DATES - SPRING 2010

January 11 (M) Advising available
January 18 (M) Martin Luther King Jr. Day
January 19 (T) Instruction begins
March 27-April 4 (S-N) Spring Break
April 14-18 AAG Conference (Washington DC)
May 7 (F) Last class day
May 9 (N) Exams begin
May 14-16 (F-N) Commencement weekend
May 15 (N) Exams end
May 16 (N) Official graduation date
May 21 (F) Last day grades in

key: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday

DEPARTMENT OFFICES, PHONE, HOURS OPEN

Geography Office
160 Science Hall 262-2138
M-F 7:45-11:30, 12:15-4:30

Geography Computer Lab
M380 Science Hall 262-8111

Cartography Lab
M390 Science Hall 262-1363

Geomorphology Lab
217 Science Hall 265-8723

Geography Library
280 Science Hall 262-1706
M-R 9am-9pm, F 9am-4:30,
Sat. Closed, Sun. 3-9pm

Arthur H. Robinson Map Library
310 Science Hall 262-1471

Visit our web site at: http://www.geography.wisc.edu

Geography Club: Watch for announcements of activities posted around Science Hall. Regular meetings are held in the Geography Lounge (388 Science Hall.) For more information, email Genevieve Schaad, schaad@wisc.edu.

Cover image courtesy Kris Olds.

DEPARTMENT of GEOGRAPHY
University of Wisconsin-Madison

CATALOG OF COURSE DESCRIPTIONS

Spring 2009-2010

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Geography Courses Taught This Semester by Our Faculty

Amy Burnicki	170, 360	Lisa Naughton	339, 434
James Burt	321, 676	Kristopher Olds	305, 505
William Cronon	460	Robert Ostergren	349, 506
Mark Harrower	575, 970	Matthew Turner	(Sabbatical)
Robert Kaiser	675	Jack Williams	120, 523
James Knox	120, 326	Keith Woodward	101, 301
Erika Marin-Spiotta	338	A-Xing Zhu	377, 578
Joseph Mason	127, 344		

Our Faculty

AMY BURNICKI, 375 Science Hall, 262-3213, burnicki@wisc.edu; Ph.D., University of Michigan, 2008, Assistant Professor - GIS Applications in Environmental Modeling and Resource Management, Quanitative Analysis.

JAMES E. BURT, 425 Science Hall, 262-4438, jburt@geography.wisc.edu; Ph.D., U.C.L.A., 1980, Professor - Climatology, quantitative analysis, computer cartography.

WILLIAM CRONON, 443 Science Hall, 265-6023, wcronon@wisc.edu; Ph.D., Oxford, 1981, Frederick Jackson Turner Professor - Environmental history, environmental studies, North America (also History).

MARK HARROWER, 343 Science Hall, 265-0012, maharrower@wisc.edu; Ph.D., Penn State, 2002, Associate Professor - Cartography, GIS, ,geovisualization.

ROBERT J. KAISER, 430 Science Hall, 262-1904, rjkaise1@wisc.edu; Ph.D., Columbia University, 1988, Professor - Political geography, nationalism, population geography, ethnic studies, Eurasia.

JAMES C. KNOX, 234 Science Hall, 262-1804, knox@geography.wisc.edu; Ph.D., Iowa, 1970, Evjue-Bascom Professor - Geomorphology, paleohydrology, water resources.

ERIKA MARIN-SPIOTTA, 230 Science Hall, marinspiotta@geography.wisc.edu; PhD., UC-Berkeley, 2006, Assistant Professor - Biogeochemistry, soils, land-use change, Latin America.

JOSEPH A. MASON, 207 Science Hall, 262-6316, mason@geography.wisc.edu; PhD., University of Wisconsin-Madison, 1995, Professor - Soils, geomorphology, quaternary paleoenvironments, GIS applications in geomorphology

LISA C. NAUGHTON, 355 Science Hall, 262-4846, naughton@geography.wisc.edu; PhD., University of Florida, 1996, Professor - Wildlife ecology, protected areas, Africa, Latin America.

KRISTOPHER N. OLDS, 346 Science Hall, 262-5685, olds@geography.wisc.edu; Ph.D., University of Bristol, 1996, Professor - Urban, economic, globalization, Pacific Rim.

ROBERT C. OSTERGREN, 243 Science Hall, 262-6302, rcosterg@wisc.edu; Ph.D., Minnesota, 1976, Professor - Historical, cultural, Europe, and North America.

MATTHEW D. TURNER, 340 Science Hall, 262-2465, turner@geography.wisc.edu; Ph.D., U.C.-Berkeley, 1992, Professor - Environmental resources, cultural ecology, Africa.

