

Institution Submitting Request: *University of Utah*

Proposed Title: *Emphases in Geography*

Currently Approved Title: *N/A*

School or Division or Location: *College of Social and Behavioral Sciences*

Department(s) or Area(s) Location: *Department of Geography*

Recommended Classification of Instructional Programs (CIP) Code (for new programs):

Current Classification of Instructional Programs (CIP) Code (for existing programs): 45.0702

Proposed Beginning Date (for new programs):

Institutional Board of Trustees' Approval Date:

Proposal Type (check all that apply):

Regents' General Consent Calendar Items		
<i>R401-5 OCHE Review and Recommendation; Approval on General Consent Calendar</i>		
SECTION NO.		ITEM
5.1.1	<input type="checkbox"/>	Minor*
5.1.2	<input checked="" type="checkbox"/>	Emphasis*
5.2.1	<input type="checkbox"/>	Certificate of Proficiency*
5.2.3	<input type="checkbox"/>	Graduate Certificate*
5.4.1	<input type="checkbox"/>	New Administrative Unit
	<input type="checkbox"/>	Administrative Unit Transfer
	<input type="checkbox"/>	Administrative Unit Restructure
	<input type="checkbox"/>	Administrative Unit Consolidation
5.4.2	<input type="checkbox"/>	New Center
	<input type="checkbox"/>	New Institute
	<input type="checkbox"/>	New Bureau
5.5.1	<input type="checkbox"/>	Out-of-Service Area Delivery of Programs
5.5.2	<input type="checkbox"/>	Program Transfer
	<input type="checkbox"/>	Program Restructure
	<input type="checkbox"/>	Program Consolidation
5.5.3	<input type="checkbox"/>	Name Change of Existing Programs
5.5.4	<input type="checkbox"/>	Program Discontinuation
	<input type="checkbox"/>	Program Suspension
5.5.5	<input type="checkbox"/>	Reinstatement of Previously Suspended Program
	<input type="checkbox"/>	Reinstatement of Previously Suspended Administrative Unit

**Requires "Section V: Program Curriculum" of Abbreviated Template*

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Signature

Date:

Department of Geography
BA/BS Geography Emphases

Section I: Request

The Department of Geography in the College of Social and Behavioral Science at the University of Utah requests permission to establish eight emphasis areas within the Geography BA/BS degree program. This action will reside completely within the Department of Geography. Existing courses are the basis for these emphases. The intent is to provide our students with marketable specializations within the field of geography, and to give students a clear track to complete those specializations. Completion of an emphasis will have no impact on the number of credit hours required for the degree. All tenured and tenure-track faculty were given the opportunity to vote on the adoption of the BA/BS emphases at a faculty meeting held on October 3, 2014, and unanimously approved the program.

Section II: Need

Undergraduate students' impression of the field of geography is largely limited to geography trivia learned in grade school. In reality, geography is a diverse field of study dealing with the environment, human societies, and the interaction between them. The creation of these emphases will draw students' attention to specializations within geography, provide focused instruction using courses already offered in the Department of Geography, and highlight career opportunities associated with each emphasis. The Department of Labor estimates that employment for Geographers will increase 29% across the United States and 105% in Utah by the year 2022. Refinement of the BA/BS degree program by emphases will allow students to better prepare for these opportunities.

Section III: Institutional Impact

No capital improvements, faculty or course changes are necessary. It is expected that minimal administrative changes in advising of students will result from the addition of emphases. The emphases should compel undergraduate students to select Geography as a major earlier in their time at the University of Utah, and will potentially increase the number of majors. Providing tracks for undergraduate students through the emphases will reduce the need for direct advising, which should offset potential increases in the number of students advised.

Section IV: Finances

No new costs will be incurred by these changes. Tracking of emphasis completion will be done automatically by the DARS.

Section V: Program Curriculum

The current geography major requires 14 GEOG courses with 9 required courses and 5 elective courses (one of which must be at the 5000-5999 level). In addition, all geography majors must complete 12 hours of courses in approved* allied areas outside of geography. This proposal does not change the existing requirements for the Geography major but instead provides for eight optional areas of focus within the GEOG elective hours. Geography majors may complete the major without selecting an emphasis.

