

PROPOSED PROGRAM – 2015 UNIVERSITY CATALOG

Geographic Information Science - M.S.G.I.S.

College	College of Arts and Sciences
Department	Department of Geography 413 McGilvrey Hall Tel: 330-672-2045 Fax: 330-672-4304 Web: www.kent.edu/cas/geography
Description	<p>The Master of Science in Geographic Information Science degree is offered fully online only and will prepare graduates for analytical and managerial positions that utilize geospatial technologies in three professional areas: cyber-infrastructure, environment and health.</p> <p>Students in the CyberGIS concentration will focus on the challenges of filtering, analyzing and visualizing large volumes of spatial-temporal data from mobile devices, web-based services and supercomputers. This knowledge will prepare graduates to work in government and industry, and provide the expertise to enable scientists, businesses and policy makers to gain new insights from big spatial datasets.</p> <p>Students in the Environmental Geographic Information Science concentration will focus on the use of geographic information science to understand environmental changes and hazards. Practitioners in the fields of emergency management, public safety and homeland security rely on geospatial technologies and mapping for planning, response, mitigation and recovery activities. Geographic information science is a key contributor to obtaining situation awareness in cases of natural and human-technological events. Jobs are available for these skilled professionals at all levels of government and in private-sector consulting.</p> <p>Students in the Geographic Information Science and Health concentration will focus on the use of geographic information science and allied geospatial technologies that have become widespread in the study of health and in the management of healthcare resources. Geographic information science skills are needed through all levels of health-related agencies in government, and are becoming standard across private and non-profit industry in this area. From understanding and preventing epidemics around the world, to identifying healthy lifestyle resources in a neighborhood, geographic information science has proven invaluable in adding the necessary spatial insight for improved health equity and outcomes. Students who choose this concentration will graduate with the technical skillset to advance these goals in health research and management.</p>
Admission Requirements	<p>Official transcript(s), minimum 3.000 undergraduate GPA; undergraduate degree in geography or a related field*; goal statement and three letters of recommendation. Please refer to the University policy for graduate admissions.</p> <p>*This requirement may be waived with evidence of professional experience using geospatial technologies or alternative evidence of ability to excel in a geographic information science graduate degree program.</p>
Graduation Requirements	Minimum 32 credit hours and selection of one concentration. Students are permitted to specialize in maximum two concentrations.
Culminating Requirement	As the capstone to the program, students will complete a practicum that is designed to provide practical experience in the application of geographic information science in real-world professional settings. Students will select a professional project in consultation with their employer and program faculty and then will design, implement and report on their activities in a culminating professional paper.

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Program Learning Outcomes	<p>Graduates of this program will be able to:</p> <ol style="list-style-type: none"> 1. Collect, edit, integrate, manage and analyze geospatial data. 2. Demonstrate skills and working knowledge of commercial and open-source geographic information science application suites and utilities. 3. Identify, explain and analyze spatial patterns, relationships and processes. 4. Apply cartographic principles and techniques to create quality maps. 5. Apply critical and spatial thinking to solve geospatial problems with respect to theories, principles and practices of geographic information science fields in the degree concentration areas. 6. Demonstrate good communication skills and ability to work in a team environment.
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Geographic Information Science - M.S.I.S. Program Requirements

MAJOR PROGRAM REQUIREMENTS (17 credit hours)			Credits	Curriculum Notes
Course	Title			
GEOG 59070	Geographic and Information Science		4	existing
GEOG 59080	Advanced Geographic Information Science		3	existing
GEOG 69164	Cartographic Design		4	new
GEOG 69392	Practicum in Geographic Information Science		6	new
CONCENTRATION REQUIREMENTS (15 credit hours)				
CyberGIS (15)				
Environmental Geographic Information Science (15)				
Geographic Information Science and Health (15)				
MINIMUM TOTAL			32	

CyberGIS Concentration

CONCENTRATION REQUIREMENTS (15 credit hours)			Credits	Curriculum Notes
Course	Title			
GEOG 59076	Spatial Programming		3	existing
GEOG 69082	CyberGIS		3	existing, formerly 59082
GEOG 69083	Geodatabases		3	new
Choose from the following:			6-8	
CS 61002	Algorithms and Programming I (4)			existing
CS 61003	Algorithms and Programming II (4)			existing
DSCI 64210	Data Science (3)			existing
GEOG 69004	Quantitative Methods in Geography (3)			existing, title change
GEOG 69007	Spatiotemporal Analytics (3)			new
GEOG 69079	Environmental Geographic Information Science (3)			new
GEOG 69083	Geodatabases (3)			new
GEOG 69231	Environmental Remote Sensing (3)			new
MINIMUM SUBTOTAL			15	

Environmental Geographic Information Science Concentration

CONCENTRATION REQUIREMENTS (15 credit hours)			Credits	Curriculum Notes
Course	Title			
GEOG 59078	Geographic Information Science and Environmental Hazards		3	existing, title change
GEOG 69079	Environmental Geographic and Information Science		3	new
GEOG 69231	Environmental Remote Sensing		3	new
Choose from the following:			6-8	
CS 61002	Algorithms and Programming I (4)			existing
CS 61003	Algorithms and Programming II (4)			existing
DSCI 64210	Data Science (3)			existing
GEOG 69004	Quantitative Methods in Geography (3)			existing, title change
GEOG 69007	Spatiotemporal Analytics (3)			new
GEOG 69082	CyberGIS (3)			existing, formerly 59082
GEOG 69083	Geodatabases (3)			new
MINIMUM SUBTOTAL			15	

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Health and Geographic Information Science Concentration

CONCENTRATION REQUIREMENTS (15 credit hours)				
Course		Title	Credits	Curriculum Notes
GEOG	59072	Geographic Information Science and Health	3	existing
GEOG	69073	Geographic Information Science: Global Health	3	new
GEOG	69074	Geographic Information Science: Spatial Analysis for Health Geography	3	new
Choose from the following:			6-8	
CS	61002	Algorithms and Programming I (4)		existing
CS	61003	Algorithms and Programming II (4)		existing
DSCI	64210	Data Science (3)		existing
GEOG	69004	Quantitative Methods in Geography (3)		existing, title change
GEOG	69007	Spatiotemporal Analytics (3)		new
GEOG	69079	Environmental Geographic Information Science (3)		new
GEOG	69082	CyberGIS (3)		existing, formerly 59082
GEOG	69083	Geodatabases (3)		new
GEOG	69231	Environmental Remote Sensing (3)		new
MINIMUM SUBTOTAL			15	