

# KENT STATE UNIVERSITY CERTIFICATION OF CURRICULUM PROPOSAL

Preparation Date **11/4/2014**      Curriculum Bulletin \_\_\_\_\_  
Effective Date   **Fall 2015**      Approved by EPC \_\_\_\_\_

Department       **Geography**  
College           **AS - Arts and Sciences**  
Degree  
Program Name     **Master of Geographic Information Science**      Program Banner Code  
Concentration(s)                      Concentration(s) Banner Code(s)  
Proposal           **Establish program**

**Description of proposal:**

**The curriculum meets the needs of individuals who are interested in professional careers in Geographic Information Science (GISc) and for those who would like to further their current career with GISc training, particularly in information services, environmental or health sciences in both public and private sector positions. Students are exposed to theories, techniques, and applications across GISc, which prepare them for positions ranging from analysts through to management in industries that utilize geospatial data and technologies.**

**The proposed start date is Fall 2015 with admission every fall, spring, and summer semesters. The program is fully online and courses run for 7 weeks; up to 30 students will be accepted into the program each semester. The MGISc is a 32 hour program with 17 core hours, 9 hours in the student's chosen concentration, and then 6 hours of electives. The curriculum is designed to be completed in under 2 years. Admission requirements include an undergraduate baccalaureate degree from an accredited institution in a cognate field, a minimum 3.0 GPA. No GRE will be required and the admission process is the same as current graduate programs. This program is an Everspring Collaboration and Everspring will handle all marketing and will be the initial point of contact for all potential applicants.**

Does proposed revision change program's total credit hours?     Yes     No  
Current total credit hours: **32**                      Proposed total credit hours **32**

Describe impact on other programs, policies or procedures (e.g., duplication issues; enrollment and staffing considerations; need; audience; prerequisites; teacher education licensure):

**No duplication issues have been identified by the units consulted (please see below). There will be no impact to staffing other KSU units. Those courses from other units offered as electives may see some increases in enrollment, but as we understand, this is not an issue. Everspring has conducted a market study to identify need and audience; pending approval, they will design the marketing plan accordingly.**

Units consulted (other departments, programs or campuses affected by this proposal):

**Department of Geology, Department of Biological Sciences, Department of Computer Science, School of Digital Sciences, College of Public Health**

**REQUIRED ENDORSEMENTS**

  
\_\_\_\_\_  
Department Chair / School Director

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\_\_\_\_\_  
Campus Dean (for Regional Campuses proposals)

  /  /

Mary Ann Haley  
College Dean (or designee)

12/5/14

\_\_\_\_\_  
Dean of Graduate Studies (for graduate proposals)

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\_\_\_\_\_  
Provost and Senior Vice President for Academic Affairs (or designee)

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## New Graduate Degree Program Full Proposal [Master of Geographic Information Science (MGISc)]

1. **Academic Quality:** Competency, experience and number of faculty and adequacy of students, curriculum, computational resources, library, laboratories, equipment and other physical facilities, needed to mount the program.

a N/A

- b In addition to the analysis given in the statement after “Academic Quality” for **professional graduate degree programs**, academic quality assessment will also focus on the adequacy of the answers provided in response to the following questions: *Delete this section if your new program is not a professional degree.*

- i What admission criteria, in addition to the traditionally required transcripts, standardized test scores, letter of recommendation, and personal statements of purpose, are relevant to assess the potential for academic and professional success of prospective students? Will there be special consideration of student experience and extant practical skills within the admission process? If so, please elaborate.

**No additional admission criteria are needed to assess academic and professional success of prospective students. No special consideration will be given to student experience or extant practical skills in the admissions process.**

- ii Is field/clinical experience subsumed within the academic experience? If so, how does that experience relate to the academic goals of the professional graduate degree program? Provide a description of the involvement of supervisory personnel. Describe the nature of the oversight of the field/clinical experience by the academic department. Provide an outline of the anticipated student activities as well as student requirements.

**Field experience is required through the culminating capstone course, Practicum (6 hours). Practicum is designed to enable the student to apply his/her training from coursework in the MGISc program to a professional project in his/her job. A final report will be submitted to the employer and to a GISc faculty advisor. In addition a version of that final project will be presented at a relevant public or industrial meeting or at a professional conference.**

- iii Are the faculty qualifications associated with the professional graduate degree program appropriate for such faculty? Provide the specific qualifications for such faculty.