The Department of Geography will create eight emphasis areas. These areas are:

Climate change

Recent and future changes in the Earth's climate represent one of the great challenges for modern society. Greenhouse gas-induced warming has critical environmental, societal, and economic impacts. Courses in this emphasis cover the components of the climate system from small to large scales, how climate changes over long and short time scales, and how the projected future climate will impact physical, natural and social systems. This emphasis is designed to provide the necessary context to critically analyze and discuss the issues facing students as they prepare for climate change during their lifetimes, as well as potential solutions.

Ecology & Biogeography

Ecology deals with the relationships of plants and animals with each other and their environment and Biogeography studies where plants and animals occur on the Earth, and what controls their distributions, including climate, disturbances and interactions between organisms. This emphasis explores how variations in these controls (past, present and future) affect where plants and animals can live, and their ability to move across space. Many courses include hands-on opportunities to learn how data in this field are collected and analyzed, providing students useful field and lab skills.

Geographic Information Science

This emphasis combines theories of how geographic information is used to represent real-world phenomena with methods for applying this information to 21st century social-environmental problems. Geotechnology is a rapidly advancing field that has been placed alongside biotech and nanotech as one of the fastest growing employment areas in the coming decades.

Geomorphology & Hydrology

This emphasis focuses on the evolution of landscapes and on the hydrologic cycle, especially in the context of climate variability. Landscapes are analyzed across a broad range of scales, from outcrops to images acquired from satellites or aircraft. Courses within this emphasis combine lab and fieldwork with classroom instruction.

Global Development, Population, & Sustainability

This emphasis focuses on using geographical perspectives to understand issues related to global development, population health and transitions, and the sustainability of human-environment systems. This emphasis would be especially valuable for students interested in working for public or private employers in areas related with population wellbeing, the environment, and globalization or who intend to pursue further study in population health, environment change, and globalization.

Hazards, Resources, & Human Security

The focus of this emphasis is the uncertain future that rapidly growing populations face in areas with environmental hazards, diminishing resources, and political, socio-cultural, and economic conflict. Geographic education in this area focuses on understanding the complex interactions, environmental variation, and dynamic processes that shape risk and associated extreme events (e.g. drought, flooding, war, terrorist acts) with the goal of improving disaster resilience through action in mitigation, preparedness, response, and recovery.

Remote Sensing of the Environment

Remote sensing relies on measurements of electromagnetic radiation to monitor the Earth and its

environmental systems. Our current understanding of these environmental systems depends on spatial and temporal data collected by sensors on satellites and aircraft. This emphasis allows students to get in-depth, valuable knowledge on how remote sensing data are collected, processed, and used for a multitude of applications. Remote sensing skills are increasingly sought after in a variety of disciplines, and by many employers in environmental and intelligence fields.

Urban Systems, Location, & Resilience

This emphasis focuses on the spatial organization of human activities within cities as well as the connections between cities. Geographic education promotes the understanding of processes and forces that affect dynamic changes within urban areas, including economic development, industrial location, migration and urbanization, neighborhood change, and planning process, to help with human decision making, planning and policy to make cities livable and resilient.

Course requirements for each emphasis are listed in the following tables. The requirements for the Geography BA/BS are also listed, since taking courses required for an emphasis in some cases also satisfies a Geography BA/BS requirement.

*Allied Credit Requirement: 12 credit hours of allied coursework are also required for each emphasis. These can be taken in any of the following departments: Atmospheric Sciences; Biology; City and Metropolitan Planning; Civil and Environmental Engineering; Computer Science; Geology; Parks, Recreation and Tourism; Philosophy; or any department in the College of Social and Behavioral Science (Aerospace Studies; Anthropology; Economics; Environmental and Sustainability Studies; Ethnic Studies; Family and Consumer Studies; Gender Studies; Health, Society and Policy; Military Science; Naval Science; Political Science; Psychology; Sociology)

Climate Change Emphasis

Course Prefix and Number	Title	Credit Hours
Geography Required Courses		
GEOG 1000	Earth Environments and Global Change	3
GEOG 1010	Introduction to Geographic Data	1
GEOG 1400	Human Geography	3
GEOG 3020	Geographical Analysis	4
GEOG 3040	Principles of Cartography	4
GEOG 3140	Introduction to Geographic Information Systems (GIS)	4
Sub-Total		19
Geography Required Course – select one of the following upper division human geography courses:		
GEOG 3090 or 5090	Introduction to Medical Geography	3
GEOG 3350	Resource Conservation and Environmental Management	3
GEOG 3375 or 5375	Sustainable Transportation	3
GEOG 3420	Political Geography	3
GEOG 3440 or 5440	Global Economic Geography	3
GEOG 3480 or 5480	Urban Geography	3
GEOG 3620	Geography of North America	3
Sub-Total		3
Geography Elective Course – select an upper division geography course of your choice		
GEOG #####		3-4
Sub-Total		3-4
Emphasis Required Courses		
GEOG 3270	Biogeography: Global Patterns of Life	4
GEOG 3200	Geomorphology: Mountains, Rivers, Deserts	4
GEOG 3205	Regional and Global Climates	3
Sub-Total		11
Emphasis Elective Courses – select three from the following list of elective courses:		
GEOG 5210	Global Climate Change	3
GEOG 5215	Climate Change and Its Impacts	3
GEOG 5220	Climate Management Issues	3
GEOG 5368	Energy Choices for the 21 st Century	3
Sub-Total		9
Total Number of Credits		45-46

Ecology & Biogeography Emphasis

Course Prefix and Number	Title	Credit Hours
Geography Required Courses		
GEOG 1000	Earth Environments and Global Change	3
GEOG 1010	Introduction to Geographic Data	1
GEOG 1400	Human Geography	3
GEOG 3020	Geographical Analysis	4
GEOG 3040	Principles of Cartography	4
GEOG 3140	Introduction to Geographic Information Systems (GIS)	4
Sub-Total		19
Geography Required Course – select one of the following upper division human geography courses:		
GEOG 3090 or 5090	Introduction to Medical Geography	3
GEOG 3350	Resource Conservation and Environmental Management	3
GEOG 3375 or 5375	Sustainable Transportation	3
GEOG 3420	Political Geography	3
GEOG 3440 or 5440	Global Economic Geography	3
GEOG 3480 or 5480	Urban Geography	3
GEOG 3620	Geography of North America	3
Sub-Total		3
Geography Elective Course – select an upper division geography course of your choice		
GEOG #####		3-4
Sub-Total		3-4
Emphasis Required Courses		
GEOG 3270	Biogeography: Global Patterns of Life	4
GEOG 3200	Geomorphology: Mountains, Rivers, Deserts	4
GEOG 3205	Regional and Global Climates	3
Sub-Total		11
Emphasis Elective Courses – select three from the following list of elective courses:		
GEOG 5230	Pyrogeography: Fire, Humans, and the Environment	3
GEOG 5275	Vegetation and Climate Change	3
GEOG 5280	Quaternary Environments: Deep History of the Desert Southwest	3
GEOG 5420	Pollen Analysis	3
GEOG 5712	Paleoenvironmental Field Methods for Geographers	3
Sub-Total		9
Total Number of Credits		45-46

Geomorphology & Hydrology Emphasis (with New Course in Bold)

Course Prefix and Number	Title	Credit Hours
Geography Required Courses		
GEOG 1000	Earth Environments and Global Change	3
GEOG 1010	Introduction to Geographic Data	1
GEOG 1400	Human Geography	3
GEOG 3020	Geographical Analysis	4
GEOG 3040	Principles of Cartography	4
GEOG 3140	Introduction to Geographic Information Systems (GIS)	4
Sub-Total		19
Geography Required Course – select one of the following upper division human geography courses:		
GEOG 3090 or 5090	Introduction to Medical Geography	3
GEOG 3350	Resource Conservation and Environmental Management	3
GEOG 3375 or 5375	Sustainable Transportation	3
GEOG 3420	Political Geography	3
GEOG 3440 or 5440	Global Economic Geography	3
GEOG 3480 or 5480	Urban Geography	3
GEOG 3620	Geography of North America	3
Sub-Total		3
Geography Elective Course – select an upper division geography course of your choice		
GEOG XXXX		3-4
Sub-Total		3-4
Emphasis Required Courses		
GEOG 3270	Biogeography: Global Patterns of Life	4
GEOG 3200	Geomorphology: Mountains, Rivers, Deserts	4
GEOG 3205	Regional and Global Climates	3
Sub-Total		11
Emphasis Elective Courses – select three from the following list of elective courses:		
GEOG 3000	Geo-Excursions in Utah	4
GEOG 5290	Water in Utah	3
GEOG 5810	Field Seminar	4
GEOG 5###	Advanced Geomorphology	4
Sub-Total		11-12
Total Number of Credits		47-49

