GIS AND RESEARCH DESIGN
LEADERSHIP 7300
Summer 2015

General Information
CRN: 33802
Lecture Location: Burdick 313, 4:00 – 6:30 P.M., May 11 – August 7, 2015 (selected dates; see schedule)
Instructor: Stephen O'Connell, Ph.D., Assistant Professor
E-mail: soconnell@uca.edu
Office: 318E Burdick Hall
Phone: 501.450.3280
Office Hours: By appointment

Resources
Online Space: Blackboard Learn 9.1 (accessed through myUCA)

Course Description
This course is a general introduction to Geographic Information Systems (GIS) as a tool for spatial research. It is intended to provide those without a background in geography or spatial science applications with the fundamental skills to apply appropriate methodologies to geographic data in a GIS environment. Basic tasks such as spatial data collection and organization, mapping values, determining density, measuring proximity, and analyzing patterns in data across space will be discussed and practiced through a series of workbook-based tutorials. The course format will involve short lectures and demonstrations as well as computer-based laboratory sessions. Students will be expected to use their newly-learned GIS skills in the development of a practical research project, to be completed during the second portion of the term.

Course Goals and Objectives
Students will be introduced to a number of spatial analysis techniques within the context of GIS software. These techniques will be presented with the intention of helping students build competency in asking and answering spatial questions. There are several goals students should keep in mind during the semester. Through this course, students should:
- be able to formulate and examine spatial questions using GIS;
- understand practical applications of geospatial technologies;
- utilize appropriate methodologies for specific tasks in a GIS;
- understand and appreciate the variety of theoretical and methodological approaches for thinking about geography and spatial thinking;
- find greater interest in engaging with alternative research tools and practices.
**Graded Assignments**

**Grading**

Grades are based on a 300-point scale and are distributed as follows:

1. **GIS Methodology Assignments** (100 points): These assignments will comprise the first several weeks of the course and will be derived from both online and textbook-based exercises. Each individual assignment will be valued between 10 and 20 points. See Blackboard Assignment Submission folder for details.

2. **Research Assignment** (150 points): Students will complete a spatially-oriented research project to showcase applicable GIS methodologies. This research project should correspond with (or be closely aligned with) the student’s graduate research agenda. The project will be graded in three parts:
   a. **Development of Appropriate Spatial Questions** (25 points): Students will formulate spatial questions appropriate to their topic and consistent with available data and GIS tools. The exact construction of questions will be dependent on the specific research topic, however students are encouraged to consider a single, encompassing ‘umbrella’ question with three or four supporting questions used to answer the primary question.
   b. **Formal Project Design Proposal** (50 points): In the context of the stated spatial questions, and with reference to existing GIS practices and methodologies, students will propose a GIS research agenda. This will include the philosophical and practical background for the primary question, applicable data sources, intended methodologies, expected outcomes, and potential benefits for the use of GIS.
   c. **Project Presentation** (75 points): In the final class sessions, students will present the results of their GIS research projects. These presentations will include an overview of acquired or constructed data, GIS techniques and tools employed, and pertinent answers and outcomes. Additionally, students should summarize their experience with the GIS environment itself—significant problems encountered, alternative approaches to data collection or analysis, revelations about the structure of data, etc.

3. **Participation, Discussion, and Interaction** (50 points): These points will be based on student preparation for in-class discussions and engagement with topical activities in-class and through Blackboard.

Point ranges are distributed as follows: (out of 300 points)

- A 300-270
- B 269-240
- C 239-210
- D 209-180
- F 179 and below

**Some Notes on Grading**

All assignment components will be graded on an 8-point scale based on the expectations for the specific course objective being assessed. Completion of work in a manner that simply reflects the most basic requirements for any assignment will be given a satisfactory grade; only submissions that attempt to exceed the parameters of the graded items will be given outstanding or exemplary scores. A detailed overview of this grading scale is available on Blackboard.
**SCHEDULE (subject to change)**

