

DATES - SPRING 2012

January 16 (M) Martin Luther King Jr. Day
January 17 (T) Advising available
January 23 (M) Instruction begins
February 24-28 AAG Conference (NYC)
March 31 -April 8 (S-N) Spring Break
May 11 (F) Last class day
May 13 (N) Exams begin
May 18-20 (F-N) Commencement weekend
May 19 (S) Exams end
May 20 (N) Official graduation date
May 25 (F) Last day grades in

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

DEPARTMENT OFFICES, PHONE, HOURS OPEN

Geography Office 160 Science Hall M-F 8:00am-4:00pm 262-2138	Geography Library 280 Science Hall M-R 9am-8pm, F 9am-4:30, Sat. Closed, Sun. 1-5pm 262-1706
Geography Computer Lab M376 Science Hall 262-8111	Arthur H. Robinson Map Library 310 Science Hall M-R 9am-5pm, F 9am-4 Sat. and Sun. Closed 262-1471
Cartography Lab M390 Science Hall 262-1363	

Visit us online at <http://www.geography.wisc.edu>

Follow us on Twitter @UWMadisonGeog
and on Facebook and LinkedIn under
“UW-Madison Department of Geography”

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 Becky Perry - rperry2@wisc.edu

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COURSE DESCRIPTIONS

Spring 2012



GEOGRAPHY DEPARTMENT

550 N. Park St., Madison, WI 53706-1491
ph: (608) 262-2138 fax: (608) 265-3991
email: geography@geography.wisc.edu
Geography Home Page: <http://www.geography.wisc.edu>

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Geography Courses Taught This Semester by Our Faculty

Ian Baird	557	Kristopher Olds	140, 901
Amy Burnicki	(on leave)	Robert Ostergren	349, 508
James Burt	378	Robert Roth	370, 575
William Cronon	460	Matthew Turner	339, 766
Holly Gibbs	309	Jack Williams	332, 920
Robert Kaiser	318	Keith Woodward	901
Erika Marin-Spiotta	120	Stephen Young	510
Joseph Mason	320, 527	A-Xing Zhu	578, 970
Lisa Naughton	339, 930		

Our Faculty

IAN BAIRD, 455 Science Hall, 265-0012, ibaird@wisc.edu; Ph.D., University of British Columbia, 2008, Assistant Professor - Political ecology, Hmong Studies, Southeast Asia, Qualitative Methods, Identities, History.

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, Quantitative 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; D.Phil. Oxford, 1981, Ph.D. Yale, 1990, Frederick Jackson Turner Professor - Environmental history, environmental studies, North America (also History).

HOLLY GIBBS, 373 Science Hall, 265-0531, hkgibbs@wisc.edu; Ph.D., University of Wisconsin-Madison, 2003, Assistant Professor - Tropical Land-use Change and Bioenergy.

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

ERIKA MARIN-SPIOTTA, 223 Science Hall, marinspiotta@geography.wisc.edu; Ph.D., UC-Berkeley, 2006, Assistant Professor - Biogeochemistry, soils, land-use change, Latin America.

JOSEPH A. MASON, 207 Science Hall, 262-6316, mason@geography.wisc.edu; Ph.D., 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; Ph.D., 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, rcostieg@wisc.edu; Ph.D., Minnesota, 1976, Professor - Historical, cultural, Europe, and North America.

ROBERT ROTH, Ph.D. Pennsylvania State University, 2011, Assistant Professor - Cartography, Geovisualization, and Geovisual Analytics

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

STEPHEN YOUNG, Ph.D., University of Washington, 2010, Assistant Professor - Economic geography, finance, youth, South Asia.

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	WILLIAM DENEVAN	DANIEL DOEPPERS
JAMES KNOX	PHILLIP MUEHRCKE	ROBERT SACK
THOMAS VALE	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 Our Digital Globe, 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)

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.)

Complete the L&S Major Declaration form (available from your advisor). Once the form has been signed, return it to the Department Office in 160 Science Hall. CALS students wanting to double major must take a copy of their Geography major form to their advisor in CALS.

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)

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 to include a) 8 credits of college-level mathematics and b) Comp Sci 302 Introduction to Programming or Geog 378 Introduction to Geocomputing.
- At least 3 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, 377, and 565 are considered double-counted courses. The 15 credit upper-level requirement may include Cartography major coursework.

COURSES BY GROUP 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 X = crosslisted course; see primary dept.

It is highly recommended that you check the Course Guide for course history, as well as visiting the main office for information on planned offerings in the future.

