Program Change Request

New Program Proposal

Date Submitted: 02/05/16 10:55 am

Viewing: GEOG-CRTG : Graduate Certificate in Geographic Information Science

Last edit: 06/20/16 4:51 pm

Changes proposed by: lixi

<table>
<thead>
<tr>
<th>Academic Career</th>
<th>Graduate, Lawrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Type</td>
<td>Certificate</td>
</tr>
<tr>
<td>Department/Program</td>
<td>Geography (GEOG)</td>
</tr>
<tr>
<td>School/College</td>
<td>College of Lib Arts &amp; Sciences</td>
</tr>
</tbody>
</table>

Consulting

School(s)/College(s)  

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Consulting

Department(s)

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<tbody>
<tr>
<td>Geography</td>
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CIP Code

Program Name  

Graduate Certificate in Geographic Information Science

Location(s) of Instruction

Lawrence

Do you intend for this program to be offered online?

No

Effective Catalog  

2017 - 2018

In Workflow

A. CLAS Dean or Associate Dean
B. Provost's Office
C. COGA Director
D. CGS PAS Subcommittee Chair
E. CGS Committee
F. CAC
G. Graduate Studies
H. OIRP CIP Approval
I. Provost's Office
J. Future Academic Catalog

Approval Path

A. 03/15/16 7:38 am  
Kristine Latta (klatta):  
Approved for CLAS Dean or Associate Dean

B. 04/25/16 9:30 am  
Aileen Ball (aball):  
Approved for Provost's Office

C. 04/26/16 2:32 pm  
Kristine Latta (klatta):  
Approved for COGA Director

D. 04/26/16 2:33 pm  
Kristine Latta (klatta):  
Approved for CGS PAS Subcommittee Chair

E. 05/05/16 1:23 pm  
Kristine Latta (klatta):  
Approved for
Program Description

The Department of Geography and Atmospheric Science in the College of Liberal Arts and Sciences proposes to create a new graduate certificate program in Geographic Information Science (GIScience).

Geographic information systems (GIS) consist of computer hardware, software, data, and people that are used to capture, manage, analyze, display, and distribute all forms of geographically referenced information. Effective use of GIS has evolved into a requisite skill in most academic research, as well as for agencies in both the public and private sectors. Graduate students from such varied disciplines as geography, atmospheric science, biology, engineering, economics, urban planning, landscape architecture, and sociology benefit from applying GIS and related technologies such as global positioning systems (GPS), remote sensing, spatial statistics, and computer programming to input, analyze, model, and display (map) location-based data. As such, it has found wide applications in the sciences and engineering, as well as in business, government, military, and consumer areas.

The proposed certificate program is designed to provide graduate students with the knowledge and skills necessary to succeed in the rapidly expanding field of GIScience or apply GIScience concepts in their own field of study. The graduate certificate program complements the existing M.A., M.S., and Ph.D. degrees and builds upon the existing graduate concentrations in GIScience within the department.

Demand/Need for the Program

The proposed certificate is designed for graduate non-degree seeking and degree seeking graduate students in physical/natural sciences, environmental studies, urban planning, civil/environmental engineering or related fields that make use of geospatial data and spatial analysis. The Bureau of Labor Statistics notes in its Occupational Outlook that “Employment of surveying and mapping technicians is expected to grow 16 percent from 2010 to 2020,” about as fast as the average for all occupations. Recent advancements in mapping technology have led to new uses for maps and a need for more of the data used to build maps. Employment of geographers, especially with GIS skills, is expected to grow 35 percent from 2010 to 2020, much faster than the average for all occupations.

The greater Kansas City metro area is home to a number of companies that develop GIS hardware and software or offer services of GIS applications, including Garmin International (Lenexa, KS), MJ Harden Associates (Mission, KS), Wilson & Company (formerly Western Air Maps), and Seiler Instrument (Belton, MO), as well as numerous federal, state, and local governmental agencies that are major users of GIS technology. Furthermore, the multi-state MidAmerica GIS Consortium (MAGIC) has for the past 20 years held its biannual conference in Kansas City, with one scheduled in April 2016.

A recent in-depth review of the Kansas City Metropolitan area GIS-related job market done by the MidAmerica Regional Council (MARC) in April 2014 expected a 17% increases between 2013 and 2023. The review also showed 77 current GIS-related job openings but a graduate supply of only 33 students in 2013 in the region. There is a clear demand for employees with graduate degrees including GIS skills. The proposed GIS certificate programs will certainly improve the supply.

Comparative/Locational Advantage

The department offers M.A., M.S., and Ph.D. graduate degrees in Geography with specialization in GIScience. The proposed certificate program will enhance the educational experience of students in existing graduate degree programs, provide a needed educational opportunity for students, and allow degree- or non-degree-seeking students to develop much needed skills in mapping and spatial data analysis. In the region, although the Kansas State University and the University of Missouri-Kansas City (UMKC) also currently offer graduate certificate programs in GIScience, they still cannot meet the market demand as reported by MARC.

Admission Requirements

All current graduate students entering the certificate program must speak with their academic advisor before entering the certificate program. The Director of this certificate program will be available to meet with each student and design a curriculum that best meets the student’s needs. Each student will have a personalized plan depending on their interests and current enrollment in a graduate program or otherwise. Current Geography department graduate students who wish to pursue the certificate should consult with the Director of Graduate Studies. The Department will then request that the College/School add a certificate line to the student’s plan. There is no application fee.

KU graduate students in other departments should complete the online application for the GIScience Graduate Certificate Program found at http://graduate.ku.edu/ku-graduate-application and pay the associated fee. Departmental application requirements include:

https://next.catalog.ku.edu/courseleaf/approve/
A. A GIScience Certificate Program Application that includes a statement of interest in GIScience
B. Current Degree Progress Report (DPR) if applicable
C. A graduate GPA of 3.0 or higher is required if currently enrolled in a graduate program

Prospective students seeking the certificate only should complete the online application for the GIScience Graduate Certificate Program found at http://graduate.ku.edu/ku-graduate-application and pay the associated fee. Departmental application requirements include:

A. Copy of official transcripts from all previous post-secondary educational institutions
B. Letter of recommendation from persons familiar with their academic work or potential for graduate school
C. A GIScience Certificate Program Application that includes a statement of interest in GIScience

Please see the policy on Graduate Certificate Programs - Eligibility and Admission Criteria for more information on minimum requirements for graduate certificate admission.

Degree Requirements

A total of 12 credit hours are required to earn the certificate. Only one course outside of the Department of Geography and Atmospheric Science may be included in these 12 credit hours. Course requirements include the following:

Select 2 of the 3 core GIS courses (6-7 credit hours) listed below:

- GEOG 528: Spatial Databases
- GEOG 558: Intermediate Geographical Information Systems (4)
- GEOG 560: GIS Application Programming (3)

Core courses may be waived and replaced with approved electives in cases where students have completed the same course for undergraduate credit.

Select an additional 5-6 credit hours of electives from the following:

- ATMO 642: Remote Sensing (3)
- GEOG 517: Data Handling and Map Symbolization (3)
- GEOG 526: Remote Sensing of Environment I (4)
- GEOG 658: Topics in Geographic Information Science: _____ (1-6)
- GEOG 716: Advanced Geostatistics (3)
- GEOG 726: Remote Sensing of Environment II (4)
- GEOG 758: Geographic Information Science (4)
- GEOG 898: Readings in Geography (1-4)

Any graduate-level GIS application course from another department/school (in consultation with advisor)

Or, a third core course from the core GIS courses listed above

At least once per year students are required to meet with the certificate Director to discuss progress in the program.

A student can take no longer than 4 years to pursue the certificate unless a leave of absence or other extenuating circumstances are present. In either event a petition letter must be submitted to the Director during the 4th year of enrollment.

Faculty Profile

<table>
<thead>
<tr>
<th>Name of Faculty and Rank</th>
<th>Highest Degree</th>
<th>Number of Faculty FTE</th>
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</thead>
<tbody>
<tr>
<td>Xingong Li, Associate Professor</td>
<td>Ph.D.</td>
<td>1</td>
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<tr>
<td>Ting Lei, Assistant Professor</td>
<td>Ph.D.</td>
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<tr>
<td>Steve Egbert, Professor</td>
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<tr>
<td>Nate Brunsell, Professor</td>
<td>Ph.D.</td>
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<tr>
<td>Kees van der Veen, Professor</td>
<td>Ph.D.</td>
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<tr>
<td>Dan Hirmas, Associate Professor</td>
<td>Ph.D.</td>
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Student Profile

<table>
<thead>
<tr>
<th>Anticipated student enrollment</th>
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</thead>
<tbody>
<tr>
<td>Year 1</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

| Year 2 | 10 | 2 | 12 |
| Year 3 | 15 | 5 | 20 |

<table>
<thead>
<tr>
<th>Anticipated number of program graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>After 5 Years</td>
</tr>
<tr>
<td>After 7 Years</td>
</tr>
</tbody>
</table>

Academic Support

No additional academic support is required.

Facilities and Equipment

No additional facilities and equipment are required.
Program Review, Assessment, Accreditation

This program will be subject to review every 7 years as part of the mandatory review and renewal process for all graduate certificates. Curricula for department courses are reviewed annually during the faculty evaluation process to ensure that they are appropriate for the courses being taught. No professional organization accredits certificate programs in geography.

Costs, Financing

<table>
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<tr>
<th></th>
<th>Salaries</th>
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<th>Equipment</th>
<th>Other</th>
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</thead>
<tbody>
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<td>Year 2</td>
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<td>0</td>
<td>0</td>
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</tbody>
</table>

What is the source of the new funds?

No new funds are needed.

Rationale for proposal

Effective use of GIS has evolved into a requisite skill in most academic research, as well as for agencies in both the public and private sectors. Graduate students from such varied disciplines benefit from applying GIS and related technologies to collect and analyze location-based data. The graduate certificate program complements the existing M.A., M.S., and Ph.D. degrees and builds upon the existing graduate concentrations in GIScience within the department.

Additional Information

Supporting Documents

Program Reviewer Comments

Kristine Latta (klatta) (02/15/16 12:47 pm): Emailed Dr. Li with preliminary feedback on 2/12/16. Holding on response.

Kristine Latta (klatta) (03/04/16 11:53 am): Sent to Bob Goldstein on 2/26/16

Kristine Latta (klatta) (03/10/16 3:29 pm): Edits suggested by Associate Dean and accepted by departments.

Kristine Latta (klatta) (03/10/16 3:30 pm): New course proposal for GEOG 528 that will be submitted by the department within the next few weeks.

Kristine Latta (klatta) (03/10/16 3:31 pm): Contact for the proposal is Xingong Li.

Kristine Latta (klatta) (03/15/16 7:36 am): Approved by Dean Lejuez on 3/14/16.

Kristine Latta (klatta) (05/12/16 2:24 pm): GEOG 528 (missing course) has been approved by CAC and should auto-fill as soon as it's fully approved.

Amber Roberts Graham (amberts) (06/20/16 11:26 am): Rollback: Requested Rollback