JACK WILLIAMS, 208 Science Hall, 265-5537, jww@geography.wisc.edu; Ph.D., Brown University, 1999, Associate Professor - Vegetation dynamics, paleoecology, paleoclimatology.

KEITH WOODWARD, 455 Science Hall, 262-0505; Ph.D. University of Arizona, 2007, Assistant Professor - Social theory, radical and critical geography, affect, social movements and resistance, site ontology

A-XING ZHU, 255 Science Hall, 262-0272, azhu@wisc.edu; Ph.D., Toronto, 1994, Professor - GIS, remote sensing, and their application in environmental modeling and resource management.

Emeritus Faculty

WALTRAUD BRINKMANN	PHILLIP MUEHRCKE	THOMAS VALE
WILLIAM DENEVAN	ROBERT SACK	
DANIEL DOEPPERS	YI-FU TUAN	

Advisors

See the Geography website, or postings around Science Hall, for listings of Undergraduate and Graduate Advisors and their office hours.

Undergraduate Requirements for Major in Geography

To qualify for a major in geography, a student must earn a minimum of 30 credits in geography and must meet three requirements:

1. Breadth of Study (see p. 7 for a listing of courses by group)
Take at least one course in each of:
a. Physical Geography
b. People-Environment Interaction
c. Human Geography
d. Area Studies

2. Skills, Techniques, and Methodology
Each of the following, or an equivalent approved by the advisor:
a. 170 Map Reading and Interpretation, or 370 Introduction to Cartography, or 377 Introduction to Geographic Information Systems
b. 360 Quantitative Methods in Geographical Analysis (Spring semester only)
c. 565 Colloquium (Fall semester only as of Fall 09)

3. Depth and Quality of Study
a. All students must complete the L&S requirement of at least 15 credits of upper-level work in the major completed in residence (courses in the department identified as intermediate or advanced).
b. A concentration, approved by the advisor, consisting of at least three related intermediate or advanced level courses (including at least one advanced level course). Either:
(1) A concentration from one of the following three groups: Physical Geography; People-Environment; Human Geography; OR
(2) An individual concentration proposed by the student and approved by the advisor.
c. A grade point average of 2.0 or higher for the courses in the major.

HOW TO DECLARE YOUR MAJOR

Meet with the advisor for your anticipated area of concentration (see website for office hours.) CALS students wanting to double major must see a Dean in CALS first.

Complete the L&S Major Declaration form (available from your advisor). Once the form has been signed, return it to the Undergraduate Coordinator in 160 Science Hall.

Undergraduate Requirements for Major in Cartography and Geographic Information Systems

The undergraduate major in cartography and GIS requires a minimum of 30 credits in geography and must include:
1. Core (required)
360 Quantitative Methods in Geographical Analysis (Spring semester only)
370 Introduction to Cartography
377 Introduction to Geographic Information Systems (Geog 370 and 377 should be taken before electives.)
565 Colloquium (Fall semester only as of Fall 09)

2. Electives
Three of the following courses:
570 Problems in Cartography
572 Graphic Design in Cartography
575 Animated and Web-based Mapping
576 Map Transformations and Coordinate Systems
577 Environmental Modeling with GIS
578 GIS Applications
579 GIS and Spatial Analysis

3. Topical Breadth
One course in each of the following groups: Physical Geography; People-Environment Interaction; Human Geography; or Area Studies and Global Systems (see website for a full listing of courses in each area).

4. Other Required Courses
· At least 11 credits including eight credits of college-level mathematics and Comp Sci 302 Introduction to Programming (or Geog 676 Geocomputing, taught by Burt)
· At least 5 credits from the following courses:
Remote Sensing: Envir St 401 fall (Schneider, intro); Envir St 401 spring (Schneider, intermediate); Envir St 556; Forestry 875 (when related to RS)
GPS: Geol 444

Important Note:
For students pursuing a double major in Geography and Cartography/GIS, Geog 360, 370, and 565 are considered double-counted courses. The 15 credit upper-level requirement may include Cartography major coursework.