Group I. Physical Geography

- 120 Global Physical Environments (E) 1
- 121 Atmospheric Environment and Society (E) X
- 127 Physical Systems of the Environment (E) 2
- 320 Geomorphology (I) 4
- 321 Climatology (I) 2
- 325 Analysis of the Physical Environment (I) 4
- 326 Landforms-Topics and Regions (Fluvial Geomorphology) (I) 4
- 328 Arid Lands Geomorphology (I) 4
- 329 Landforms and Landscapes of North America (I) 4
- 331 Climatic Environments of the Past (I) 2
- *332 The Global Warming Debate (I) 3
- *338 Vegetation: Stability & Change (I) 4
- *344 The American West (I) 3
- 420 Glacial and Pleistocene Geology (I) X
- 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) 1
- 230 Soil: Ecosystem and Resource (I) X
- 240 Plants and Man (E) X
- 303 The Human Role in Changing the Face of the Earth (I) 4

- 309 People, Land and Food: Comparative Study of Agricultural Systems (I) 2
- 319 Environmental Evaluation and Adaptation (I) 4
- *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) 2
- *508 Landscape and Settlement in the North American Past (A) 3
- 519 Environment and Human Experience (A) 4
- 534 History and Ideology of Environmentalism (A) 4
- 535 Environmental Geography & Conservation in Developing Countries (D) 4
- 536 American Wilderness: Perception and Preservation (A) 4
- 537 Culture and Environment (A) 4
- 538 The Humid Tropics: Ecology, Subsistence, and Development (A) 4
- 557 Political Ecology in Mainland Southeast Asia (A) 2

Group III. Human Geography

- 101 Introduction to Human Geography (E) 1
- 102 Spatial Organization of Human Activity (E) 4
- 236 Bascom Course (E) 4
- 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
- 312 Regional Development and Planning (I) X
- 318 Geography, Politics, and Territoriality (I) 2
- *349 Europe (I) 1
- *353 Russia & the Newly Independent States: Topical Analysis (I) 4
- 444 Health and Social Welfare in Society (I) X
- 501 Space and Place: A Geography of Experience (S_A) 2
- 502 Spatial Behavior (A) 4
- 503 Researching the City (I) 4
- 505 Urban Spatial Patterns and Theories (A) 4
- 506 Historical Geography of European Urbanization (A) 4
- 507 Historical Geography of Urban North America (A) 4
- *508 Landscape and Settlement in the North American Past (A) 4
- 510 Economic Geography (A) 4
- *553 Russia and the CIS: Problems in Human Geography (A) 4

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) X
- 253 Russia: An Interdisciplinary Survey (E) X
- 260 Latin America: An Introduction (E) X
- 277 Africa: An Introductory Survey (I) X
- 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) 4
- *349 Europe (I) 1
- *353 Russia and the Newly Independent States: Topical Analysis (I) 4
- 355 Africa, South of the Sahara (I) 4
- 358 China and Southeast Asia (I) 4
- 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 Our Digital Globe:: An Overview of GIScience and its Technology (E) 1
- 370 Introduction to Cartography (I) 1
- 377 Introduction to GIS (I) 1
- 378 Introduction to Geocomputing (I) 2
- 570 Problems in Cartography (A) 4
- 572 Graphic Design in Cartography (A) 3
- 574 Cartographic Methods in Research (A) 4
- 575 Animated & Web-based Mapping (I) 3
- 576 Map Transformations and Coordinate Systems (A) 4
- 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) 2 (SPRING)
- 560 Advanced Quantitative Methods (A) 2
- 565 Colloquium for Undergraduate Majors (I) 2 (FALL)
- 566 Geographic Thought (A) 4
- 601 Field Course in Geography (A) 4
- 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 main office (160 Science Hall). The form should be signed by your prospective honors thesis advisor or your regular major advisor, and then brought back to the main office to be stamped and copied before you take it in person to the L&S Honors Office in the Washburn Observatory.

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 a faculty member willing to advise their thesis research.

COURSE DESCRIPTIONS

Spring Semester 2011-12

* 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

Lecturer

Schedule: Lec 1: TR 9:30-10:45, 180 Science Hall

Credits: 4 **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

Marin-Spiotta, Lecturer

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.

139 Resources and People

Lecturer

Schedule: Lec 1: TR 2:30-3:45, 1101 Humanities

Credits: 4 **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.

140 World Regions: Concepts & Problems

Olds

Schedule: Online Course

Credits: 3 **Breadth:** S **Level:** E

Prereq: Open to freshmen

Description: This is a new distance education course that takes advantage of innovations in technology to help: 1) enhance the acquisition of multiple forms of knowledge about world regions (e.g., Africa, Southeast Asia), and 2) directly shed light on how key public, private and non-governmental actors with 'global reach' (e.g., the Gates Foundation, Google, the European Commission, ASEAN, Médecins Sans Frontières) frame, develop, and implement regionally-specific strategies (e.g., the EU's Asia or African strategy). Thus the course will focus upon substantive characteristics and patterns, as well as the regional/global 'geographical imaginations' of powerful stakeholders in the development process. Please see <http://worldregions.wordpress.com/> for more detailed information.

