

**DEGREE/PROGRAM CHANGE  
FORM C**

**Fields marked with \* are required**

**Name of Initiator:** Scott Freundschuh      **Email:\*** [sfreunds@unm.edu](mailto:sfreunds@unm.edu)      **Date:\*** 10-30-11  
**Phone Number:\*** 505 2770058      Initiator's Rank / Title\* Professor and Chair  
Faculty Contact\* Scott Freundschuh      Administrative Contact\* Jazmin Knight  
Department\* Geography      **Division**      **Program**  
**Branch**

Proposed effective term:

Semester    Fall ▼      Year    2012 ▼

**Course Information**

Select Appropriate Program    Undergraduate Degree Program ▼    CIP Code  
Name of New or Existing Program    \* BA/BS Geography  
Catalog Page Number    Select Category    Major ▼    Degree Type    BA and BS  
Select Action    Revision ▼

**Exact Title and Requirements as they should appear in the catalog.**

See current catalog for format within the respective college (enter text below or upload a doc/pdf file)

Summary of changes to the Geography BA and BS degrees: Change to the Required Curriculum for the BA and BS in Geography: Add GEOG \*481L to Major Study Requirements Change to the Human Geography Electives Group for BA in Geography Add GEOG 364 to Human Geography Group Change to the Environmental Studies Elective Group for both the BA and BS in Geography Add GEOG 366 to the Environmental Studies Group Add GEOG 466 to the Environmental Studies Group Add GEOG 467 to the Environmental Studies Group

[GEOGRAPHY Catalogue Copy.doc](#)

**This Change affects other departmental program/branch campuses**

Reason(s) for Request    \* (enter text below or upload a doc/pdf file)

These curricular changes are being proposed for a number of reasons. First off, the geography department has added 3 new faculty in the past 3 years, and many of these proposed changes reflect the added topical/research/expertise areas of these three faculty members. These changes also reflect the new synergies among department faculty, especially in the areas of environmental studies and geographic information science. Finally, these changes reflect more contemporary thinking in teaching and research in the discipline.

Statements to address budgetary and Faculty Load Implications and Long-range planning    \* (enter text below or upload a doc/pdf file)

All new course/curriculum proposals are part of current faculty loads, and all courses have been included in the department's long-range plan for course offerings.

Note all text changes are highlighted in Yellow

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1 University of New Mexico  
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**Professors**

Bradley T. Cullen, Ph.D., Michigan State University  
Scott M. Freundschuh, Ph.D., State University of New York at Buffalo  
Olen Paul Matthews, Ph.D., University of Washington; J.D., University of Idaho

**Associate Professors**

Constantine Hadjilambrinos, Ph.D., University of Delaware  
Paul A. Zandbergen, Ph.D., University of British Columbia

**Assistant Professor**

Melinda Harm Benson, J.D., University of Idaho  
John N. Carr, Ph.D., University of Washington; J.D., University of Texas – Austin  
Chris S. Duvall, Ph.D., University of Wisconsin Madison  
K. Maria D. Lane, Ph.D., University of Texas – Austin

**Emeriti Faculty**

Elinore M Barrett, Ph.D., University of California Berkeley  
Stanley A. Morain, Ph.D., University of Kansas  
Rodman E. Snead, Ph.D., Louisiana State University

**Adjunct Faculty**

Karl Benedict, Ph.D., University of New Mexico  
Harold E. Jackson, Ph.D., Colorado  
Robert H. Julyan, M.S., Cornell  
Deirdre Kann, Ph.D., Purdue University  
William Krausmann, Ph.D., University of Utah  
Zachary McCormick, Ph.D., Oklahoma State University  
William Donald McTaggart, Ph.D., Australian National University  
Paul Neville, M.A., University of New Mexico  
Kim L. Seidler, M.A., University of New Mexico  
Stuart H. White, Ph.D., University of Wisconsin Madison

**Major Study**

**Undergraduate Advisor**

Contact the chairperson: [sfreunds@unm.edu](mailto:sfreunds@unm.edu).