GROUPS WITHIN THE GEOGRAPHY MAJOR

Course Levels are indicated by:
E=Elementary; I=Intermediate; D=Intermediate/Advanced; A=Advanced
Frequency of course offering in recent years shown here as an indication (not a future certainty):
1 = every semester; 2 = every year; 3 = every other year;
4 = irregularly

Group I. Physical Geography

120 Global Physical Environments (E) 1
121 Atmospheric Environment and Society (E) 2
127 Physical Systems of the Environment (E) 1
320 Geomorphology (I) 4
321 Climatology (I) 2
325 Analysis of the Physical Environment (I) 2
326 Landforms-Topics and Regions, (Fluvial Geomorphology) (I) 2
328 Arid Lands Geomorphology (I) 3
329 Landforms and Landscapes of North America (I) 3
331 Climatic Environments of the Past (I) 2
*332 The Global Warming Debate (I) 3
*344 The American West (I) 3
420 Glacial and Pleistocene Geology (I) 3
523 Quaternary Vegetation Dynamics (A) 3
524 Advanced Landform Geography (A) 4
525 Soil Geomorphology (A) 3
527 The Quaternary Period (A) 3
528 Past Climates and Climatic Change (A) 4
531 Global Climates (A) 3

Group II. People-Environment Interaction

139 Resources and People (E) 2 or 3
230 Soil: Ecosystem and Resource (I) 2 or 3
240 Plants and Man (E) 2 or 3
303 The Human Role in Changing the Face of the Earth (I) 2
309 People, Land and Food: Comparative Study of Agricultural Systems (I) 2
319 Environmental Evaluation and Adaptation (I) 3

*332 The Global Warming Debate (I) 3
338 Vegetation: Stability & Change (I) 4
339 Environmental Conservation (I) 1
*344 The American West (I) 3
434 People, Wildlife and Landscapes (A) 2
460 American Environmental History (I) 3
*508 Landscape and Settlement in the North American Past (A) 3
519 Environment and Human Experience (A) 3
534 History and Ideology of Environmentalism (A) 4
535 Environmental Geography & Conservation in Developing Countries (D) 4
536 American Wilderness: Perception and Preservation (A) 3
537 Culture and Environment (A) 2
538 The Humid Tropics: Ecology, Subsistence, and Development (A) 4

Group III. Human Geography

101 Introduction to Cultural Geography (E) 1
102 Spatial Organization of Human Activity (E) 4
236 Bascom Course: The Power of Place (E)
300 Population, Migration, and Diffusion (I) 4
301 Geography of Social Organization (I) 4
302 Economic Geography: Locational Behavior (I) 4
305 Introduction to the City (I) 1
311 Industrial Location: Theory and Patterns (I) 4
312 Regional Development and Planning (I) 1
318 Geography, Politics, and Territoriality (I) 2
*349 Europe (I) 2
*353 Russia and the Newly Independent States: Topical Analysis (I) 2
444 Health and Social Welfare in Society (I) 4
501 Space and Place: A Geography of Experience (S_A) 3
502 Spatial Behavior (A) 4
503 Researching the City (I) 3
505 Urban Spatial Patterns and Theories (A) 4
506 Historical Geography of European Urbanization (A) 4
507 Historical Geography of Urban North America (A) 3
*508 Landscape and Settlement in the North American Past (A) 3
510 Economic Geography (A) 2
*553 Russia and the CIS: Problems in Human Geography (A) 4
558 The Social Geography of Asian Cities in Comparative Perspective (A) 2

Group IV. Area Studies and Global Systems

140 World Regions: Concepts and Regions (E) 1
244 Introduction to Southeast Asia: Vietnam to the Philippines (E) 1
253 Russia: An Interdisciplinary Survey (E)
260 Latin America: An Introduction (E) 2
277 Africa: An Introductory Survey (I) 1
340 Regional Cultures and Economies in the North American Past (I) 3
342 Geography of Wisconsin (I) 4
*344 The American West (I) 3
348 Latin America (I) 2
*349 Europe (I) 2
*353 Russia and the Newly Independent States: Topical Analysis (I) 2
355 Africa, South of the Sahara (I) 2
358 China and Southeast Asia (I) 2
548 Problems in the Geography of Latin America (A) 4
*553 Russia and the CIS: Problems in Human Geography (A) 4

Group V. Cartography and Geographic Information Systems

170 Map Reading and Interpretation (E) 1 or 2
351 Elementary Photogrammetry (I) 2
370 Introduction to Cartography (I) 1
377 Introduction to GIS (I) 2
570 Problems in Cartography (A) 4
572 Graphic Design in Cartography (A) 2
574 Cartographic Methods in Research (A) 4
575 Introduction to Computer Cartography (I) 2
576 Map Transformations and Coordinate Systems (A) 3
577 Environmental Modeling with GIS (A) 3
578 GIS Applications (D) 2
579 GIS and Spatial Analysis (D) 2

Group VI. Methodology

360 Quantitative Methods in Geographical Analysis (I) 1
560 Advanced Quantitative Methods (A) 2
565 Colloquium for Undergraduate Majors (I) 1
566 History of Geographic Thought (A) 3 or 4
601 Field Course in Geography (A)
602 Internship 1

* Course is cross-listed in more than one Group. Students must choose the course grouping in which they want to count the course.