170 Our Digital Globe: An Overview of GIScience and its Technology

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 9:55-10:45

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: An Interdisciplinary Survey

Schedule: Lec 1: TR 1:00-2:15

Credits: 4 **Breadth:** Z **Level:** E **Cross-listed:** History, Poli Sci, Slavic

Prereq: Open to freshman

Description: Comprehensive interdisciplinary survey of East European culture, society, politics, and literature from its beginnings through the present day.

260 Latin America - Introduction

Schedule: Lec 1: TR 1:00-2:15

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 2:30-3:45

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.

305 Introduction to the City

Lecturer

Schedule: Lec 1: TR 1:00-2:15, 180 Science Hall

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.

309 People, Land, and Food

Gibbs

Schedule: Lec 1: TR 2:30-3:45, 350 Science Hall

Credits: 3 **Breadth:** S **Level:** I **Cross-listed:** Envir St

Prereq: Sophomore standing

Description: This class will explore how and why human have transformed natural lands around the world. We will study different agricultural systems in different regions and tackle topics such as food security, land scarcity, bioenergy and the impacts of agriculture on the environment.

318 Introduction to Geopolitics: Historical and Critical Approaches

(course formerly titled "Geography, Politics and Territoriality")

Schedule: Lec 1 TR 11:00-12:15, 360 Science Hall

Kaiser

Credits: 3 **Breadth:** S **Level:** I **Cross-listed:**

Prereq: Sophomore standing

Description: The purpose of this course is to introduce you to the main concepts and research themes in contemporary geopolitics. As one of the primary perspectives within the field of political geography, geopolitics represents a broad engagement with the interactive relationships between power and place, and the construction, contestation and reconfiguration of political spaces that results. During the semester we will examine the formation of geopolitical images of the world, where these images come from, and how they have shaped our thinking and politics over time. Following an introduction to historical and critical approaches to geopolitics, we will examine the modern history of global geopolitical visions from the turn of the 20th century to the present day. Beginning with imperial geopolitics and especially Mackinder's heartland thesis, and continuing with cold war and post-cold war geopolitics, we will critically analyze the ways that academics, politicians and the media have shaped our understanding of the geopolitical world. We will end the semester with a critical analysis of emergent geopolitical understandings of the post-9/11 world, and future alternative geopolitical visions.

320 Geomorphology

Mason

Schedule: Lec 1: MW 2:25-3:15, 444 Science Hall

Credits: 3 **Breadth:** P **Level:** I **Cross-listed:** Geology

Prereq: One of the following: Geol 100, 101, 106, 201, Geog 120, 127

Description: Principles and analysis of geomorphic processes and resulting land forms.

Note: Two one-day field trips required.

332 The Global Warming Debate

Williams

Schedule: Lec 1: TR 1:00-2:15 L196 Education

Credits: 3 **Breadth:** P **Level:** I **Cross-listed:** Envir St, Atm Ocn

Prereq: Geog/IES 120 or 127 or Atm Ocn 100 or equivs recommended. Qualified freshman permitted with instructor's consent.

Description: The global warming debate is shifting from whether warming is occurring and why to assessing consequences and policy options. Course reviews milestones in climate-change science, current state of knowledge, climate-change risks, and adaptation/mitigation strategies.

339 Environmental Conservation

Turner, Naughton

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.

349 Europe

Ostergren

Schedule: Lec 1: MW 2:30-3:45, 180 Science Hall

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

Lecturer

Schedule: Lec 1: TR 9:30-10:45, 1101 Humanities

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

Roth

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 kinds of maps (e.g., choropleth, isoline, proportional symbol, reference) and many ways to implement those basic map 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

Lecturer

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.

378 Introduction to Geocomputing

Burt

Schedule: Lec 1: MW 9:55-10:45, 360 Science Hall

Credits: 3 **Breadth:** P **Level:** I

Prereq: Geog 377 (may take concurrently); Junior, senior, or grad standing

Description: Introduction to scripting for Geographic Information Science. Geoprocessing with open-source GIS utilities. Python scripting with ArcGIS and open-source libraries. This course has lecture and laboratory components.