**All program faculty have the terminal degree in their field (Ph.D.) and all have extensive experience in using GISc across the public and private sector. They possess formal education appropriate to the specialization. They hold a degree one level above the program in which they are teaching; they also demonstrate practical experience other than teaching and show evidence of professional development in the field of concentration through their activities in contracts, grants, and consulting. All CVs are included with this proposal**

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- iv How does accreditation by the appropriate professional organization relate to the academic curriculum and experience outlined in the program plan? Describe the specific aspects of the program plan, if any, that are necessary to achieve professional accreditation. Is completion of the degree program required for professional accreditation in the field?

**No specific accreditation is required in GISc.**

- v How are theory and practice integrated within the curriculum?

**The following programmatic objectives have been formulated in consultation with the Kent State University Office of Distance and Continuing Education and are specifically designed to integrate theory with practice throughout the curriculum:**

- 1. Collect, edit, integrate, manage, and analyze geospatial data.**
- 2. Demonstrate skills and working knowledge of commercial and open source GIS 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 and fields in the degree concentration areas.**
- 6. Demonstrate good communication skills and ability to work in a team environment.**

These objectives have been designed to facilitate the integration of theory with practice throughout all courses in the program. While outcome five explicitly focuses on theory and real world problem solving, this tenet is implicit in all other objectives. Indeed, even the most ostensibly straightforward GISc practices, such as collecting geospatial data (e.g., as described in outcome one), cannot be effectively implemented without a solid theoretical background in data representation and models. Furthermore, this program has been designed to align with the Geospatial Technology Competency Model (GTCM)<sup>1</sup> and the GIS&T Body of Knowledge<sup>2</sup> which provide frameworks for integration of theory with practice.

- vi What is the national credit hour norm for this degree program in your field? How was this norm derived? Is the number of credit hours required for graduation influenced by mandated professional experiences? If so, how?

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<sup>1</sup> <http://www.careeronestop.org/competencymodel/competency-models/geospatial-technology.aspx>

<sup>2</sup> [http://www.aag.org/galleries/publications-files/GIST\\_Body\\_of\\_knowledge.pdf](http://www.aag.org/galleries/publications-files/GIST_Body_of_knowledge.pdf)

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Figure 1 provides the results of the Everspring Market Study in its analysis of competitive programs. The top three programs are the only ones that are fully online, like the proposed KSU program. Among these, the required credit hours are 35 (Pennsylvania State University), 28 (University of Southern California), and 30 (Johns Hopkins University), which results in an average of 31 hours. According to the Everspring data (Figure 1), the median number of hours for regional face to face programs is 35, while the median for online programs is 30. The MGISc falls within the range presented by these schools with 32 required credit hours.

The number of credit hours required for graduation is not influenced by mandated professional experiences.

Regional / National Online Competitors	University Rank	2012 Completions	Credits	Cost Per Credit	Total Cost	Online?	Residency?	Time to Complete	Specializations	Notes
Pennsylvania State University - World Campus	87*	34	35	\$ 174	\$ 6,066	Yes	None	1-4 sem	Three tracks: Spatial Data Acquisition and Integration, Spatial Data Analysis and Visualization, Spatial Application Development, Spatial Planning	Requires GIS for Fall 2012. University Rank: 78 as a function of Geographic Information Systems
University of Southern California	21	4	28	\$ 1,600	\$ 44,800	Yes	Distance education	20 months		100% online and delivered via video
Johns Hopkins University	12	16	30	\$ 1,140	\$ 34,200	Yes	None	3 years		10 courses, 10 400-level courses. Five courses delivered via video
Georgetown University	** (Midwest Region)	25	36	\$ 590	\$ 21,240	No	Yes	3 years		100% GIS Designation. Computer Systems (GIS). Professional certificate of GIS, with national background
Drexel University	133	12	40	\$ 410	\$ 16,400	No	Yes	2 years	GIS, Environmental Geography, Geospatial Technology, Development and Economic Geography, Physical Geography, Cultural-Historical Geography, Regional Development	Offers GIS and related in Geography
Geography State University	75	11	31	\$ 698	\$ 21,538	No	Yes	2 years		7000-level Geography, also awards certificate in GIS, GIS certificate
Penn State University	32	11	27	\$ 772	\$ 20,844	No	Yes	2 years		100% GIS, Ranked 1st in GIS courses
University of Colorado	124	10	30	\$ 690	\$ 20,700	No	Yes	2 years		
<b>MGISc - Regional Program</b>		<b>11</b>	<b>32</b>	<b>\$ 711</b>	<b>\$ 22,752</b>					
<b>MGISc - Online Program</b>		<b>13</b>	<b>30</b>	<b>\$ 1,000</b>	<b>\$ 30,000</b>					
Kent State University	200		32	\$ 800	\$ 25,600	Yes	Yes	2 years		

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Figure 1. Kent State University Competitive Program Analysis.