Honors in the Major

The L&S Honors Program encourages participation in advanced courses, independent research, and graduate seminars that provide a sound foundation for the completion of a Senior Honors Thesis.

Honors in the Major requires a separate form, available from the Honors advisor (see website.) Please bring the completed form to 160 Science Hall to be stamped and copied before you take it in person to the L&S Honors Office in 420 South Hall.

To earn a B.A. or B.S. with Honors in the Geography Major, students must complete:

1. the breadth requirements for the major;
2. the skills requirements for the major plus Geog 766 (introduction to research methods) for 1 credit, preferably during the junior year;
3. a minimum of 21 credits at the intermediate and advanced levels;
4. two advanced courses in the area of concentration with at least one of these being a graduate seminar (Geog 766, 681, 682 may not be counted toward this requirement); and
5. Senior Honors Thesis, Geog 681-682, during the senior year.

To earn a B.A. or B.S. with Honors in Cartography and Geographic Information Systems, students must complete:

1. the breadth requirements for the major;
2. the core requirements for the major plus Geog 766 (introduction to research methods) for 1 credit, preferably during the junior year *(honors students take Geog 766 in place of 565);*
3. the electives requirement for the major, with the additional requirement that at least one of the electives must be a graduate seminar; and
4. Senior Honors Thesis, Geog 681-682, during the senior year.

Students are urged to take geography courses for honors credits whenever offered, but there is no required minimum number of honors credits. A cumulative overall GPA of 3.3 or higher is required. Honors candidates must plan their program in consultation with the department honors advisor and must identify a faculty member willing to advise their thesis research.

COURSE DESCRIPTIONS
Spring Semester 2009-10

* NOTE: Full descriptions are provided for courses taught by permanent Geography faculty only; for cross-listed courses, see the primary department (underlined). The following information is to present a general idea of the course content and format to aid in selecting courses. Descriptions, times, and rooms may change for this semester after the printing of this catalog. Always check the Course Guide/Class Search in MyUW for the most updated version.

Breadth: B-Biological Science, H-Humanities, I-Interdivisional–does not satisfy breadth requirement, L-Literature, N-Natural Science, P-Physical Science, S-Social Studies, Z-either Humanities or Social Studies.

Level: E-Elementary, I-Intermediate, D-Intermediate or Advanced, A-Advanced

101 Introduction To Human Geography Woodward
Schedule: Lec 1: TR 9:55-10:45, 180 Science Hall
Credits: 3 Breadth: S Level: E Comm-B course
Prereq.: Open to freshmen
Description: This newly redesigned introduction to human geography is structured to acquaint students with the recent global patterns and processes that have come to be known as globalization through the use of a human geographic perspective. To do this, the course systematically explores globalization through the use of a series of human geographic 'lenses', including: cultural geography, population geography, economic geography, urban geography and political geography/geopolitics. Within each of these sub-fields of human geography, the course focuses on the current patterns and processes of global change, the geographic variability of these global patterns and processes, and on the ways in which changes at the global scale are affecting, and in turn are affected by, local and regional events and conditions.
Requirements: Geography 101 is a Communications B course, with an emphasis on learning through written and oral communications. During the semester, you will be required to complete three writing assignments. The first writing assignment will be submitted in final form without the opportunity for revision. You will have the opportunity to revise and resubmit the second and third writing assignments. In addition, there will be a midterm and a final essay examination for this course. Beyond these major writing assignments, you are required to read the assigned material prior to the class for which they are assigned, to attend lectures, and to attend and participate in discussion sections. Your participation in discussion sections will include map quizzes and analyses, a group presentation, a film review, and peer reviews of your classmates' papers.

120 Global Physical Environments Knox, Williams
Schedule: Lec 1: MW 8:50-9:40, 180 Science Hall

Lec 2: MW 11:00-11:50, 180 Science Hall
Credits: 3 Breadth: P Level: E Cross-listed: Envir St
Prereq.: Open to freshmen, not open to those with cr in Geog 127
Description: Global distribution and processes of climate, weather, ecosystems, landforms, and soils, emphasizing interrelationships.

121 Atmospheric Environment and Society
Schedule: Lec 1: MW 1:20
Credits: 2 Breadth: P Level: E Cross-listed: Atm Ocn, Envir St
Prereq.: Open to freshmen
Description: Changing interactions between humans, other animals and plants, and the atmospheric environment, both in time and space.

