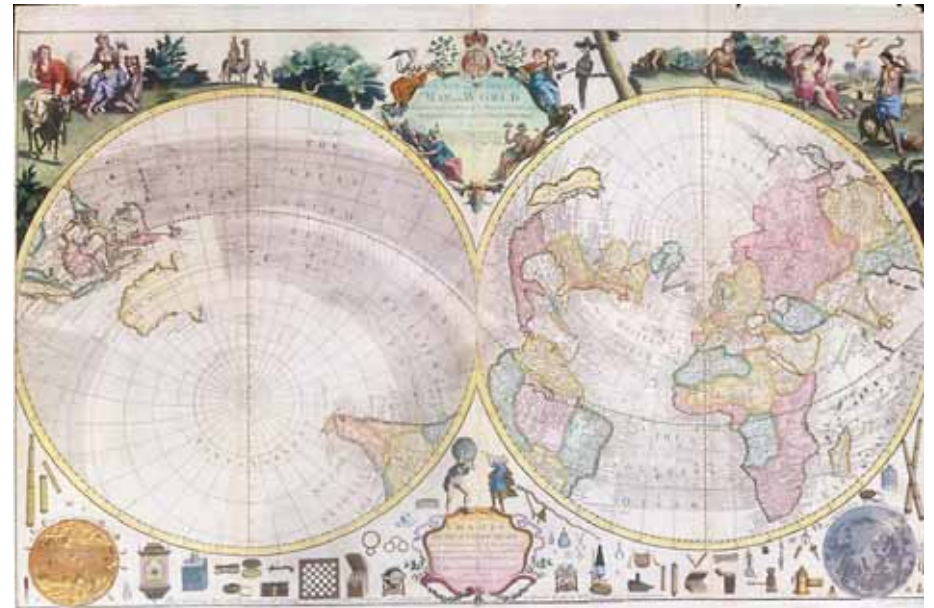


DEPARTMENT of GEOGRAPHY
University of Wisconsin-Madison

CATALOG OF COURSE
DESCRIPTIONS



Fall 2007-08

Cover image: *A New and Correct Map of the World Projected upon the Plane of the Horizon Laid Down from the Newest Discoveries and Most Exact Observations*. Hand-colored copper engraving by Charles Price (London, 1714). Courtesy of the Osher Map Library, University of Southern Maine.

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Geography Courses Taught This Semester by Our Faculty

Amy Burnicki	676, 970	Lisa Naughton	339
James Burt	120, 560	Kristopher Olds	Sabbatical
William Cronon	460, 932	Robert Ostergren	349, 508
Leila Harris	319, 930	Jamie Peck	312, 901
Mark Harrower	370, 572	Matthew Turner	537, 765
Robert Kaiser	101, 353	Jack Williams	331, 676
James Knox	120, 920	A-Xing Zhu	377, 579
Joseph Mason	320, 525		

Our Faculty

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).

LEILA HARRIS, 115D Science Hall, 265-0531, lharris@geography.wisc.edu; Ph.D., Minnesota, 2004, Assistant Professor - Nature-society, environmental policy and management, water resources, gender and inequality, Middle East.

MARK HARROWER, 208 Science Hall, 265-0012, maharrower@wisc.edu; Ph.D., Penn State, 2002, Assistant 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.

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

LISA C. NAUGHTON, 373 Science Hall, 262-4846, naughton@geography.wisc.edu; Ph.D., University of Florida, 1996, Associate Professor - Wildlife ecology, protected areas, Africa, Latin America.

KRISTOPHER N. OLDS, 376 Science Hall, 262-5685, olds@geography.wisc.edu; Ph.D., University of Bristol, 1996, Associate Professor - Urban, economic, globalization, Pacific Rim.

ROBERT C. OSTERGREN, 343 Science Hall, 262-6302, rcosterg@wisc.edu; Ph.D., Minnesota, 1976, Professor - Historical, cultural, Europe, and North America.

JAMIE A. PECK, 243 Science Hall, 262-1453, jpeck@geography.wisc.edu; Ph.D., University of Manchester, 1988, Professor - Political economy, labor geography, politics of economic development, urban and regional restructuring, employment/welfare policy.