Geographic Information Systems Emphasis

Course Prefix and Number	Title	Credit Hours
Geography Required Courses		
GEOG 1000	Earth Environments and Global Change	3
GEOG 1010	Introduction to Geographic Data	1
GEOG 1400	Human Geography	3
GEOG 3020	Geographical Analysis	4
GEOG 3040	Principles of Cartography	4
GEOG 3140	Introduction to Geographic Information Systems (GIS)	4
Sub-Total		19
Geography Required Course – select one of the following upper division physical geography courses:		
GEOG 3200 or 5200	Geomorphology: Mountains, Rivers, Deserts	4
GEOG 3205 or 5205	Regional and Global Climates	3
GEOG 3210 or 5210	Global Climate Change	3
GEOG 3215 or 5215	Climate Change and Its Impacts	3
GEOG 3290 or 5290	Water in Utah	3
GEOG 3292 or 5292	Snow and Ice	3
GEOG 3310	Introduction to Natural Hazards	3
Sub-Total		3-4
Geography Required Course – select one of the following upper division human geography courses:		
GEOG 3090 or 5090	Introduction to Medical Geography	3
GEOG 3350	Resource Conservation and Environmental Management	3
GEOG 3420	Political Geography	3
GEOG 3440 or 5440	Global Economic Geography	3
GEOG 3480 or 5480	Urban Geography	3
GEOG 3620	Geography of North America	3
Sub-Total		3
Geography Required Course – select one of the following upper division communication/writing geography courses:		
GEOG 3270 or 5270	Biogeography: Global Patterns of Life	4
GEOG 3400 or 5400	Population Geography	4
Sub-Total		4
Emphasis Required Courses		
GEOG 1180	Introduction to Geo-Programming	3
GEOG 3170	Satellites, Lasers and Compasses: Field Methods for Geographic Data	3
GEOG 5140	Methods in Geographic Information Systems	4
GEOG 5150	Spatial Data Design for GIS	4
GEOG 5161	Capstone in Geographic Information Science	3
Sub-Total		17
Emphasis Elective Courses – select one from the following list of GIS courses:		
GEOG 5160	Spatial Modeling with GIS	4
GEOG 5165	Web GIS	3

Course Prefix and Number	Title	Credit Hours
GEOG 5180	Geo-processing with Python	3
GEOG 5190	GIS for Environmental and Public Health	3
	Sub-Total	3-4
	Total Number of Credits	49-51

Global Development, Population & Sustainability Emphasis

Course Prefix and Number	Title	Credit Hours
Geography Required Courses		
GEOG 1000	Earth Environments and Global Change	3
GEOG 1010	Introduction to Geographic Data	1
GEOG 1400	Human Geography	3
GEOG 3020	Geographical Analysis	4
GEOG 3040	Principles of Cartography	4
GEOG 3140	Introduction to Geographic Information Systems (GIS)	4
GEOG 3400 or 5400	Population Geography	4
Sub-Total		23
Geography Required Course – select one of the following upper division physical geography courses:		
GEOG 3200 or 5200	Geomorphology: Mountains, Rivers, Deserts	4
GEOG 3205 or 5205	Regional and Global Climates	3
GEOG 3210 or 5210	Global Climate Change	3
GEOG 3215 or 5215	Climate Change and Its Impacts	3
GEOG 3290 or 5290	Water in Utah	3
GEOG 3292 or 5292	Snow and Ice	3
GEOG 3310	Introduction to Natural Hazards	3
Sub-Total		3-4
Geography Elective Course – select an upper division geography course of your choice		
GEOG XXXX		3-4
Sub-Total		3-4
Emphasis Required Courses – select four courses from the following, at least one course must be at the 5000 level:		
GEOG 3090 or 5090	Introduction to Medical Geography	3
GEOG 3385 or 5385	Environmental Assessment and Impact Analysis	3
GEOG 3420	Political Geography	3
GEOG 3440 or 5440	Global Economic Geography	3
GEOG 5520	Economic Geography, Industrial Location, and Regional Development	3
Sub-Total		12
Emphasis Elective Courses – select one from the following list of geography regional courses:		
GEOG 1300	World Regional Geography	3
GEOG 3630	Geography of Europe	3
GEOG 3640	Geography of China and Asia	3
GEOG 3650	Geography of the Middle East	3
GEOG 3670	Geography of Latin America	3
Sub-Total		3
Total Number of Credits		44-46