127 Physical Systems of the Environment Mason
Schedule: Lec 1: TR 11:00-12:15, 180 Science Hall
Credits: 5 Breadth: P Level: E Cross-listed: Envir St
Prereq.: Open to freshmen, not open to those with cr in Geog 120,123,124,125 or ILS132.
Description: Climate, vegetation, soil, water, and landforms as components of environmental systems; interrelationships among the components; spatial patterns of environmental systems over the Earth; changes in the systems through time.

139 Resources and People
Schedule: Lec 1: MW 4:00-5:15, 180 Science
Credits: 3 Breadth: S Level: E Cross-listed: Envir St
Prereq.: Open to freshmen
Description: Human population growth and its impact on the earth's resources, including food, energy, physical materials, water, biota, and landscapes; the geography of resource availability and the limits of the earth as producer of resources; the importance of attitudes and values in resource use.

170 Our Digital Globe: An Overview of GIScience and its Technology
(official title: Map Reading and Interpretation) Burnicki
Schedule: Lec 1: TR 2:30-3:45, 180 Science
Credits: 3 Breadth: P Level: E
Prereq.: Second semester freshman or consent of instructor
Description: This class explores the geospatial information that surrounds us - maps, images, and location-specific data. The course examines the creation and use of maps and map-related products to answer spatial questions, and provides the tools students need to assess the strengths and limitations of map representations. It investigates the application of geospatial technologies like GPS, Google Earth, satellite imaging, and GIS to improve and enhance our

ability to understand and convey spatial information.

230 Soil: Ecosystem & Resource
Schedule: Lec 1: MWF 9:55
Credits: 4 **Breadth:** P **Level:** E **Cross-listed:** Envir St, Soil Science
Prereq.: Not open to students with credits in Soil Sci 301.
Description: The role of soils in ecosystems (habitat, moisture and nutrient reserve, biologically active part of the groundwater system) and the impact of human activity on the soil environment.

254 Eastern Europe: Interdisciplinary Survey
Schedule: Lec 1: TR 2:30-3:45
Credits: 4 **Breadth:** H **Level:** E **Cross-listed:** Hist, Poli Sci, Slavic
Prereq.: Open to freshmen
Description: Comprehensive interdisciplinary survey of East European culture, society, politics, and literature from its beginnings to the present day.

260 Latin America - Introduction
Schedule: Lec 1: TR 11:00-12:15
Credits: 3-4 **Breadth:** S **Level:** E **Cross-listed:** AfroAm, Anthro, History, Poli Sci, Rur Soc, Soc, Spanish
Prereq.: Not open to freshmen
Description: Latin American culture and society from an interdisciplinary perspective; historical developments from pre-Columbian times to the present; political movements; economic problems; social change; ecology in tropical Latin America; legal systems; literature and the arts; cultural contrasts involving the US and Latin America; land reform; labor movements; capitalism, socialism, imperialism; mass media.

277 Africa: An Introductory Survey
Schedule: Lec 1: TR 1:00-2:15
Credits: 4 **Breadth:** Z **Level:** I **Cross-listed:** African, AfroAm, Anthro Hist, Poli Sci, Soc
Prereq.: Open to freshmen
Description: African society and culture, polity and economy in multidisciplinary perspectives from prehistory and ancient kingdoms through the colonial period to contemporary developments, including modern nationalism, economic development and changing social structure.

301 Geography of Social Organization: Collectivity, Autonomy and Social Change Woodward
Schedule: Lec 1: R 3:30-5:25, 360 Science

Credits: 3 **Breadth:** S **Level:** I
Prereq.: Not open to freshmen
Description: Explores the theoretical, practical, political and affective dimensions of social movements, collective action, and organizing for social change. Provides a broad engagement with classic and contemporary perspectives, paying particular attention to the socio-political production of space and time and the spatio-temporal production of social and political life.

305 Introduction to the City Olds
Schedule: Lec 1: TR 1:00-2:15, 180 Science
Credits: 4 **Breadth:** S **Level:** I **Cross-listed:** URPL
Prereq.: Sophomore standing; qualified Freshmen admitted with instructor consent
Description: This course is designed to provide a basic understanding of cities. Urban theories and models will be stressed throughout the course. The discussion sections will be devoted to an examination of contemporary urban problems.

321 Climatology Burt
Schedule: Lec 1: MW 2:30-3:45, 360 Science
Credits: 3 **Breadth:** P **Level:** I
Prereq.: Geog 120, 121, 125, 127 or ILS 132 or Meteor 100 or cons inst
Description: Elements and controls of climate and the distribution of world climates. Emphasis on regional dynamic climatology.

326 Landforms – Topic: Fluvial Geomorphology Knox
Schedule: Lec 1: T, 6:30-8:30 pm, 180 Science Hall
Credits: 3 **Breadth:** P **Level:** I **Cross-listed:** Geoscience
Prereq.: Introduction to physical geography or physical geology course, or consent of instructor.
Description: Emphasis on natural and human processes that control the morphology of the land and its waterways. There is major emphasis on surface water hydrology, erosion, sedimentation, and physical characteristics of streams and rivers.

338 Biogeography: An Ecosystems Approach (official title: Vegetation: Stability & Change) Marin-Spiotta
Schedule: Lec 1: TR 1:00-2:15, 444 Science Hall
Credits: 3 **Breadth:** S **Level:** I
Prereq.: Geog 120, 127 or cons inst
Description: This course will take an ecosystems approach to understand how physical (climate, geology, soils…) and biological (competition, dispersal, migration…) factors affect the distribution of terrestrial biomes, ecosystem types,

and biodiversity. Attention will be focused on the relative importance of these factors at different spatial scales: global, regional, landscape, and at the level of communities. Importance will be given to the role of disturbance, and in particular to recent anthropogenic climatic and land-use changes as well as biological invasions, on differences in pre-historical and present day species distribution.

339 Environmental Conservation
Schedule: Lec 1: MWF 9:55-10:45, 180 Science Hall
Lec 2: MWF 1:20-2:10, 180 Science Hall
Credits: 4 **Breadth:** S **Level:** I **Cross-listed:** Envir St
Prereq.: Sophomore standing
Description: The first half of the course explores the history of resource exploitation and environmental protection in the U.S., focusing on "environmental conservation" as a multi-pronged, ever-changing social movement. We will explore differing ideas of "nature" and "conservation", as well as contemporary conservation efforts in places like the public lands in the American West and the oceans. The second half the course focuses on environmental problems in developing countries, particularly biodiversity loss and climate change. We evaluate various conservation strategies, from national parks, to ecotourism, to marketing 'green' products. Then we turn to urban issues, and examine the growth of megacities in the tropics and the resulting problems of pollution and waste. Finally, we will examine international strategies to slow global warming, including N-S partnerships to reduce carbon emissions.

342 Geography of Wisconsin
Schedule: Lec 1: TR 6:30-7:45, outside Science Hall
Credits: 3 **Breadth:** S **Level:** I
Prereq.: Sophomore standing; 'non-traditional/evening' students encouraged to enroll
Description: Geography of natural features and cultural resources; field trips on and off campus.

344 The American West Mason
Schedule: Lec 1: TR 2:30-3:45, 444 Science Hall
Credits: 3 **Breadth:** S **Level:** I
Prereq.: Not open to freshmen
Description: Region geography of the western United States: Natural landscapes and human land use, environmental change and land use issues.

349 Europe Ostergren
Schedule: Lec 1: MW 2:30-3:45, 180 Science Hall
Credits: 3 **Breadth:** S **Level:** I
Prereq.: Sophomore standing

Description: Survey of European geography with emphasis on human-environment interaction, culture, political organization, urbanism, work, leisure, consumption, and regional landscapes.

360 Quantitative Methods in Geographical Analysis Bunicki
Schedule: Lec 1: TR 11:00-12:15,
Credits: 4 **Breadth:** P **Level:** I QR-B course
Prereq.: Sophomore standing, completion of QR-A
Description: The course is a requirement for a geography degree and introduces students to elementary analytical techniques and concepts. As part of the learning objectives of this course, students will gain a basic understanding and working knowledge of several standard statistical techniques that are used in diverse disciplines including geography. They are not in themselves 'geographical' but are useful analytical tools in applied research in geography. Upon successful completion of the course, students should be familiar with computer software used to summarize data and perform statistical tests, and be able to read and interpret quantitative reports critically.

370 Introduction to Cartography
Schedule: Lec 1: TR 1:00-2:15, 360 Science Hall
Credits: 4 **Breadth:** P **Level:** I
Prereq.: Sophomore standing or instructor consent
Description: This course serves as a broad introduction to cartography, with a dual emphasis on the theory and practice of making maps. The objective is to help students develop the faculty to think critically about cartographic processes and representations and to develop their skills in creating maps. Topics include the basics in mapping (e.g., scale, spatial reference systems, and projections), data acquisition and organization, key techniques for thematic mapping, and the principles of cartographic abstraction and design. By the end of the course students will understand how maps are made and how to transform geographic data (related to people, places, and things on, in, or under the earth's surface) into abstract, symbolic representations of the world. There are numerous of kinds of maps (e.g., choropleth, isoline, proportional symbol, reference) and many ways to implement those basic maps forms: understanding the advantages and disadvantages of various map forms (and when they can/should be applied) is a central theme of this class. This course contains a significant lab component.

377 Introduction to Geographic Information System Zhu
Schedule: Lec 1: TR 4:00-5:15, 180 Science Hall
Credits: 4 **Breadth:** P **Level:** I **Cross-listed:** Envir St
Prereq.: Sophomore standing
Description: Geographic Information Systems (GIS) deals with the analysis and management of geographic information. This course offers an introduction to

methods of managing and processing geographic information. Emphasis will be placed on the nature of geographic information, data models and structures for geographic information, geographic data input, data manipulation and data storage, spatial analytic and modeling techniques, and error analysis. The course is made of two components: lectures and labs. In the lectures, the conceptual elements of the above topics are explained. The labs are designed in such a way that students will gain first-hand experience in data input, data management, data analyses, and result presentation in a geographical information system.

434 People, Wildlife and Landscapes Naughton
Schedule: Lec 1: TR 11:00-12:15, 350 Science Hall
Credits: 3 **Breadth:** S **Level:** A **Cross-listed:** Envir St
Prereq.: Geog/Envir St 339
Description: This course investigates the relationship between people and animals amidst different social and ecological contexts. We begin by examining pre-historical interactions between animals and early humans, focusing on the evolution and impact of hunting and animal domestication. We then study how contemporary humans alter wildlife communities via fire, forest clearing, hunting, and species introductions. In the remainder of the course we evaluate various strategies for conserving wildlife in human-dominated landscapes. Case studies will be drawn from both tropical (East Africa, Amazonia) and temperate regions (Wisconsin, Yellowstone, Sweden).

505 Urban Spatial Patterns & Theory Olds
Schedule: Lec 1: W 7:45-9:40 am, 388 Science Hall
Credits: 3 **Breadth:** S **Level:** A **Cross-listed:** URPL
Prereq.: Junior standing
Description: This course examines the relationship between cities and the 'development' process. Global scale assessments of urbanization processes lay the context for detailed analyses of issues such as the role of the state in the development process, the relationship between cities and citizenship, postcolonial urbanism, transnational urbanism, and city futures. While these are long-standing issues of debate in various disciplines, and in inter-disciplinary networks, our interest will be in /recent/ work that addresses new theoretical, methodological and empirical questions, comparative approaches to urban studies, or else select 'classics' that have had lasting impacts.

506 Historical Geography of European Urbanization Ostergren
Schedule: Lec 1: T 3:30-5:25, 350 Science Hall
Credits: 3 **Breadth:** S **Level:** A **Cross-listed:** URPL
Prereq.: Junior standing
Description: Growth and development of European towns and cities from classical times to the present. Examines changing political, social and economic

uses of urban space, as well as changes in the layout, architecture and meaning of the built environment. Case studies of major capitals and cities, including Rome, Paris, London, Berlin, Moscow, and Istanbul.

523 Quaternary Vegetation Dynamics Williams
Schedule: Lec 1: MW 4:00-5:15, 548 Science Hall
Credits: 3 **Breadth:** B **Level:** A **Cross-listed:** Geoscience
Prereq.: Jr st & Geog 120/127 or equiv.
Description: Geographic responses of plant species and terrestrial ecosystems to late-Quaternary environmental change, particularly changes in climate and carbon dioxide. Quaternary vegetation dynamics are relevant to understanding vegetational responses to the 21st-century climate change. Laboratory section emphasizes multivariate data analysis and vegetational modeling.

575 Animated and Web-based Mapping Harrower
Schedule: Lec 1: TR 9:30-10:45, 444 Science Hall
Credits: 4 **Breadth:** P **Level:** I
Prereq.: Geography 370/375 or Comp Sci 302 or consent of instructor
Description: The digital revolution has changed how we make maps, how we use them, and how we think about them. The rapid and concurrent developments in desktop computing capabilities, the availability of digital geospatial data, and the growth of the Internet have radically changed the cartographic landscape. In an age where the user has increasingly become their own mapmaker (e.g., GoogleMaps, online GIS) this course examines recent issues in cartography related to map animation, the Internet, geovisualization, and on-demand cartographic systems—focusing on the new cartographic challenges and opportunities associated with interactive, digital mapping systems. This class will examine both theoretical and practical issues in the design of effective digital maps and mapping systems. Topics include: the representation of change, exploratory data analysis, and tools and techniques in geovisualization. This course contains a significant lab component.