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, 421 Science Hall, 265-5537, jww@geography.wisc.edu; Ph.D., Brown University, 1999, Assistant Professor - Vegetation dynamics, paleoecology, paleoclimatology.

A-XING ZHU, 421 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
PHILLIP MUEHRCKE
THOMAS VALE

REID BRYSON
DANIEL DOEPPERS
YI-FU TUAN
ROBERT SACK

Advisors

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

Undergraduate Requirements for Major in Geography

Procedure for Declaration and Completion

1. Select and meet with the adviser for your intended subfield (see the Geography website for current advisers). If you have not identified your subfield, see the Undergrad Affairs Committee Chair.

Sub-field titles (short name):

Group I: Earth Systems and Environmental Processes (Physical Geography)

Group II: People-Environment Interaction (People-Environment)

Group III: Human Geography

Group IV: Area Studies and Global Systems (Area Studies)

Group V: Cartography and Geographic Information Systems (Cartography)

2. Complete the College of Letters and Science iMajor Declarationi form (from advisor) and bring to 160 Science Hall for processing.

3. Plan a suitable major program with consultation and approval by a faculty advisor. During the final undergraduate semester, have your total program reviewed and certified that it meets the requirements of the major.

4. To qualify for a major in Geography, you must earn a minimum of 30 in geography and meet A through C below:

A. Breadth of Study: At least one course in each

1. Physical Geography (Group I)
2. People-Environment Interaction (Group II)
3. Human Geography (Group III)
4. Area Studies & Global Systems (Group IV)

B. Skills, Techniques, and Methods: Each of the following, or an equivalent approved by the advisor:

1. Geography 170, Map Reading and Interpretation, or Geography 370, Introduction to Cartography.
2. Geography 360, Quantitative Methods in Geographical Analysis.

3. Geography 565, Colloquium for Undergraduate Majors (Spring only)

C. Depth and Quality of Study:

1. A minimum of 15 credits at the intermediate level or above. Course levels are indicated under Concentrations or Tracks.
2. A concentration, approved by the advisor, consisting of at least three related intermediate or advanced level courses (including at least one advanced level course). Choose Options A, B, or C in box below.
3. A grade-point average of 2.0 or higher for courses in the major.

Option A. A concentration from one of the Groups I, II, III, or V

Option B. A concentration from one of the Area Clusters below:

North America: 305*, 329*, 340, 341, 342, 344, 345, 431*, 460*, 506*, 507*, 508*, 531*, 536*, 675

Middle & South America: 303*, 348, 531*, 535*, 538*, 548, 675

Europe and former USSR: 349, 353, 371*, 444, 506*, 531*, 549, 553, 675

Africa: 277, 355, 356, 531*, 537*, 538*, 675

Asia: 358, 531*, 538*, 553*, 558, 675

* Denotes courses having substantial regional content; often satisfies Group IV concentration requirement; see instructor. No more than one course identified with * may count toward the Group IV concentration. For the appropriateness of Geog 675 in any given semester, see instructor. With advisor's written consent, one course with an area focus from outside of the Geography Dept. may count toward the concentration. This course will not count for credit in Geography.

Option C. An individual concentration proposed by the student and approved by the adviser.

CONCENTRATIONS OR TRACKS 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: Earth Systems and Environmental Processes

- 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
- 420 Glacial and Pleistocene Geology (I) 3
- 421 Applied Surficial Geology (I) 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. Environmental Studies: 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
- 336 Our Hazardous Environment (I) 4
- 338 Vegetation: Stability & Change (I) 4
- 339 Environmental Conservation (I) 1
- 434 People, Wildlife and Landscapes (I) 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
- *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
- 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
- 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.

Undergraduate Requirements for Major in Cartography and Geographic Information Systems

An undergraduate major in cartography requires a minimum of 30 credits in geography. The major must include:

CORE (Required)

- Geog 360 (4) Quantitative Methods in Geographical Analysis
- Geog 370 (4) *Introduction to Cartography
- Geog 377 (4) *Introduction to Geographical Information Systems
- * Geog 370 and 377 should be taken before cartography electives.
- Geog 565 (3) Colloquium for Undergraduate Majors (Spring only)

ELECTIVES

Three of the following courses:

- Geog 570 (3) Problems in Cartography
- Geog 572 (4) Graphic Design in Cartography
- Geog 575 (4) Animated and Web-based Mapping
- Geog 576 (3) Map Transformations and Coordinate Systems
- Geog 578 (3) GIS Applications
- Geog 579 (3) GIS and Spatial Analysis

TOPICAL BREADTH

One course in each of the following groups:

- Physical Geography (Group I)
- Human Geography (Group III)
- People-Environment Interaction (Group II) *or*
- Area Studies & Global Systems (Group IV)

OTHER REQUIRED COURSES

At least 11 credits must come from:

- College-level Mathematics (8 credits)
- Comp Sci 302: Introduction to Programming (3)

At least 5 credits from the following courses in Civil & Environmental Engineering (CEE):

- Remote Sensing: CEE 301, 302, 303, 304, 556
- Photogrammetry: CEE 301, 403, 404, 551
- Surveying: CEE 251, 450, 452, 454
- Land Information Systems: CEE 307, 308, 309

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;
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 681-82, 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

* *NOTE: The following information may change for this semester after the printing of this catalog. The following information is to present a general idea of the course content and format to aid in selecting courses. See the Web Timetable for the most updated version.*

Breadth: B-Biological Science, H-Humanities, I-Interdivisional, 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 Kaiser

Schedule: 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

Burt, Knox

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.

Requirements: Expected to know locations of all 50 states, all continents, all oceans.

Textbooks: Physical Geography, 7th ed., T.L. McKnight, Prentice Hall

Exams: Three equally weighted exams (Exam 3 is not a comprehensive final).

121 Atmospheric Environment and Society

Schedule: Lec 1: TR 11:00-12:15, 113 Psychology

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 *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.

240 Plants and Man

Schedule: Lec 1: MWF 2:25, 145 Birge

Credits: 2-3 *Breadth:* B *Level:* E *Cross-listed:* Botany

Prereq.: Open to freshmen

Description: A speculative, systems-oriented approach to the interrelation of

plants and humans in their evolution and cultural development, with an historical geographic perspective concluding with a consideration of 20th century America's plant-human interplay. Lecture; third credit includes demo lab.

244 Introduction to Southeast Asia: Vietnam to the Philippines

Schedule: Lec 1: TR 9:30-10:45, 101 Birge

Credits: 4 *Breadth:* Z *Level:* E *Cross-listed:* Hist, Poli Sci, LCA, Soc

Prereq.: Open to freshmen

Description: Southeast Asian history, religion, folklore and literatures, educational systems, and politics from the early classical states to contemporary social, literary, and political developments.

252 Civilizations of India

Schedule: Lec 1 MWF 2:25, 5206 Social Science

Credits: 4 *Breadth:* Z *Level:* I *Cross-listed:* Hist, Poli Sci, LCA, Soc

Prereq.: Open to freshmen

Description: Contemporary India society as a joint product of the classical heritage and world-wide movements toward nationalism; social and economic development.

277 Africa: An Introductory Survey

Schedule: Lec 1 TR 1:00-2:15, 147 Education

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

Peck

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.

319 International Environmental Justice Harris
(course formally titled iEnvironmental Evaluation and Adaptationi)
Schedule: Lec 1 TR 2:30-3:45, 360 Science Hall
Credits: 3 *Breadth:* S *Level:* I *Cross-listed:*
Prereq.: Sophomore standing
Description: The study of environmental justice theories and concepts through international and global case studies. Includes focus on development theory, and North-South dimensions of a range of environmental issues. (Course formerly titled iEnvironmental Evaluation and Adaptation.i)

320 Geomorphology Mason
Schedule: Lec 1 TR 2:30-3:45, 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 on 10/6 and 10/20.

331 Climatic Environments of the Past Williams
Schedule: Lec 1 TR 9:30-10:45, 444 Science Hall
Credits: 3 *Breadth:* P *Level:* I *Cross-listed:*
Prereq.: Geog 120 or 127 or Geol 100 or 101 or cons inst
Description: This class reviews the major climatic events and trends during the Quaternary, spanning timescales from the last 1,000,000 years to the last 1,000 years. An emphasis will be placed on understanding the physical processes controlling the behavior of the earth system and its components (atmosphere, oceans, cryosphere, biosphere, etc.). Students will also learn how paleoclimatologists collect, date, and analyze a staggering variety of paleoclimatic records and climate models. Quaternary paleoclimatology is an exciting and rapidly changing field, with relevance to current global change questions. Understanding the sources and causes of past climatic variability is a necessary precondition to making informed projections of future climate changes and impacts.

339 Environmental Conservation 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 is a survey of American conservation. Roughly equal emphasis is given to historical and contemporary issues. The second half of the course focuses on global issues, with special emphasis on the

tropics.
Textbooks: to be announced. Reserved readings available on the web.
Exams: two exams
Grading: two exams 200 points, discussion section activities 100 points

342 Geography of Wisconsin
Schedule: Lec 1 TR 6:30-7:45 pm, 180 Science Hall
Credits: 3 *Breadth:* S *Level:* I
Prereq.: Sophomore standing; open to non-traditional/eveningi students
Description: Geography of natural features and cultural resources; field trips on and off campus.

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 European culture, political organization, urbanism and regional landscapes.
Textbooks: to be announced. Reserve readings available on the web.

353 Russia and the NIS - Topical Analysis Kaiser
Schedule: Lec 1 2:30-3:45, B231 Van Vleck
Credits: 3 *Breadth:* S *Level:* I
Prereq.: Sophomore standing
Description: In this course, we will examine the geographies of transition in Russia and the Newly Independent States of Eurasia (NIS). The principal focus of the course is on human geography in the region (i.e., economic geography, environmental geography, political geography, and geopolitics). In developing each of these human geographies of transition, the importance of the physical geographic setting and the historical geography of the region is highlighted.

370 Introduction to Cartography Harrower
Schedule: Lec 1 TR 11:00-12:15, 444 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 Zhu
Schedule: Lec 1 TR 4:00-5:15, 180 Science Hall
Credits: 4 *Breadth:* P *Level:* I
Cross-listed: Envir St 377, meets with CEE 357
Prereq.: Intro course in environmental or mapping science (Geog. 370 may be taken concurrently)
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 modelling 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.

460 American Environmental History Cronon
Schedule: Lec 1 MWF 2:25, 2650 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 on problems of ecological change, human ideas, and uses of nature and history of conservation and environmental public policy.

508 Landscape & Settlement in the N. American Past Ostergren
Schedule: Lec 1 T 2:25-5:25, 350 Science Hall
Credits: 3 *Breadth:* S *Level:* A *Cross-listed:*
Prereq.: Junior standing
Description: Historical geography of North American settlement patterns, cultural landscapes, urbanism, regional identity and heritage. Course includes Saturday field trips in southern Wisconsin.

Textbooks: To be announced. Reserve readings available on the web.

525 Soil Geomorphology Mason
Schedule: Lec 1 R 4:00-6:30, 350 Science Hall
Credits: 3 *Breadth:* P *Level:* A *Cross-listed:* Geology
Prereq.: Soil Sci 325 or Geog/Soil Sci 431; and an intermed level crse in geomorphology; or cons inst.
Description: Soil development as related to landscape throughout the Quaternary; focusing on the relationship of soils to climate and vegetation, landscape evolution, and time; principles of soil stratigraphy; case histories of soil geomorphic studies.
Note: 1 weekend field trip required, to be arranged.

528 Past Climates and Climatic Change
Schedule: Lec 1 TR 11:00-12:15, 811 AOSS
Credits: 3 *Breadth:* P *Level:* A *Cross-listed:*
Prereq.: Jr st or one year calculus-based college physics or introduction to weather and climate; or cons inst.
Description: Climatic change throughout geologic time, especially in the last 10 millennia; mechanisms of change, evidence, and criteria, paleogeography and paleoclimatology, climate models.

537 Culture and Environment Turner
Schedule: Lec 1 F 9:00-12:00, 444 Science Hall
Credits: 4 *Breadth:* S *Level:* A *Cross-listed:* Envir St
Prereq.: Geog/IES 339 or equiv.
Description: Geographic approaches to culture-nature relationships, including human perception of, use of, and adaptation to the physical environment, with emphasis on traditional subsistence systems; selected topics from contemporary and historical sources.