Hazards, Resources, & Human Security Emphasis

Course Prefix and Number	Title	Credit Hours
Geography Required Courses		
GEOG 1000	Earth Environments and Global Change	3
GEOG 1010	Introduction to Geographic Data	1
GEOG 1400	Human Geography	3
GEOG 3020	Geographical Analysis	4
GEOG 3040	Principles of Cartography	4
GEOG 3140	Introduction to Geographic Information Systems (GIS)	4
GEOG 3400 or 5400	Population Geography	4
Sub-Total		23
Geography Required Course – select one of the following upper division physical geography courses:		
GEOG 3200 or 5200	Geomorphology: Mountains, Rivers, Deserts	4
GEOG 3205 or 5205	Regional and Global Climates	3
GEOG 3210 or 5210	Global Climate Change	3
GEOG 3215 or 5215	Climate Change and Its Impacts	3
GEOG 3290 or 5290	Water in Utah	3
GEOG 3292 or 5292	Snow and Ice	3
GEOG 3310	Introduction to Natural Hazards	3
Sub-Total		3-4
Geography Elective Course – select an upper division geography course of your choice		
GEOG XXXX		3-4
Sub-Total		3-4
Emphasis Required Courses – select four courses from the following, at least one course must be at the 5000 level:		
GEOG 3320 or 5320	Geography of Terrorism and Homeland Security	3
GEOG 3340 or 5340	Geography of Disasters and Emergency Management	3
GEOG 3350	Resource Conservation and Environmental Management	3
GEOG 3370 or 5370	Utah's Energy Landscape	3
GEOG 3380 or 5380	Wilderness Issues and Management	3
GEOG 3460	Military Geography	3
Sub-Total		12
Emphasis Elective Courses – select one from the following list of geography regional courses:		
GEOG 1300	World Regional Geography	3
GEOG 3630	Geography of Europe	3
GEOG 3640	Geography of China and Asia	3
GEOG 3650	Geography of the Middle East	3
GEOG 3670	Geography of Latin America	3
Sub-Total		3
Total Number of Credits		44-46

Remote Sensing of the Environment Emphasis

Course Prefix and Number	Title	Credit Hours
Geography Required Courses		
GEOG 1000	Earth Environments and Global Change	3
GEOG 1010	Introduction to Geographic Data	1
GEOG 1400	Human Geography	3
GEOG 3020	Geographical Analysis	4
GEOG 3040	Principles of Cartography	4
GEOG 3140	Introduction to Geographic Information Systems (GIS)	4
Sub-Total		19
Geography Required Course – select one of the following upper division physical geography courses:		
GEOG 3200 or 5200	Geomorphology: Mountains, Rivers, Deserts	4
GEOG 3205 or 5205	Regional and Global Climates	3
GEOG 3210 or 5210	Global Climate Change	3
GEOG 3215 or 5215	Climate Change and Its Impacts	3
GEOG 3290 or 5290	Water in Utah	3
GEOG 3292 or 5292	Snow and Ice	3
GEOG 3310	Introduction to Natural Hazards	3
Sub-Total		3-4
Geography Required Course – select one of the following upper division human geography courses:		
GEOG 3090 or 5090	Introduction to Medical Geography	3
GEOG 3350	Resource Conservation and Environmental Management	3
GEOG 3420	Political Geography	3
GEOG 3440 or 5440	Global Economic Geography	3
GEOG 3480 or 5480	Urban Geography	3
GEOG 3620	Geography of North America	3
Sub-Total		3
Geography Required Course – select one of the following upper division communication/writing geography courses:		
GEOG 3270 or 5270	Biogeography: Global Patterns of Life	4
GEOG 3400 or 5400	Population Geography	4
Sub-Total		4
Emphasis Required Courses		
GEOG 3110	The Earth from Space: Remote Sensing of the Environment	3
GEOG 5110	Environmental Analysis Through Remote Sensing	3
GEOG 5120	Environmental Optics	3
GEOG 5130	Advanced Remote Sensing Applications	3
GEOG 5131	Capstone in Remote Sensing	3
Sub-Total		15
Total Number of Credits		44-45

Urban Systems, Location, & Resilience Emphasis

Course Prefix and Number	Title	Credit Hours
Geography Required Courses		
GEOG 1000	Earth Environments and Global Change	3
GEOG 1010	Introduction to Geographic Data	1
GEOG 1400	Human Geography	3
GEOG 3020	Geographical Analysis	4
GEOG 3040	Principles of Cartography	4
GEOG 3140	Introduction to Geographic Information Systems (GIS)	4
GEOG 3400 or 5400	Population Geography	4
Sub-Total		23
Geography Required Course – select one of the following upper division physical geography courses:		
GEOG 3200 or 5200	Geomorphology: Mountains, Rivers, Deserts	4
GEOG 3205 or 5205	Regional and Global Climates	3
GEOG 3210 or 5210	Global Climate Change	3
GEOG 3215 or 5215	Climate Change and Its Impacts	3
GEOG 3290 or 5290	Water in Utah	3
GEOG 3292 or 5292	Snow and Ice	3
GEOG 3310	Introduction to Natural Hazards	3
Sub-Total		3-4
Geography Elective Course – select an upper division geography course of your choice		
GEOG XXXX		3-4
Sub-Total		3-4
Emphasis Required Courses – select four courses from the following, at least one course must be at the 5000 level:		
GEOG 3330	Urban Environmental Geography	3
GEOG 3368 or 5368	Energy Choices for the 21 st Century	3
GEOG 3480 or 5480	Urban Geography	3
GEOG 3610	World Cities	3
GEOG 5190	GIS for Environmental and Public Health	3
GEOG 5510	Urban Geography: Cities, Regions, and Globalization	3
Sub-Total		12
Emphasis Elective Courses – select one from the following list of geography regional courses:		
GEOG 1300	World Regional Geography	3
GEOG 3630	Geography of Europe	3
GEOG 3640	Geography of China and Asia	3
GEOG 3650	Geography of the Middle East	3
GEOG 3670	Geography of Latin America	3
Sub-Total		3
Total Number of Credits		44-46

Ann Darling, Ph.D.
Associate Dean
Undergraduate Studies
Sill Center, UofU Campus

Dear Ann:

The College of Social and Behavioral Science (CSBS) is pleased to support the two curriculum proposals from the Department of Geography. These proposals have been approved by the Department of Geography and the CSBS Curriculum Committee.

The first document proposes the creation of eight emphases in geography. The designation of emphases will draw students' attention to one of these focused areas of study earlier in their academic careers. In turn, this will hopefully improve the college's 6-year graduation rate. Students pursuing one of these emphases will also be better prepared to compete for job in the growing field of geography.

The second document proposes a combined BS in Geography with a Master's degree in Geographic Information Science (MSGIS). Approval of this combined degree would allow the more highly qualified undergraduates majoring in Geography to complete both their BS and MSGIS degrees five years rather than the more typical six years. Jobs that require successful candidates to have GIS skills are forecast to grow by 29% between 2012 and 2022. Thus, approval of this combined BS/MSGIS degree program would help the University of Utah's graduates to compete in that job market.

Neither proposal involves additions, deletions, or modifications to the Geography Department's existing courses. The combined BS/MSGIS proposal does request a \$100/semester program fee for students at the time their combined credit hours exceed 122. This program fee is designed to defray the marginal costs associated with the administration this new joint program.

In sum, these two proposals are designed to meet students' needs for career-oriented curricula and to facilitate students' completion of their degrees in a timely fashion. As such, the College is pleased to support both proposals.

Sincerely,



Cathleen D. Zick, Ph.D.
Associate Dean