- vii Describe the culminating academic experience (capstone experience), and how it will contribute to the enhancement of the student's professional preparation. Please provide a list of possible capstone experiences.

After completion of core requirements, concentration requirements, and electives, students will then enroll in the 6 hour Practicum. This course represents the culminating experience for students in the MGISc program. It will be taken in place of two Carousel/Specialist courses on the schedule for the student's final semester. Practicum is designed to provide practical experience in the application of MGISc course content in real-world professional settings. Students will select a professional project in consultation with their employer and

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program faculty and then will design, implement, and report on their activities in a culminating professional paper.

Possible capstone experiences include a student working with his/her employer to use GISc to solve an existing problem, such as data management, site selection, or spatially targeting an intervention. However, in organizations that are more moderate to minimal users of GISc, the student may work with his/her employer to identify a project that demonstrates how use of GISc can improve understanding of a problem or performance of an organizational activity. Finally, if the student is not already employed, the program Advisory Board will provide a project from one of their organizations where the student can engage in the types of activities previously identified.

c N/A

2. Need. Examples of potential metrics of program need include:

- a Student interest and demand; potential enrollment; ability to maintain the critical mass of students.

Based on the Department of Labor statistics (see p.7 & 8) GIS and geospatial technology in general is a rapidly growing field, the third fastest growing field in the nation. The Everspring Market Survey only confirmed this. It specifically examined student interest and demand and is presented below in Figure 2. Their overall conclusion was that this is a niche field that is growing rapidly and is attractive to individuals across the nation. Everspring projected that we will easily reach 100 students by 2018. More realistically, we will likely have to cap the program at 100 total students at any given time. It is based upon their analysis that the Office of Distance and Continuing Education, the Department of Geography, the College of Arts and Sciences and Everspring decided to partner on offering this program fully online.

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Region	Impressions	Clicks	CTR	Leads	Conv. Rate	Cost Per Click	Cost Per Lead	Avg. Position
State	1,170	15	1.62%	2	10.5%	\$ 8	\$ 75	2.3
Region	4,733	32	0.68%	5	15.6%	\$ 10	\$ 61	2.4
Rest of U.S.	24,506	134	0.55%	14	10.4%	\$ 6	\$ 60	2.8
<b>Total</b>	<b>30,399</b>	<b>185</b>	<b>0.61%</b>	<b>21</b>	<b>11.4%</b>	<b>\$ 7</b>	<b>\$ 62</b>	<b>2.5</b>
All Programs Avg.	\$7,864	305	0.31%	28	9.2%	\$ 16	\$ 173	3.3

**Summary Notes**

- Attractive, growing online discipline
  - Below average impressions
- Low competition
  - Above average conversion and attractive cost per lead in test

**Program Assessment Summary**

Desirability	Viability	Feasibility
Y	C	C

2018 Enrollment Potential 100  
14 On-Campus Enrollment

*Figure 2. Desirability, Feasibility, and Viability of the Proposed Program based on Everspring Market Survey*

- b Institutional need; plan for overall development of graduate programs at the proposing institutions.

The MGISc is one of several strategic priority online programs initiated by Everspring with Kent State University (Figure 3).

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## Executive Summary

- Kent State University and Everspring are working together to consider a select set of Kent State programs; the intent of the research is to test the marketability of the programs delivered fully online
- The market test has informed on the competitiveness and the need for Kent State to differentiate; this exercise has proven to be very helpful in informing on the potential of these programs online and in refining the go-to-market approach
- The programs included in this test are as follows:
  - Bachelor of Business Administration
  - BS Fashion Merchandising
  - Ed.D
  - MA Communication Studies
  - MA Geography
  - Master of Library and Information Science
  - Masters of Public Health
  - MS Computer Science
  - MS Education
  - MS Health Informatics

Note: this was called and MA in Geography with specialization in GIS during the Market Analysis

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### *Figure 3. Overview of Everspring-Kent State University Initial Online Program Priorities*

- c Societal demand; intellectual development; advancement of the discipline; employment opportunities.

The need for the MGISc was determined based on the following sources: a) federal and state labor statistics; b) a market survey conducted by the company Everspring for Kent State University; and c) the responses to a questionnaire administered to Geography alumni. Though the need for training in Geographic Information Science (GISc) has consistently been growing over the past 20 years, the local and regional markets traditionally served by Kent State University represent a minute population in comparison to the need for this skillset in the national and global marketplace. Indeed, the Geospatial Technology industry has consistently been identified as a “High Growth” industry by the United States Department of Labor<sup>3</sup>. We propose a fully online Master of Geographic Information Science (MGISc) program which has been developed to meet this broader need through leveraging the existing strong GISc curriculum and faculty in the Department of Geography at Kent State University. The Department of Geography has a 20 year history of offering courses in Geographic Information Science at both the undergraduate (BA) and graduate (MA and PHD) levels but this Masters in Geographic Information Science is not replacing these current programs, nor is it being offered in connection with, or in response to, an initiative by a governmental entity. Our current BA has a GISc concentration and

<sup>3</sup> [http://www.doleta.gov/brg/indprof/geospatial\\_profile.cfm](http://www.doleta.gov/brg/indprof/geospatial_profile.cfm)

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is part of the liberal education experience at Kent State; our MA is a research-focused degree with a thesis which has a concentration in GISc; our doctoral degree is the most advanced degree and students focusing in GISc typically are advancing knowledge about GISc. At the undergraduate level, students may also minor in GISc. The minor is targeted at non-Geography majors. In response to the national need, our Masters in Geographic Information Science is targeted at postgraduates, especially those professionals in business, industry and government who desire enhanced GISc knowledge to advance their current careers in a growing market or to prepare for new careers. The courses in the program are designed to work with a professional's busy schedule.

- a) The MGISc will better prepare students to work in a variety of fields that use GISc, which is a main component of the Geospatial Technology industry and is used throughout many employment sectors. Tables 1 and 2 demonstrate the occupational outlooks for positions that commonly use GISc. Table 1 focuses on the three traditional areas that seek personnel with this specific skillset from the U.S. perspective and Table 2 includes this core, but also occupations that regularly make use of GISc for industry-specific applications. The need for GISc has moved well beyond geography and its allied fields. For example, a recent article in TechRepublic noted that, "As more manufacturers and marketers realize the advantages of building geographical data into their operations, GIS specialists - as well as managers and researchers with GIS insight - are becoming increasingly integral parts of their company teams."<sup>4</sup> Specifically, the skills obtained through this graduate program will prepare students to hold the following positions, all in sectors with positive job outlooks through 2022 according to the Bureau of Labor Statistics Occupational Outlook Handbook (<http://www.bls.gov/ooh/>):

Position	Job Outlook, 2012-2022
Geographers	29% ( Much faster than national average)
Surveying and Mapping Technicians	14% (As fast as national average)
Cartographers and Photogrammetrists	20% (Faster than national average)

*Table 1. U.S. Occupational Outlook for Traditional Positions related to the MGISc<sup>6</sup>*

In Ohio, the job outlook for 2010-2020 for the same positions also shows high growth (Table 2).

<sup>4</sup> Tech Republic. 2013. Where are the jobs in the GIS field? Available online: <http://www.techrepublic.com/blog/career-management/where-are-the-jobs-in-the-gis-field/> Last accessed: 10/09/2014.

<sup>6</sup> <http://www.bls.gov/ooh/>

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Code	Position	Job Outlook, 2010-2020
<b>11-0000</b>	<b>Management Occupations</b>	<b>2.8%</b>
11-2021	Marketing Managers	8.8%
11-3021	Computer & Information Systems Managers	14.6%
11-3071	Transportation, Storage, & Distribution Managers	9.0%
11-9121	Natural Sciences Managers	6.4%
11-9161	Emergency Management Directors	10.3%
<b>13-0000</b>	<b>Business &amp; Financial Operations Occupations</b>	<b>12.3%</b>
13-1161	Market Research Analysts & Marketing Specialists	34.7%
13-2021	Appraisers & Assessors of Real Estate	2.2%
<b>15-0000</b>	<b>Computer &amp; Mathematical Occupations</b>	<b>18.1%</b>
15-1111	Computer & Information Research Scientists	19.4%
15-1121	Computer Systems Analysts	21.5%
15-1131	Computer Programmers	4.8%
15-1132	Software Developers, Applications	24.6%
15-1133	Software Developers, Systems Software	28.8%
15-1141	Database Administrators	26.6%
15-1179	Information Security Analysts, Web Developers, & Computer Network Architects	15.7%
<b>17-0000</b>	<b>Architecture and Engineering Occupations</b>	<b>5.7%</b>
17-1012	Landscape Architects	10.0%
17-1021	Cartographers and Photogrammetrists	19.0%
17-1022	Surveyors	16.7%
17-3031	Surveying and Mapping Technicians	10.4%
17-2081	Environmental Engineers	14.0%
<b>19-0000</b>	<b>Life, Physical, &amp; Social Science Occupations</b>	<b>9.8%</b>
19-1013	Soil & Plant Scientists	6.3%
19-1023	Zoologists & Wildlife Biologists	3.4%
19-1029	Biological Scientists, All Other	2.0%
19-1031	Conservation Scientists	0.0%
19-1032	Foresters	0.0%
19-1042	Medical Scientists, Ex Epidemiologists	31.1%
19-2021	Atmospheric & Space Scientists	5.6%
19-2042	Geoscientists, Ex. Hydrologists & Geographers	29.0%
19-3091	Anthropologists & Archaeologists	15.4%
19-4091	Environmental Science & Protection Tech, Including Health	16.3%
<b>41-0000</b>	<b>Sales &amp; Related Occupations</b>	<b>6.1%</b>
41-3021	Insurance Sales Agents	17.0%
41-9021	Real Estate Brokers	1.3%
41-9022	Real Estate Sales Agents	7.7%

*Table 2. Ohio Occupational Outlook for All Positions related to the MGISc<sup>8</sup>*

<sup>8</sup> <http://ohiolmi.com/proj/OhioJobOutlook.htm>

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- d Scope; local, regional and national needs; international need.

In addition to the general labor market statistics at both a national and state level, Everspring<sup>9</sup> conducted a market survey in July 2014 that specifically focused on a potential Kent State University, Department of Geography, fully online GISc graduate degree. Results of this study indicate that the degree is desirable, viable, and feasible for the marketplace and is desirable nationally (Figure 2).

### 3. Access and Retention of Underrepresented Groups

- a Plan to ensure recruitment, retention and graduation of underrepresented groups within the discipline.

The department of Geography has been cognizant of recruiting underrepresented students into the discipline. However, our standard methods such as high school outreach, targeted recruitment via Hobsons web-based Constituent Relationship Management (CRM) system and targeted recruitment via our national meetings will be ineffective in this program as we are outreaching to a non-traditional population. We are working with the company Everspring who is developing our market plan. They will leverage the marketing channels that exist today within Kent State (websites, social properties, and alumni communications, to provide a few examples) and develop additional materials for outreach via paid internet search, direct mail and direct email. In general, we will both develop a program-specific digital marketing plan that uses a variety of techniques to conduct targeted outreach to qualified potential populations, including underrepresented minorities. We will also continue to advertise this program through the same venues as our BA, MA and PHD degrees, but in addition we will outreach to national organizations such as the Black Business Professional Network and the Latino Business Association. Once in the program, all students will be the subject of intense one-on-one advising to help them succeed in the program.

- b Provide as background a general assessment of:
  - i Institution and departmental profiles of total enrollment and graduate student enrollment of underrepresented groups within the discipline.

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<sup>9</sup> <http://www.everspringpartners.com/>

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The following institutional and departmental enrollment numbers are provided by Kent State RPIE (Research, Planning and Institutional Effectiveness). The Department of Geography has currently lower percentages in AALANA and female students than the University norm, and slightly higher percentages in foreign students. While these numbers appear disproportionate, they are more representative of STEM disciplines as a whole, and more representative of Geography as a discipline. We have also made a concerted effort to recruit more minority and foreign students in the last two years hence the disproportionate percentages between degrees awarded and students currently enrolled.