Geography offers an integrative perspective on the relations among social, political, economic, and physical phenomena in space and place. Geography describes and explains the past, present, and future locations and spatial patterns of humans and their settlements, cultural and economic traits, and natural environment and resources. Geographical research addresses important issues relating to the environment and how culture and nature are connected. The department's programs focus on environmental studies, that is, human/environment interactions, natural resource policy and management, and legal geography and social justice; and Geographic Information Science (GIScience), that is, Geographic Information Systems, cartography and geovisualization, remote sensing, Global Positioning System (GPS), and spatial statistics.

Geography offers a Bachelor of Arts and Bachelor of Science degree, and a Master of Science degree. The BA and BS degrees prepare majors for one of two career paths, or for entrance into the MS Program. The BA degree acknowledges general competency in

Geography for those seeking careers in either applied geography or **environmental studies**.

The **GIScience** minor is ideally suited for majors from many A&S departments, as well as from other Schools at UNM. These technologies are finding many practical applications in the social and physical sciences, engineering, health care, architecture and planning, and legal professions.

#### Major Study Requirements

The major in geography requires 42-43 credit hours of lower and upper-division course work.

The required curriculum for the Bachelor of Arts degree is as follows:

		Credits
GEOG 101	Physical Geography	3
GEOG 105L	Physical Geography Lab	1
GEOG 102	Human Geography	3
GEOG 195	Humans Role in Changing the Face of the Earth	3
<b>GEOG 281</b>	<b>Introduction to Maps and Geospatial Information</b>	<b>3</b>
GEOG 350	Physical Landscapes	3
GEOG 381L	Introduction to Geographic Information Systems	4
<b>GEOG *481L</b>	<b>Map Design and Geovisualization</b>	<b>4</b>
Two courses	Environmental Studies Group	6
One course	Regional Group	3
One course	Human Geography Group	3
GEOG 471	Applied Geography Seminar	3
Electives	Any 200- 300- or 400- level GEOG course	3
		<b>42</b>

Courses included in each of the above groups are as follows:

**Environmental Studies Group:** 366, 461, 462, 463, 464, 466, 467.

**Regional Group:** 140, 302, \*445.

**Human Geography Group:** 360, 363, 364, 365.

The required curriculum for the Bachelor of Science degree is as follows:

		Credits
GEOG 101	Physical Geography	3
GEOG 105L	Physical Geography Lab	1
GEOG 102	Human Geography	3
GEOG 195	Humans Role in Changing the Face of the Earth	3
<b>GEOG 281</b>	<b>Introduction to Maps and Geospatial Information</b>	<b>3</b>
GEOG 381L	Introduction to GIS	4
<b>GEOG *481L</b>	<b>Map Design and Geovisualization</b>	<b>4</b>
GEOG 471	Applied Geography Seminar	3
Three courses	Geographic Information Science Group	9
One course	Environmental Management Group	3
One course	Physical Environment Group	3
Electives	Any 200-300-400 level GEOG course	3
		<b>42</b>

Courses included in the above groups are:

**Physical Environment Group:** 251, 350, 352.

**Environmental Studies Group:** 360, 363, 365, 366, 461, 462, 463, 464, 466.

**Geographic Information Science Group:** 480L, 482L, 483L, 484L, 485L, 486L, 487L, 488L.

## Honors In Geography

Undergraduate students pursuing either the B.A. or B.S. in Geography have the option of seeking Honors in Geography by completing advanced independent work that leads to a Senior Thesis. Students aspiring to Honors in Geography must announce their intention to the Geography Faculty before the end of the junior year. Minimum requirements for graduation with Honors in Geography are as follows: (1) completion of all requirements required for the B.A. or B.S. in Geography; (2) maintenance of an overall grade point average of 3.20; (3) completion of 6 credits of advanced coursework; and (4) submission of a written senior thesis.

Candidates for Honors in Geography are required to take the following courses in their senior year: 3 credits of GEOG 491 (Problems in Geography) in the fall semester, followed by 3 credits of GEOG 471 (Applied Geography Seminar) in the spring semester. The objective of these 6 credits is for the candidate to develop a substantial independent project in Geography research, which leads to submission of a Senior Thesis by the 12th week of the spring term of the student's senior year. The thesis advisor and a second reader selected from the Geography Faculty will together determine if the quality of the thesis is sufficient for honors, and at what level.

## Minor in Geography

The curriculum for the minor in Geography requires 22 credits.

Required Courses include GEOG 101, 102, 105L.

Electives: 15 additional hours of Geography course work.

Distributed minor not available.

## Minor in Law, Environment and Geography

The curriculum for the minor in Law, Environment and Geography requires 22 credits of course work.

Required Courses include: GEOG 101, 102, 105L and 364.

Four electives chosen from: 195, 350, 360, 365, 461, 462, 463, 464

## Minor in Geographic Information Science (GIScience)

The curriculum for the minor in GIScience requires 19 credits of course work.

Required Courses include: GEOG 281 and 381L

Four electives chosen from the Geographic Information Science Group: 480L, 482L, 483L, 484L, 485L, 486L, 487L, 488L

## Group Requirements

GEOG 101/105L is accepted as a laboratory science in fulfillment of the Physical and Natural Sciences (Group III) requirement of the College of Arts and Sciences. The following are accepted in fulfillment of the Physical and Natural Sciences (Group III) requirement of the College of Arts and Sciences: 251, 350, 352. Other geography courses are accepted toward fulfillment of the Social and Behavioral Sciences (Group IV) requirements.

## Courses

### **GEOG 101. Physical Geography. (3)**

World geography; physical elements. Use of maps and globes for a systematic analysis of world climates, vegetation, soils and landforms and their distribution, interrelation and significance to humans.

Corequisite: 105L

### **GEOG 102. Human Geography. (3)**

World geography; human elements. A systematic analysis of world population, demographic factors, ethnic groups, predominant economies and political units and their distribution, interrelation and interaction with the physical earth.

### **GEOG 105L. Physical Geography Laboratory. (1)**

Exercises designed to complement 101. Applied problems in the spatial processes of the physical environment. Map construction and reading, weather and climatic analysis,

classification of vegetative and soil associations, landform distribution analysis. Two hours lab.

Pre- or corequisite: 101

### **GEOG 140. World Regional Geography. (3)**

The regional geography of the world. Both physical and human aspects are studied along with current economic and political problems.

### **GEOG 195. Humans Role in Changing the Face of the Earth. (3)**

Survey of environmental issues related to the degradation of land, air and water resources.

### **GEOG 251. Meteorology. (3)**

(Also offered as EPS 251)

Description of weather phenomena, principles of atmospheric motion, weather map analysis and weather prediction.

### **GEOG 281. Introduction to Maps and Geospatial Information.**

(3)

Maps are tools for communication. Will explore scale; projections; symbolization; generalization; alternative or non-tradition map representations provided by GIS, remote sensing, multimedia and animated maps.

**GEOG 302. Regional Geography. (3 to a maximum of 6 Δ)**

Geography of a selected region of the globe with foci on the national, economic, and social environments that are reflected in settlement systems. Includes analyses of current environmental and cultural issues.

**GEOG 350. Physical Landscapes. (3)**

This course examines the biophysical processes that produce distinctive landscapes in polar, temperate, tropical, and alpine environments, by analyzing interactions between climate, vegetation, soils, landforms, geology, and human activities. Prerequisites: 101 and 105L

**GEOG 352. Global Climate Change. (3)**

(Also offered as EPS 352)

Comparison of natural and anthropogenic causes of large-scale climate change. Factors influencing development of mitigation of adaptation policies.

