research, study, or field experience under supervision of a member of the Geography faculty. Designed for advanced students who wish to conduct independent investigations on aspects of Geography which are of special interest or not covered in other courses. Registration arranged with department chairperson. May be repeated for a maximum of 6 units. Prerequisite: advanced undergraduate standing with at least 18 units of geography or graduate standing.</td>
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<td>GEOG 498</td>
<td>HONORS DIRECTED READINGS (3)</td>
<td>Independent reading in Geography and related disciplines on a topic selected by the student in consultation with the instructor(s). May be repeated for a maximum of six units. Prerequisite: Admission to the Honors College course.</td>
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<td>GEOG 499</td>
<td>HONORS THESIS IN GEOGRAPHY (1-6)</td>
<td>Researching and writing of a thesis, to be directed by a faculty member in a chosen area of specialization. May be repeated for a maximum of 6 units. Prerequisite: Admission to the Honors College course.</td>
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