Fall 2014 enrollment

	Master's		Specialist (Ed.S.)		Doctoral (Ph.D.)		Professional (D.P.M., D.N.P., Au.D.)		All Graduate Level	
<b>Current Enrollment</b>	<b>4031</b>		<b>40</b>		<b>1297</b>		<b>504</b>		<b>5872</b>	
White, non-Hispanic	2728	67.7%	33	82.5%	757	58.4%	302	59.9%	3820	65.1%
Non-white and Hispanic, aggregated	422	10.5%	4	10.0%	122	9.4%	104	20.6%	652	11.1%
Black or African-American	207	5.1%	3	7.5%	53	4.1%	32	6.3%	295	5.0%
Hispanic or Latino	86	2.1%	0	0.0%	22	1.7%	14	2.8%	122	2.1%
Asian, Native Hawaiian, or other Pacific Islander	48	1.2%	1	2.5%	32	2.5%	55	10.9%	136	2.3%
Asian	46	1.1%	1	2.5%	31	2.4%	54	10.7%	132	2.2%
Native Hawaiian or other Pacific Islander	2	0.0%	0	0.0%	1	0.1%	1	0.2%	4	0.1%
American Indian or Alaska Native	12	0.3%	0	0.0%	2	0.2%	2	0.4%	16	0.3%
Other or Multiple Races	69	1.7%	0	0.0%	13	1.0%	1	0.2%	83	1.4%
International, non-U.S. resident	611	15.2%	0	0.0%	389	30.0%	12	2.4%	1012	17.2%
Ethnicity unspecified or unknown	270	6.7%	3	7.5%	29	2.2%	86	17.1%	388	6.6%
AALANA	359	8.9%	3	7.5%	85	6.6%	48	9.5%	495	8.4%
Female	2662	66.0%	35	87.5%	722	55.7%	215	42.7%	3634	61.9%
Male	1369	34.0%	5	12.5%	575	44.3%	289	57.3%	2238	38.1%

	Master's		Specialist (Ed.S.)		Doctoral (Ph.D.)		Professional (D.P.M., D.N.P., Au.D.)		All Graduate Level	
<b>Current Enrollment in Geography</b>	<b>17</b>		<b>0</b>		<b>25</b>		<b>0</b>		<b>42</b>	
White, non-Hispanic	12	70.6%			17	68.0%			29	69.0%
Non-white and Hispanic, aggregated	1	5.9%			1	4.0%			2	4.8%
Black or African-American	0	0.0%			0	0.0%			0	0.0%
Hispanic or Latino	0	0.0%			1	4.0%			1	2.4%
Asian, Native Hawaiian, or other Pacific Islander	0	0.0%			0	0.0%			0	0.0%
Asian	0	0.0%			0	0.0%			0	0.0%
Native Hawaiian or other Pacific Islander	0	0.0%			0	0.0%			0	0.0%
American Indian or Alaska Native	0	0.0%			0	0.0%			0	0.0%
Other or Multiple Races	1	5.9%			0	0.0%			1	2.4%
International, non-U.S. resident	4	23.5%			6	24.0%			10	23.8%
Ethnicity unspecified or unknown	0	0.0%			1	4.0%			1	2.4%
AALANA	1	5.9%			1	4.0%			2	4.8%
Female	5	29.4%			8	32.0%			13	31.0%
Male	12	70.6%			17	68.0%			29	69.0%

Table 3A and B. A. Kent State University 2014 Graduate Enrollment, including AALANA and gender breakdown. B. The Department of Geography 2014 Graduate Enrollment.

The following numbers on graduate degrees awarded are provided by Kent State RPIE (Research, Planning and Institutional Effectiveness) and are for the last academic year only. The Department of Geography awarded no degrees to AALANA students in the last year. 36.4% were to women.

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AY 2014 (Sum 2013, Fall 2013, Spring 2014)

	Master's		Specialist (Ed.S.)		Doctoral (Ph.D.)		Professional (D.P.M., D.N.P., Au.D.)		All Graduate Level	
<b>Total Degrees Awarded</b>	<b>1555</b>		<b>28</b>		<b>145</b>		<b>114</b>		<b>1842</b>	
White, non-Hispanic	1173	75.4%	23	82.1%	84	57.9%	61	53.5%	1341	72.8%
Non-white and Hispanic, aggregated	134	8.6%	2	7.1%	12	8.3%	16	14.0%	164	8.9%
Black or African-American	75	4.8%	1	3.6%	4	2.8%	0	0.0%	80	4.3%
Hispanic or Latino	24	1.5%	0	0.0%	1	0.7%	3	2.6%	28	1.5%
Asian, Native Hawaiian, or other Pacific Islander	21	1.4%	1	3.6%	7	4.8%	11	9.6%	40	2.2%
Asian	21	1.4%	1	3.6%	7	4.8%	11	9.6%	40	2.2%
Native Hawaiian or other Pacific Islander	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
American Indian or Alaska Native	1	0.1%	0	0.0%	0	0.0%	2	1.8%	3	0.2%
Other or Multiple Races	13	0.8%	0	0.0%	0	0.0%	0	0.0%	13	0.7%
International, non-U.S. resident	189	12.2%	1	3.6%	44	30.3%	2	1.8%	236	12.8%
Ethnicity unspecified or unknown	59	3.8%	2	7.1%	5	3.4%	35	30.7%	101	5.5%
AALANA	110	7.1%	1	3.6%	5	3.4%	5	4.4%	121	6.6%
Female	1048	67.5%	24	85.7%	78	53.8%	43	37.7%	1193	64.8%
Male	507	32.6%	4	14.3%	67	46.2%	71	62.3%	649	35.2%

	Master's		Specialist (Ed.S.)		Doctoral (Ph.D.)		Professional (D.P.M., D.N.P., Au.D.)		All Graduate Level	
<b>Total Degrees Awarded in Geography</b>	<b>9</b>		<b>0</b>		<b>2</b>		<b>0</b>		<b>11</b>	
White, non-Hispanic	9	100.0%			2	100.0%			11	100.0%
Non-white and Hispanic, aggregated	0	0.0%			0	0.0%			0	0.0%
Black or African-American	0	0.0%			0	0.0%			0	0.0%
Hispanic or Latino	0	0.0%			0	0.0%			0	0.0%
Asian, Native Hawaiian, or other Pacific Islander	0	0.0%			0	0.0%			0	0.0%
Asian	0	0.0%			0	0.0%			0	0.0%
Native Hawaiian or other Pacific Islander	0	0.0%			0	0.0%			0	0.0%
American Indian or Alaska Native	0	0.0%			0	0.0%			0	0.0%
Other or Multiple Races	0	0.0%			0	0.0%			0	0.0%
International, non-U.S. resident	0	0.0%			0	0.0%			0	0.0%
Ethnicity unspecified or unknown	0	0.0%			0	0.0%			0	0.0%
AALANA	0	0.0%			0	0.0%			0	0.0%
Female	3	33.3%			1	50.0%			4	36.4%
Male	6	66.7%			1	50.0%			7	63.6%

Table 4A and B. A. Kent State University 2013 degree conferrals, including AALANA and gender breakdown.  
 B. The Department of Geography 2013 degree conferrals.

- ii Compare underrepresented groups degree recipients from the department and university at all levels compared to national norms. Supply data by group where available.

The following tables show the national norms for degree recipients across the country within the discipline of geography. Please note that we are comparing different years but the patterns are indicative of the total situation. Kent State Geography graduated no AALANA or other ethnic minorities in the last year. Note that this is not the norm, even though our overall numbers are still lower than the national norm.

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Groups	All U.S. graduate degree-granting institutions, 2009 N = 1,960		Institutions of participants in 2010 AAG department survey n = 43		Departments participating in 2010 AAG department survey n = 43	
	Mean %	Median %	Mean %	Median %	Mean %	Median %
	White, non-Hispanic	67.50	72.79	68.01	71.7%	79.62
Non-white and Hispanic, aggregated	22.11	18.86	18.81	13.00	14.63	11.88
Black or African American	13.89	6.83	6.48	4.67	3.82	1.39
Hispanic or Latino	5.63	3.94	4.81	3.00	3.80	0.69
Asian, Native Hawaiian, or other Pacific Islander	5.48	2.27	4.55	3.10	4.69	1.50
American Indian or Alaska Native	0.73	0.29	0.65	0.40	0.79	0.00
Other or multiple races	0.27	0.00	0.71	0.00	2.08	0.00
International, non-U.S. resident	7.42	2.79	15.10	12.97	9.74	0.00
Ethnicity unspecified or unknown (as percentage of total enrollment)	11.78		6.41		9.00	
Female	59.17	61.30	56.89	56.29	43.57	43.23

Note: AAG = Association of American Geographers. Source: AAG Survey of Geography Departments (2010), U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS, 2010).

Table 5. Average Graduate Enrollments by Race/Ethnicity and Gender for the Discipline of Geography at United States Institutions<sup>11</sup>

Groups	National Averages of degrees conferred in Geography (2010 data)	Degrees conferred in Geography at Kent State (2013 data)
White, non-hispanic	76.92%	100%
Non-white and Hispanic aggregated	14.63%	0%
Female	43.57%	36.4%

Table 6: Average % of degrees awarded by Race/Ethnicity and Gender for the Discipline: National versus Department of Geography at Kent State University.