**GEOG \*\*360. Land Use Management. (3)**

Exercise of legal and political power over land and other resources. Resolution of conflicts between competing land users.

**GEOG 363. Economic Geography. (3)**

A systematic analysis of spatial economic patterns. Introduction to models of economic space and theories of spatial economic interaction. Analysis of effects of resource attributes and distributions upon economic activities. Examination of cultural-economic regions.

**GEOG 364. Law and Geography. (3)**

This class examines the relationships between law and geography, interrogating how law shapes the human experience of place, and the ways that a variety of spatial categories inform the law.

**GEOG 365. Nature and Society. (3)**

This course explores the human dimensions of geographical challenges through the traditions, actions and social organization of contemporary western and global/international human systems.

**GEOG 366. Energy, Environment and Society. (3)**

A look at the social, ethical, and environmental impacts of energy use both now and through history. A survey of renewable energy and conservation and their impact on environmental and social systems.

**GEOG \*\*381L. Introduction to Geographic Information Systems. (4)**

The study of spatial data, spatial processes and an introduction

to the computer tools necessary to analyze spatial representations of the real world. Exercises in data acquisition, preprocessing, map analysis and map output. Fees required. Three hours lecture, 2 hours lab.

**GEOG \*445. Geography of New Mexico and the Southwest. (3)**

This course introduces the physical and cultural geography of the Southwest, focusing on human-environment interactions in New Mexico. Students will conduct independent research in conjunction with local fieldwork activities.

**GEOG 461 / 561. Environmental Management. (3)**

Examination of critical issues of environmental degradation in global and local system related to: air and water pollution, soil erosion, deforestation, strip mining, over dependence on fossil fuels and improper management of toxic and other wastes. Appraisal of the conservation methods and policies applied to these issues and the outlook for the future.

**GEOG 462 / 562. Water Resources Management. (3)**

An examination of the problems and trends in the use of water resources in the United States, with emphasis on the physical and social aspects related to its management.

**GEOG 463 / 563. Public Land Management. (3)**

Defining public and private rights associated with managing natural resources is the key to many of the current controversies concerning the environment. This course looks at public land policy and policy related to other common property resources such as water, the oceans, and the coastal zone.

**GEOG 464 / 564. Food and Natural Resources. (3)**

Students gain an advanced introduction to the social and environmental effects of individual food choices, through the analysis of the sociocultural and biophysical relationships embedded in various agricultural and food production systems.

**GEOG 466 / 566. The City as Human Environment. (3)**

This class examines the vectors of difference - cultural, economic, political, legal and environmental - that animate urban form and life, with an emphasis on the trans-border Southwest.

**GEOG 467 / 567. Governing The Global Environment. (3)**

The role of international governmental and nongovernmental organizations in environmental politics and the process of their formation and change in response to environmental problems.

**GEOG 471. Applied Geography Seminar. (3)**

Applications of environmental analysis and geographic information technologies to a selected geographic problem. Field trips required. Recommended during the last semester for majors.

**GEOG 480L / 580L. Quantitative Methods in Geography. (3)**

Introduces fundamental statistical and quantitative modeling techniques widely used in geography. Emphasizes geographic examples and spatial problems. Includes a lab component that

covers the use of statistical software in geographic analysis. Fee required.

**GEOG \*481L. Map Design and Geovisualization. (4)**  
Thematic mapping of qualitative and quantitative data, including graphic design theory and appropriate statistical and representational treatment of geospatial data. Prerequisite 281. Fees required. Two hours lecture, four hours lab.

**GEOG 482L / 582L. Positioning Systems. (3)**

Introduces a range of positioning techniques, including surveying, Global Positioning Systems and others and their real-world utilization in a range of applications. Includes a lab component that covers the use of various types of equipment, software and applications. Fee required.

Prerequisite: 381L

**GEOG 483L / 583L. Remote Sensing Fundamentals. (3)**

Introduces the concepts of remote sensing of the Earth, sensors and photographic systems used, and the basic processing and analysis required to bring the imagery into GIS. Includes a lab component. Fee required.

Prerequisite: 381L

**GEOG 484L / 584L. Applications of Remote Sensing. (3)**

Explores the utilization of remote sensing imagery through advanced processing and analysis. Covers the integration of imagery into specific research areas, including biological, geological, urban and hydrological analysis. Includes a lab component. Fee required.

Prerequisite: 483L

**GEOG 485L / 585L. Internet Mapping. (3)**

Current and emerging approaches to internet mapping, including geospatial interoperability standards, technologies, and capabilities. Includes a lab component that covers the use of various types of software and applications. Fee required.

Prerequisite: 381L

**GEOG 486L / 586L. Applications of GIS. (3)**

Selected applications of Geographic Information Systems, including anthropology, business, crime, ecology, engineering, health, planning, water resources and others. Covers analytical techniques specific to selected applications. Fee required.

Prerequisite: 381L

**GEOG 487L / 587L. Spatial Analysis and Modeling. (3)**

Spatial analysis and modeling techniques using Geographic Information Systems. Includes a lab component that covers the use of GIS and other software to carry out analysis projects. Fee required.

Prerequisite: 381L

**GEOG 488L / 588L. GIS Concepts and Techniques. (3)**

Selected advanced concepts and techniques in Geographic Information Systems. Includes a lab component that provides students with the opportunity to apply concepts and techniques in a hands-on manner. Fee required.

Prerequisite: 381L

**GEOG 491 / 591. Problems. (1-3 to a maximum of 3 Δ)**

Supervised individual study and field work. Must be taken for 6 credit hours in the Honors program.

**GEOG 493 / 593. Internship in Applied Geography. (1-3 to a maximum of 3 Δ)**

Written field analysis of a project coordinated between student, faculty and public or private manager. Credits to be determined by supervising faculty.

**GEOG \*499. Topics in Geography. (1-3 to a maximum of 6 Δ)**

Specific topics in geography which relate contemporary issues to the discipline. Topics will be noted in the appropriate schedule of classes. Credit can be applied by majors to the appropriate department group requirements for the degree.

**GEOG 501. Geographic History and Methods. (3)**

Examines, evaluates, and criticizes the methods geographers have used to analyze the reciprocal relationship between humankind and the environment.

**GEOG 502. Approaches to Geographical Research. (3)**

This seminar examines recent scholarship on human-environment interaction, focusing on both theory and method. Students are required to complete a literature review and thesis proposal.

**GEOG 514. Natural Resources Management Seminar. (3)**

This course explores the interdisciplinary nature of natural resource challenges. Topics will vary each semester. Field trips will be included to investigate issues relevant to the class.

**GEOG 515. Cultural and Political Ecology. (3)**

This seminar examines case studies and recent geographical scholarship in cultural and political ecology, focusing on its relevance for resource managers and institutions.

**GEOG 516. Seminar: Globalization. (3)**

This seminar examines the political, cultural, and economic facets of globalization, focusing on contemporary theories of neoliberalism and post-colonialism.

**GEOG 517. Legal Geography. (3)**

This class provides an overview of the legal system, the ways law is spatially manifested, and the spatial vectors that animate the law.

**GEOG 525. Seminar in Geographic Information Science. (3)**

Examination of current trends in Geographic Information Science, including technical, social, institutional and legal issues. Restriction: permission of instructor

**GEOG 561 / 461. Environmental Management. (3)**

Examination of critical issues of environmental degradation in global and local system related to: air and water pollution, soil erosion, deforestation, strip mining, over dependence on fossil

fuels and improper management of toxic and other wastes. Appraisal of the conservation methods and policies applied to these issues and the outlook for the future.

**GEOG 562 / 462. Water Resources Management. (3)**

An examination of the problems and trends in the use of water resources in the United States, with emphasis on the physical and social aspects related to its management.