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<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Assignments</th>
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<tbody>
<tr>
<td>1</td>
<td>T 5/12</td>
<td>Introduction to GIS</td>
<td>Getting Started with GIS (Online)</td>
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<td></td>
<td>W 5/13</td>
<td>Navigating in GIS</td>
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<td>2</td>
<td>T 5/19</td>
<td>Data Structure in GIS</td>
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<td></td>
<td>R 5/21</td>
<td>GIS Methodologies – Value</td>
<td>Tutorial/Exercise 2-2</td>
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<td>3</td>
<td>T 5/26</td>
<td>GIS Methodologies – Density</td>
<td>Tutorial/Exercise 3-2</td>
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<td>W 5/27</td>
<td>GIS Methodologies – Proximity</td>
<td>Tutorial/Exercise 5-8</td>
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<td>T 6/2</td>
<td>GIS Methodologies – Distribution</td>
<td>Tutorial/Exercise 7-4</td>
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<td>R 6/4</td>
<td>GIS Methodologies – Clustering</td>
<td>Tutorial/Exercise 9-2</td>
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<td>5</td>
<td>R 6/11</td>
<td>Formulating Spatial Questions</td>
<td><em>Project-Based Spatial Questions</em></td>
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<td>6</td>
<td>R 6/18</td>
<td>Research Design in GIS</td>
<td>Project-Based Spatial Questions</td>
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<td>7</td>
<td>T 6/23</td>
<td>Finding &amp; Organizing Data for GIS</td>
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<td>8</td>
<td>R 7/2</td>
<td>Practical Concerns in Data Processing</td>
<td>GIS Project Proposal</td>
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<td>9</td>
<td>R 7/9</td>
<td>Project Planning for GIS</td>
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<td>10</td>
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<td>NO CLASS – Student Research</td>
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<td>13</td>
<td>T 8/4</td>
<td>Research Presentations</td>
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<td>W 8/5</td>
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<td>R 8/6</td>
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**GENERAL POLICIES**

**Classroom Conduct**
I have a few basic rules that help to make class more enjoyable and more worthwhile. The first is to be in your seat on time. Many students have short gaps between classes, but the arrangement of our classroom makes late arrivals a serious distraction. Please do not start packing up your things before I have dismissed the class. If you know that you will be arriving late or need to leave early on a specific date, please let me know ahead of time. Students should refrain from using the text-messaging or camera functions of their mobile devices, unless instructed to do so. I do allow the use of laptops for note taking. Laptop use other than note taking will be viewed as a violation of the course conduct guidelines. I hope class discussions will become a regular part of this course. In those discussions, we will attempt to think critically about the themes of geography. I encourage all students to keep an open mind about ideas which they may not be familiar and be respectful of alternative ideas and your fellow classmates’ opinions.

**General Assignment Policies**
All assignments will be due on the date signified in the syllabus, syllabus attachments, or on the Blackboard Calendar. Work may be accepted after the due date, at the discretion of the instructor and with an increased penalty for each 24-hour period the assignment is late. It is the responsibility of the student to inform the instructor ahead of time if there is a specific conflict with a due date or scheduled exam time. Grading rubrics for selected assignments and for the late policy are available for review on Blackboard.

**Attendance & Participation**
Regular attendance is expected. Classroom discussions will make up a large amount of this course and evaluation of those discussions will be a significant part of the final grade. Active participation, and preparation and organization on specific topics are key for a satisfactory grade. While I don’t use class attendance as a stand-alone, graded portion of the course, I reserve the right to employ it to determine borderline grades. Students may be dropped for non-attendance.

**Academic Integrity**
UCA affirms its commitment to academic integrity and expects all members of the university community to accept shared responsibility for maintaining academic integrity. Students in this course are subject to the provisions of the university’s Academic Integrity Policy, approved by the Board of Trustees as Board Policy No. 709 on February 10, 2010, and published in the Student Handbook. Penalties for academic misconduct in this course may include a failing grade on an assignment, failing grade in the course, or any other course-related sanction the instructor determines to be appropriate. Continued enrollment in this course affirms a student’s acceptance of this policy. For all assignments, unless otherwise stipulated, the expectation is that all work is to be done by each student. I expect students to conduct themselves in accordance with the principles and purpose of policies on academic integrity. Not only does this mean doing your own work, but also respecting your fellow students and the instructor by following guidelines as set forth in the syllabus.

**Disability Services**
UCA adheres to the requirements of the Americans with Disabilities Act. If you need an accommodation under this Act due to a disability, please contact the UCA Office of Disability Support Services at 450-3613. If you receive services through the ODS and require accommodation for this class, please make an appointment to see me as soon as possible so that we can explore ways to accommodate your learning style.

**Building Emergency Plan**
An Emergency Procedures Summary (EPS) for the building in which this class is held will be discussed during the first week of this course. EPS documents for most buildings on campus are available at [http://uca.edu/mysafety/dep](http://uca.edu/mysafety/dep). Every student should be familiar with emergency procedures for any campus building in which he/she spends time for classes or other purposes. Campus-wide alerts are available through the UCA Alert System, which will send a text message to registered cell phones in the case of an emergency.

**Title IX Policy**
If a student discloses an act of sexual harassment, discrimination, assault, or other sexual misconduct to a faculty member (as it relates to “student-on-student” or “employee-on-student”), the faculty member cannot maintain complete confidentiality and is required to report the act and may be required to reveal the names of the parties involved. Any allegations made by a student may or may not trigger an investigation. Each situation differs and the obligation to conduct an investigation will depend on those specific set of circumstances. The determination to conduct an investigation will be made by the Title IX Coordinator. For further information, please visit: [https://uca.edu/titleix](https://uca.edu/titleix). *Disclosure of sexual misconduct by a third party who is not a student and/or employee is also required if the misconduct occurs when the third party is a participant in a university-sponsored program, event, or activity.*