460 American Environmental History

Cronon

Schedule: Lec 1: MW 2:30-3:45, 3650 Humanities

Credits: 4 **Breadth:** Z **Level:** I **Cross-listed:** History, Envir St

Prereq: Sophomore standing

Description: Survey of interactions among people and natural environments from before European colonization to present. Equal attention to problems of ecological change, human ideas, and uses of nature and history of conservation and environmental public policy.

508 Landscape and Settlement in the North American Past

Ostergren

Schedule: Lec 1: T 4:00-6:00 350 Science Hall

Credits: 3 **Breadth:** S **Level:** A

Prereq: Junior standing

Description: Settlement processes and patterns--towns, hamlets, farms and land holdings--which define the varied landscape of North America. Changing attitudes to the transformation of the natural landscape and varying perceptions of the modified landscapes.

510 Economic Geography

Young

Schedule: Lec 1: R 3:20-5:25, 378 Science Hall

Credits: 4 **Breadth:** S **Level:** A

Prereq: Junior standing

Description: Examines how youth in different parts of the world are responding to global economic restructuring. We begin by focusing on some of the key theoretical debates in economic geography. We then explore a range of ethnography-based case studies on the theme of youth, education, unemployment and cultures of enterprise.

527 The Quaternary Period

Mason

Schedule: Lec 1: TR, 2:30-3:45, 188 Science Hall

Credits: 3 **Breadth:** P **Level:** A **Cross-listed:** Geology

Prereq: 1 intermediate-level course in physical geography or geology; or instructor's consent

Description: Principles of Quaternary studies emphasizing terrestrial records and paleoecology of the past two million years and comparisons with the deep ocean record and models of climatic change.

557 Political Ecology in Mainland Southeast Asia

Baird

Schedule: Lec 1: MW, 2:30-3:45, 350 Science Hall

Credits: 3 **Breadth:** S **Level:** A

Prereq: Sophomore standing

Description: Examines the political, socio-cultural, economic and ecological aspects of contemporary development and human-environment relations in mainland Southeast Asia, applying a critical and theoretically informed perspective, and focusing largely on rural issues.

575 Animated and Web-based Mapping

Roth

Schedule: Lec 1: TR, 4:00-5:15, 444 Science Hall

Credits: 4 **Breadth:** P **Level:** A

Prereq: Geog 370 and Comp Sci 302, or instructor consent

Description: Examines recent issues in cartography related to map animation, the Internet, geovisualization and on-demand mapping systems - focusing on new cartographic challenges and opportunities associated with interactive, digital mapping systems.

578 GIS Applications

Zhu

Schedule: Lec 1; TR, 1:00-2:15, 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 through a series of laboratory assignments. We will also examine spatial data quality and model validation.

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 Turner

Schedule: Lec 1: W 6:00-8:00, 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.

901 Seminar in Cultural Geography: Objects and Space Woodward

Schedule: Sem 1: M 3:30-5:30, 388 Science Hall

Credits: 2-3

Prereq: Graduate student standing

901 Seminar in Cultural Geography: Cities and Development Olds

Schedule: Sem 2: W 1:20-3:15, 388 Science Hall

Credits: 2-3

Prereq: Graduate student 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 interdisciplinary networks, our interest will be in recent work (primarily single-authored books) that addresses new theoretical, methodological and empirical questions, or else select "classics" that have had lasting impacts.

Course website: <http://citiesanddevelopment.wordpress.com/>

920 Seminar in Physical Geography: Conservation Paleoecology

Williams

Schedule: Sem 1: W 3:30-5:25, 450 Science Hall

Credits: 2-3

Prereq: Graduate student standing

Description: This will be a discussion-oriented graduate seminar that will review the various ways in which long-term ecological data are being applied to inform conservation efforts in an era of global change. Traditionally, paleoecological data was often used to establish historical baselines, as targets for restoration efforts. Now, the emphasis is quickly shifting to using paleoecological data to manage the transition, with the goal of maintaining ecosystem function and minimizing biodiversity losses in a rapidly changing world. Topics to be discussed include: Novel ecosystems; rates of species migration, climate velocity, and assisted migration; the legacies of past climate change on current hotspots of genetic diversity and endemic species; recover of life's diversity from past mass extinctions, climate and anthropogenic controls on fire and disturbance regime; and new insights into the late Pleistocene megafaunal extinctions from ancient DNA and other methods.

930 Seminar in People-Environment Geography: Conserving Biodiversity Amid Rapid Social Change Naughton

Schedule: Sem 1: W 3:00-5:00, 280C Science Hall

Credits: 2-3

Prereq: Graduate student standing

970 Seminar in GIS: High Performance Computing, CyberGIS, and Digital Divide Zhu

Schedule: Sem 2: W 2:00-5:00, 378 Science Hall

Credits: 1-3

Prereq: Graduate student standing

Notes: