Fiscal Unit/Academic Org	Geography - D0733
Administering College/Academic Group	Arts and Sciences
Co-adminstering College/Academic Group	
Semester Conversion Designation	New Program/Plan
Proposed Program/Plan Name	Geographic Information Science
Type of Program/Plan	Undergraduate minor
Program/Plan Code Abbreviation	
Proposed Degree Title	Minor in GIScience

Credit Hour Explanation

Program credit hour requirements		A) Number of credit hours in current program (Quarter credit hours)	B) Calculated result for 2/3rds of current (Semester credit hours)	C) Number of credit hours required for proposed program (Semester credit hours)	D) Change in credit hours
Total minimum credit hours required for completion of program				15	
Required credit hours offered by the unit	Minimum			15	
	Maximum			15	
Required credit hours offered outside of the unit	Minimum			0	
	Maximum			0	
Required prerequisite credit hours not included above	Minimum			0	
	Maximum			0	

Program Learning Goals

Note: these are required for all undergraduate degree programs and majors now, and will be required for all graduate and professional degree programs in 2012. Nonetheless, all programs are encouraged to complete these now.

Program Learning Goals

Assessment

Assessment plan includes student learning goals, how those goals are evaluated, and how the information collected is used to improve student learning. An assessment plan is required for undergraduate majors and degrees. Graduate and professional degree programs are encouraged to complete this now, but will not be required to do so until 2012.

Is this a degree program (undergraduate, graduate, or professional) or major proposal? No

Program Specializations/Sub-Plans

If you do not specify a program specialization/sub-plan it will be assumed you are submitting this program for all program specializations/sub-plans.

Pre-Major

Does this Program have a Pre-Major? No

Attachments

- GIS-Minor-Proposal.docx: GIS Minor Proposal

(Program Proposal. Owner: Mansfield,Becky Kate)

Comments

- Learning goals and assessment not required yet for minors. *(by Mansfield,Becky Kate on 05/23/2012 01:43 PM)*
- The proposal should include remarks for assessing learning outcomes. *(by Haddad,Deborah Moore on 05/23/2012 12:38 PM)*

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Mansfield,Becky Kate	05/23/2012 10:37 AM	Submitted for Approval
Approved	Mansfield,Becky Kate	05/23/2012 10:37 AM	Unit Approval
Revision Requested	Haddad,Deborah Moore	05/23/2012 12:38 PM	College Approval
Submitted	Mansfield,Becky Kate	05/23/2012 01:43 PM	Submitted for Approval
Approved	Mansfield,Becky Kate	05/23/2012 01:43 PM	Unit Approval
Approved	Haddad,Deborah Moore	05/23/2012 01:44 PM	College Approval
Pending Approval	Nolen,Dawn Jenkins,Mary Ellen Bigler Meyers,Catherine Anne Vankeerbergen,Bernadette Chantal Hogle,Danielle Nicole Hanlin,Deborah Kay	05/23/2012 01:44 PM	ASCCAO Approval

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May 21, 2012

Dr. Mitch Masters, Chair
Arts and Sciences Curriculum Committee
The Ohio State University
Campus

Dear Colleagues,

Enclosed please find Geography's proposal for a Geoscience Minor. In response to the growing demand for Geographic Information Science (GIScience) training and skills by students from multiple disciplines, Geography proposed the Geoscience major back in 2009 and it was approved in 2011. We also recognized that that many students may not be able to complete all the major requirements but still desire a substantial training experience in Geoscience to advance their career for further academic or professional pursuits. The proposed Geoscience minor is designed for students to meet such a need. The curriculum of the Geoscience minor is based on that of the Geoscience major, which includes a diverse range of courses that can be selected by students to count toward the proposed minor degree. It was discussed in detail among the Geoscience faculty twice during Spring 2012. We also solicited input and comments from interested faculty in SBS and Engineering about the Geoscience minor curriculum. We believe the GIScience minor curriculum is rigorous and will meet students' needs. Geography is fully supportive of the proposed Geoscience minor and we are fully committed to doing whatever it takes to make it a success. Your favorable consideration will be greatly appreciated.

Sincerely

Daniel Sui
Professor & Chair

Proposal: Undergraduate Minor in Geographic Information Science

1. General Information

Give the name of the proposed minor

Geographic Information Science

State what degree students competing the minor will receive

Minor in GIScience

Academic unit

Geography

Type of program

Undergraduate minor

2. Program Rationale Statement

Recent years have seen increasing demand for Geographic Information Science (GIScience) by students from disciplines such as geography, sociology, environmental sciences, anthropology, and public health. Theories and methods in GIScience have been widely adopted in a variety of applications where spatial data are critical. Reflecting such a trend, the GIScience major was approved in 2011. However, it is clear that many students may not be able to complete the major requirements but still desire a substantial training experience in GIScience to advance their career for further academic or professional pursuits.

The proposed GIScience minor aims to provide fundamental training in GIScience that is needed for students from various disciplines to advance their career. The curriculum of the GIScience minor is based on that of the GIScience major, which includes a diverse range of courses that can be selected by students to count toward the proposed minor degree. These courses are designed to cover the themes incorporated in the *Geographic Information Science and Technology Body of Knowledge*, compiled by the Education Committee of the University Consortium of Geographic Information Science.[1] These classes will provide students with extensive experience in mapping, geospatial analysis, geospatial modeling, environmental modeling, and statistical methods. Most the courses include a lab companion to give students hands-on training. A total of 15 semester hours are required for the minor.

Appendix 1 illustrates the core topics in GIScience that are listed in the current UCGIS Geographic Information Science and Technology Body of Knowledge. The minor courses that cover each of the topics are indicated in the table. In a hypothetical but likely scenario, a student interested in the proposed minor would take these three classes: 5200, 5220, and 5270, which are in bold typeface in the appendix. It can be seen that these three classes would have already covered all the core areas (though some of these topics are taught only at an introductory level). Taking additional

[1] DiBiase, D.W., DeMers, M.N., Johnson, A.J., Kemp, K.K., Taylor-Luck, A., Plewe, B.S., and Wentz, E.A. (2006) Geographic Information Science and Technology Body of Knowledge. First Ed. Washington D.C.: The Association of American Geographers. (http://www.ucgis.org/priorities/education/modelcurriculaproject.asp)

classes will not only strengthen students' training in these core areas, but also expand students' scope to other important topics in GIScience. After completion of the minor, students will obtain sufficient coverage of these topics and will be capable of conducting scientific and professional work in the related areas.

This proposal was developed by the Undergraduate Studies Committee in consultation with the faculty. A consensus was achieved through discussion via email and at faculty meetings.

3. List of Semester Courses

The list of courses for the minor includes the core courses of the GIScience major as well as elective courses of the major that are closely related to the theory, method, and applications of GIScience. We also include the GEC class (GEOG 2200, Mapping Our World) which provides an introduction to geospatial techniques with real world implications.

Quarter number	Semester number	Designation	Semester Course Title	Credit hours	Prereqs
Required courses (9 hours; students must take both 5200 and 5220, and one of 5221, 5222, and 5223)					
580	5200		Elements of Cartography	3	
580S	5200	S	Elements of Cartography	3	
607	5220		Fundamentals in Geographic Information Systems	3	
685	5221		Spatial Simulation and Modeling in GIS	3	5220
686	5222		GIS Applications in Social Science and Business	3	5220
687	5223		Design and Implementation of GIS	3	5220
Electives (all courses below may count toward the minor, unless taken as a required course)					
480	2200		Mapping Our World	3	
683	5100		Quantitative Geographic Methods	3	
680	5201		Computer Cartography and Geographic Visualization	3	5200
685	5221		Spatial Simulation and Modeling in GIS	3	5220
686	5222		GIS Applications in Social Science and Business	3	5220
687	5223		Design and Implementation of GIS	3	5220
688	5224		Emerging Topics in GIS	3	5220
684	5270		Geographic Applications of Remote Sensing	3	
675	5275		Locational Analysis	3	

645	5300		Geography of Transportation	3	
655	5402		Land Use Geography	3	
787	6220		Advanced Applications in Geographic Information Systems	3	5221 or 5222 or 5223; repeatable to 15 cr hurs max

4. Implementation

Faculty Workload

The Department of Geography is capable of delivering the minor with the current faculty members.

Advising

The structure of the minor is straightforward (see the advising sheet below) and relatively little academic advising is needed for students to choose classes. The undergraduate advisor at the Department of Geography will be able to meet with students and discuss their needs.

Enrollment

We would expect modest enrollment at the beginning. However, we note that some of our GEC classes such as 2200 and 2750 (World Regional Geography) are likely to be classes that would attract students into the world of mapping and therefore consider the proposed minor. We also note the increasingly demand in the job market on skills in geospatial data handling as a positive force that will drive the enrollment.

Curriculum Oversight

The geography faculty, especially members associated with the GIScience specialty, will be responsible in reviewing the curriculum and making changes when it is necessary. The geography undergraduate studies committee will consult with these faculty members regarding changes in the curriculum.

GIScience Minor Advising Sheet			
Course	Credit Hours	Grade	
1. ❑ 5200 - Elements of Cartography	3		
2. ❑ 5220 - Fundamentals in Geographic Information Systems	3		
3. ❑ 5221 or ❑ 5222 or ❑ 5223 (check one)	3		
4.			
5.			
Total minor hours:			
Minimum minor hours:			15
Advisor Signature and Date:			
Name:			
Major/Specialization:			
Campus ID:			
9 credit hours must be from required courses			
Students must take both 5200 and 5220, and at least one of 5221, 5222, and 5223			
Only one 5200 (either regular or service) may count toward total minor hours			

Appendix 1. Course coverage on core GIScience topics

Core GIScience topics	2200	5100	**5200**	5201	**5220**	5221	5222	5223	5224	**5270**	5275	5300	5402	6220
Aerial imaging and photogrammetry					**X**					**X**				
Basic analytical methods		X	**X**		**X**	X	X		X	**X**				X
Basic analytical operations		X	**X**		**X**					**X**	X	X	X	
Coordinating organizations					**X**									
Data consideration		X	**X**		**X**	X				**X**	X	X	X	
Data quality		X			**X**	X	X			**X**				
Database design					**X**			X						X
Database management systems					**X**			X						X
Datum			**X**		**X**									
Domains of geographic information		X			**X**					**X**	X	X	X	
Earth geometry			**X**		**X**									
Elements of geographic information		X	**X**		**X**					**X**	X	X	X	
Ethical aspects of geospatial information and technology					**X**			X						
Generalization and aggregation	X		**X**	X	**X**									X
Geometric measures	X		**X**		**X**									
Georeferencing systems			**X**		**X**									
Institutional and inter-institutional aspects					**X**									
Land surveying and GPS					**X**					**X**				
Map projections	X		**X**											
Map use and evaluation	X		**X**	X										X
Metadata, standards, and infrastructure					**X**			X	X					
Principles of map design	X		**X**	X										
Representation transformation			**X**	X	**X**			X		**X**				X
Satellite and shipboard remote sensing										**X**			X	
Tessellation data models					**X**	X				**X**				
Vector and object data models					**X**	X	X	X						X