560 Advanced Quantitative Methods Burt
Schedule: Lec 1 MW 2:30-3:45, 444 Science Hall
Credits: 3 *Breadth:* P *Level:* A *Cross-listed:*
Prereq.: Geog 360 or equiv; Jr st.
Description: Selected topics in the analysis of spatial distributions with emphasis on multivariate techniques.

572 Graphic Design in Cartography Harrower
Schedule: Lec 1 MW 2:30-3:45, 360 Science Hall

Credits: 4 *Breadth:* P *Level:* A *Cross-listed:*

Prereq.: Geography 370

Description: This is an advanced class in the theory of how maps work and how maps are imbued with meaning. Topics include: visual variables, philosophy of design, representation versus communication, map semiotics, cognitive and perceptual issues in cartography, and the professional presentation and organization of visual information. The laboratory component of this class provides students with a hands-on, intense study of thematic map design with an emphasis on professional cartographic authorship and the iterative process of design (i.e., work on fewer maps for longer periods of time).

579 *GIS and Spatial Analysis*

Zhu

Schedule: Lec 1 TR 1:00-2:15, 444 Science Hall

Credits: 4 *Breadth:* P *Level:* A *Cross-listed:*

Prereq.: Geography 377 & 370, or equiv

Description: This is an advanced GIS course covering analytical methods used in GIS and spatial analysis. The course is intended to provide students with a firm understanding of the theoretical/conceptual side of algorithms found in GIS software. We are concerned with the assumptions and underlying mathematical basis for widely-used techniques, and the degree to which analytical capabilities are constrained by those assumptions. Among the topics covered are methods for neighbourhood operation, map transformation, spatial interpolation, terrain analysis, network analysis, and spatial overlay. Other advanced topics such as fuzzy sets and neural networks will also be covered. The emphasis is on the usefulness and limitations of competing algorithms, as opposed to optimal implementation. The objectives are: 1) To provide students with a proper understanding of the usefulness and the limitations of GIS analytical techniques with the hope that students will observe these limitations when using these GIS techniques; 2) To develop students' analytical ability so that they would naturally seek the limitations of GIS techniques that are new to them so that misuse or abuse of existing and new GIS analytical techniques can be avoided.

602 *Internship*

Credits: 1-2 *Level:* A

Prereq.: Undergraduate majors or graduate students in Geography and instructor consent

Description: Students may earn credit for internships (service experience with government agencies, nonprofit organizations) that enrich the student's academic education. On credit per 45 hours of internship service (generally 1 credit per semester or up to 2 during the summer). Not more than 2 internship credits to be counted toward the 30-40 credits in Geography.

676 *Topic: Modeling Land-Cover Change*

Burnicki

Schedule: Lec 1 TR 8:00-9:15, 350 Science Hall

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

Prereq.: Geog 377 and junior, senior, or grad standing

Description: This course investigates the role models of land-cover change play in improving our understanding of land dynamics and their consequences. Initial classes will examine the use of remote-sensing technology in mapping land-cover change, the socio-economic and biophysical factors that influence land-cover change and issues related to modeling LUCC. The majority of this course is dedicated to a comprehensive review of the types of models used to analyze land-cover change, including empirical methods, Markov methods, cellular automata and integrative models. Model validation and the impact of uncertainty on model estimates is also addressed. The course concludes with a discussion of the strengths and weaknesses of modeling efforts. The course is comprised of both lectures and lab sessions, designed to provide students with first-hand knowledge of the modeling techniques available to map and predict land-cover change. Class lectures and lab sessions integrate GIS, remote-sensing, spatial analysis and modeling techniques.

676 *Topic: The Global Warming Debate*

Williams

Schedule: Lec 2 TR 4:00-5:15, 230 Science Hall

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

Prereq.: Soph standing or above

Description: The central thesis of this class is that as our understanding of the climate system improves, the debate over global warming is shifting from questions of detection and attribution (whether warming is occurring and whether we're responsible?) to questions of impact and response (what are the consequences and what should we do?). We will review 1) key milestones in the progression of climate-change science and the current state of knowledge about climate change, 2) the possible impacts and risks associated with climate change, and 3) ranges of adaptation and mitigation strategies. This class is targeted to undergraduate students with some background in earth system science (e.g. Geography/IES 120, 127, or equivalent).

GRADUATE LEVEL:

765 *Geographical Inquiry and Analysis: An Introduction* Turner

Schedule: Lec 1 W 12:05-12:50, 378 Science Hall

Credits: 1

Prereq.: Graduate standing

Description: Geographic perspectives and analyses: history of the discipline, issues and research frontiers, interests and perspectives of Madison faculty,

structure of graduate study in the department, research facilities and opportunities.

901 Seminar in Human Geography: Neoliberalism, Globalization, and the State Peck
Schedule: Sem 1 M 4:00-6:30, 378 Science Hall
Credits: 2-3
Prereq.: Graduate student standing

920 Seminar in Geomorphology: River Systems Knox
Schedule: Sem 1 W 3:30-5:25, 350 Science Hall
Credits: 1-3
Prereq.: Graduate student standing

930 Seminar in People-Environment Geography: Devolution & Participatory Resource Management Harris
Schedule: Sem 1 W 3:30-5:25 Science Hall
Credits: 2-3
Prereq.: Graduate student standing

932 Seminar in American Environmental History Cronon
Schedule: Sem 1 T 9:00-12:00, 5257 Humanities
Credits: 3
Prereq.: Graduate student standing
Description: The seminar is a one-semester introduction to some of the most interesting recent literature of American environmental history, read principally for the theories and methodologies it can offer scholars and scientists as well as its implications for contemporary environmental politics and management. The seminar assumes no previous coursework in the field, and students with a wide variety of backgrounds and disciplines are encouraged to participate. We will read a number of the most important works that have been produced in the field during the past quarter century, with an eye to exploring the different themes and methods that have shaped this body of scholarship. We will concentrate on what might be called the 'second generation' of writing in environmental history, trying to assess how the field has evolved and where it might be headed in the future. Our goal will be to evaluate these texts with a critical but sympathetic eye, trying to discover ways in which their approaches might be helpful to our own work. At the same time, we'll use this literature to think about the more general process of conceiving, conducting, and writing research about the past (whether within the disciplines of history, geography, ecology, environmental studies, natural resource management, or what have you) trying to gain as much practical wisdom as we

can about how to do theses and dissertations. We will also talk about strategies for teaching this material in the undergraduate classroom.

Additional Information at <http://history.wisc.edu/cronon/932.htm>.

970 Seminar in Geographic Information Science: Uncertainty in GIS and Remote-Sensing Burnicki
Schedule: Sem 1 M 3:30-5:25, 548 Science Hall
Credits: 2-3
Prereq.: Graduate student standing

Description: This seminar examines the impact of uncertainty on GIScience and remote-sensing analyses. It is intended for students with advanced training in GIS and/or remote-sensing and an interest in improving their understanding of the issues surrounding the quantification/modeling of uncertainty in GIScience. The course will begin with a general overview of uncertainty and the many ways it enters into a GIS/RS analysis. Subsequent class meetings will be geared towards student interests, and will consider topics such as quantifying uncertainty, modeling propagation of errors, and understanding the impact of uncertainty on model predictions.

970 Seminar in Geographic Information Science
Schedule: Sem 2 M 4:30-6:00, 4308 Social Science
Credits: 2
Prereq.: Graduate student standing

982 Seminar in Latin America: Literacies of Native America
Schedule: Sem 1 F 2:25-5:25, 120 Ingraham
Credits: 1 *Cross-listed:* AAE, Anthro, Econ, History, Journ, Poli Sci, Portug, Rur Soc, Spanish
Prereq.: Graduate student standing

990 Research and Thesis
Credits: 1-9
Prereq.: Consent of instructor
999 Independent Work
Credits: 1-3
Prereq.: Consent of instructor

DATES - FALL 2007-08

Notes:

August 27-31 (M-F) Advising & Orientation Week
September 4(T) Instruction begins
November 22-25 Thanksgiving Recess
December 14 (F) Last class day
December 16 (N) Exams begin
December 14-16 (F-N) Commencement weekend
December 22 (S) Exams end

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, 12:30-4:30

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 room 480B Science Hall. Contact the club at uwgeogclub@yahoo.com