4. Statewide Alternatives

- a Programs available in other institutions.

There are no other fully online graduate degree programs in Geographic Information Science (GISc) in Ohio. In addition to being fully online, which differentiates this program from any other offering GISc, the Kent State University MGISc offers three specific concentrations in CyberGIS, Health, and the Environment. CyberGIS and Health are not offered as specializations in any other GISc program in Ohio.

Institution	Program	Type
Bowling Green State University	Master of Science in Applied Geospatial Science; Geospatial Technology Graduate Certificate	Residential
Miami University	Certificate; M.A. in Geography	Residential
Ohio University	Certificate; M.A., M.S. in	Residential

<sup>11</sup> Adams, J.K., Solis, P., and McKendry, J. 2014. The Landscape of Diversity in U.S. Higher Education Geography. *Professional Geographer* 66(2): 183-194.

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	Geography	
The Ohio State University	M.A., Ph.D. in Geography	Residential
University of Akron	Certificate; M.S in Geography	Residential
University of Cincinnati	M.A., Ph.D.; GIS Certificate Program	Residential
University of Dayton	Certificate	Residential
University of Toledo	Certificate	Residential

*Table 7. Geography Graduate Programs in Ohio*

- b Appropriateness of specific locale for the program.  
**As this program is fully online, the specific locale is not as important as the specific expertise provided by the GISc faculty in the Department of Geography at Kent State University.**
  
- c Opportunities for inter-institutional collaboration.  
**As this program is fully online, it can leverage the GISc experts throughout Ohio both in industry and at other universities by inviting them to serve as instructors of courses in their areas of expertise.**
  
- d Institutional Priority and Costs
  - i Support and commitment of the proposing institution’s central administration.
    - **Online learning is an institutional priority at Kent State. The creation of new fully online degrees are the highest priority and our program has been elevated to market through Everspring, a professional company dedicated to marketing and delivering DL. The College of Arts and Sciences made a significant investment in purchasing a state-of-the-art computing cluster consisting of 386 computing cores, almost 1.5 terabytes (or 1,500 gigabytes) of memory, and more than 30 terabytes (or 30,000 gigabytes) of total disk space to support parallel and high-performance computing, which is available to be utilized by students in the CyberGIS concentration.**
    - **Last two faculty hires were partially for this program**
    - **We have a dedicated technical support line in Geography**
    - **The College of Arts and Sciences has approved us to hire an academic program coordinator / manager**
  
  - ii Adequacy of available resources committed for the initiation of the program.
    - **There are eight faculty with specific expertise who will offer courses in this program. We are also utilizing courses from other disciplines as electives.**
    - **We are working with a team of course developers from the Office of Continuing and Distance Education**
    - **Blackboard will be utilized as the course delivery mechanism**
    - **We have full access to suite of course development tools**
    - **We are working with Everspring to market the program**
    - **We have servers and computing clusters of servers to support processing spatial big data and web-based GIS courses, which currently are provided by the College of Arts and Sciences.**

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- We are utilizing a virtual machine model. Our servers are sufficient to support the number of virtual machines (VM) for simultaneous access by students in the program. By using the VM model, we will fully replicate our current computer lab PC configurations providing online students with the same access as our face-to-face students. This is important, as students will not need to worry about installing and managing complex GIS software on their own machines; they will simply login to the VM and have access to everything. We are currently licensed in ArcGIS, ENVI, Idrisi, ERDAS, Microsoft Office and a plethora of other softwares.

5. External Support

- a Community, foundation, governmental and other resources.

Letters of support for this program are being provided by:

Joe Reichlin: GIS officer, Portage County Officer of Information Technology  
(representing Local Government)

Brian Kelley, Chief Information Officer, Portage County, Ohio (representing Local Government)

Brian George: Ohio Department of Natural Resources (representing State Government)

Mike Binkley: Manager of Technology Development, Davey Tree Company  
(representing private industry)

David DiBiase: Team Lead – Education and Industry ESRI (representing private industry)

Candida Mannozi: Education and Outreach Officer, the Association of American Geographers (representing the academic discipline of Geography)

Lisa Petit: Chief of Science and Resources Management, Cuyahoga Valley National Park Federal Government (representing Federal Government)

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