578 GIS Applications Zhu
Schedule: Lec 1; TR, 11:00-12:15, 444 Science Hall
Credits: 4 **Breadth:** P **Level:** A
Prereq.: Geography 377 or equiv.
Description: This course focuses on the uses and applications of GIS techniques in solving practical geographic problems. It introduces a generic process for applying GIS techniques in geographic problem solving. The process includes conceptualization of a geographic problem and development of strategies for solving the problem in a GIS environment. The conceptualization focuses on decomposing a given geographic problem into smaller but interconnected components. The development of strategies looks into specific GIS techniques for

solving each of the smaller components so that the overall question can be addressed using GIS. The emphasis is not on the specifics of particular GIS techniques rather on the selection and use of various GIS techniques based on the domain knowledge dictating the problem at hand. The process is further illustrated via the analyses of several case studies of GIS applications in geography. These case studies range from human to physical geography. The course is divided into three basic components: introduction of the generic process of GIS application, case studies illustrating this process, and student projects using this process. Students are encouraged to select the disciplinary domains for their projects. The objectives are: 1) To provide students with a generic process of solving geographic problems using GIS and to develop student's skills in conceptualizing geographic problems and in developing GIS strategies to solve the problems; 2) To provide students with practical experience on managing GIS projects.

675 Topic: Power, Place, Identity: Advanced Political Geography
Kaiser
Schedule: Lec 1: M 3:30-5:25, 450 Science Hall
Credits: 3 Breadth: S Level: A
Prereq.: Jr., Sr., or Grad standing
Description: Political geography represents a broad engagement with the interactive relationships between power and place, and the construction, contestation and reconfiguration of political geographic spaces that result. Processes of identification and differentiation are integral to this dynamic interaction between power and place, in some cases resulting in the creation of inclusive multicultural socio-spatial places and practices, while in others leading to more exclusionary settings. During the semester, we will investigate the various intersections and interactions among power, place and identity; review the reconceptualizations of borders and scales in political geography; examine the specific case of nationalism and the place and identity discourses and practices that result from it; explore the power contained in sites of memory; and consider the geographies of resistance through which subaltern political actors seek to empower themselves and their communities. Finally, we will assess the post-national political geographies associated with diasporas and globalization, and discuss the new spaces of citizenship identification that are said to be resulting from these processes.

676 Topic: Geocomputing Burt
Schedule: Lec 1: MW 9:55, 360 Science Hall
Credits: 3 Breadth: P Level: A
Prereq.: Must take Geog 377 concurrently; Junior, senior, or grad standing
Description: This intermediate-level course will eventually be taught as Geog 375, Introduction to Geocomputing. This is intended to be an introduction to

scripting and programming for GIS and spatial analysis. For the purposes of the Cart/GIS major, Geog 676 (and ultimately 375) will be accepted as meeting the programming requirement (CS 302). No programming background is assumed. The only pre-requisite is Geog 377, which must be taken concurrently. Geog 676 will cover use of open-source GIS libraries, programming and scripting using the Python language, extensions to ArcGIS using Python, and web mapping services (as time permits). This will be a 3-credit offering consisting of lecture and laboratory components.

GRADUATE LEVEL:

(Only Geography faculty-taught seminars are listed; check Course Guide for cross-listed offerings in other departments)

766 Geographical Inquiry and Analysis: Techniques Naughton
Schedule: Lec 1: W 3:30-5:25, 280C Science Hall
Credits: 1-3
Prereq.: Graduate student: 3 cr, Undergrad. student: 1 cr or consent of instructor. Open to Honors majors.
Description: Engaging in geographic research: analysis of successful proposals and published papers and books; different approaches to geographic research; writing of proposals for students' own research.

918 Seminar in Political Geography: Power, Place, Identity Kaiser
Schedule: Lec 1: M 3:30-5:25, 450 Science Hall
Credits: 2-3
Prereq.: Graduate student standing
Description: See description under Geography 675

970 Seminar: Map Mashups and the GeoWeb Harrower
Schedule: Sem 1: M 4:00-6:00, 350 Science
Credits: 2-3
Prereq.: Graduate student standing
Description: A look at how new media and emerging technology are influencing and reshaping 'cartography' in the 21st century. Topics include: Web 2.0 / mash-ups, the geoweb, location-based services, volunteered geographic information, software-as-service, and ubiquitous / cloud computing.