**GEOG 563 / 463. Public Land Management. (3)**

Defining public and private rights associated with managing natural resources is the key to many of the current controversies concerning the environment. This course looks at public land policy and policy related to other common property resources such as water, the oceans, and the coastal zone.

**GEOG 564 / 464. Food and Natural Resources. (3)**

Students gain an advanced introduction to the social and environmental effects of individual food choices, through the analysis of the sociocultural and biophysical relationships embedded in various agricultural and food production systems.

**GEOG 566 / 466. The City as Human Environment. (3)**

This class examines the vectors of difference - cultural, economic, political, legal and environmental - that animate urban form and life, with an emphasis on the trans-border Southwest.

**GEOG 567 / 467. Governing The Global Environment. (3)**

The role of international governmental and nongovernmental organizations in environmental politics and the process of their formation and change in response to environmental problems.

**GEOG 580L / 480L. Quantitative Methods in Geography. (3)**

Introduces fundamental statistical and quantitative modeling techniques widely used in geography. Emphasizes geographic examples and spatial problems. Includes a lab component that covers the use of statistical software in geographic analysis. Fee required.

**GEOG 581L. Fundamentals of GIS. (3)**

Introduces the concepts underlying Geographic Information Systems and its utilization for the input, storage, manipulation, query, display, and analysis of geographical data. Includes a lab component that covers the range of analytical techniques available in current software. Fee required.

**GEOG 582L / 482L. Positioning Systems. (3)**

Introduces a range of positioning techniques, including surveying, Global Positioning Systems and others and their real-world utilization in a range of applications. Includes a lab component that covers the use of various types of equipment, software and applications. Fee required.  
Prerequisite: 381L or 581L

**GEOG 583L / 483L. Remote Sensing Fundamentals. (3)**

Introduces the concepts of remote sensing of the Earth, sensors and photographic systems used, and the basic processing and

analysis required to bring the imagery into GIS. Includes a lab component. Fee required.

Prerequisite: 381L or 581L

**GEOG 584L / 484L. Applications of Remote Sensing. (3)**

Explores the utilization of remote sensing imagery through advanced processing and analysis. Covers the integration of imagery into specific research areas, including biological, geological, urban and hydrological analysis. Includes a lab component. Fee required.

Prerequisite: GEOG 483L or GEOG 583L

**GEOG 585L / 485L. Internet Mapping. (3)**

Current and emerging approaches to internet mapping, including geospatial interoperability standards, technologies, and capabilities. Includes a lab component that covers the use of various types of software and applications. Fee required.

Prerequisite: 381L or 581L

**GEOG 586L / 486L. Applications of GIS. (3)**

Selected applications of Geographic Information Systems, including anthropology, business, crime, ecology, engineering, health, planning, water resources and others. Covers analytical techniques specific to selected applications. Fee required.

Prerequisite: 381L or 581L

**GEOG 587L / 487L. Spatial Analysis and Modeling. (3)**

Spatial analysis and modeling techniques using Geographic Information Systems. Includes a lab component that covers the use of GIS and other software to carry out analysis projects. Fee required.

Prerequisite: 381L or 581L

**GEOG 588L / 488L. GIS Concepts and Techniques. (3)**

Selected advanced concepts and techniques in Geographic Information Systems. Includes a lab component that provides students with the opportunity to apply concepts and techniques in a hands-on manner. Fee required.

Prerequisite: 381L or 581L

**GEOG 591 / 491. Problems. (1-3 to a maximum of 3 Δ)**

Supervised individual study and field work.

**GEOG 593 / 493. Internship in Applied Geography. (1-3 to a maximum of 3 Δ)**

Written field analysis of a project coordinated between student, faculty and public or private manager. Credits to be determined by supervising faculty.

**GEOG 599. Master's Thesis. (1-6, no limit Δ)**

Offered on a CR/NC basis only.