82 Proposal # (Academic Affairs use only)

AY20-202 Proposal # (College use only) **LACC Revised & Approved 3-6-2020**

# REQUEST FOR A NEW COURSE

University of Central Oklahoma

Course Subject (Prefix), Number, and Title:

| Course Subject | Recommended Number | Course Title (maximum of 30 characters) *Remember when abbreviating names, this is how they will appear on student's transcripts. |
|---|---|---|
| **GEO** | **5733** | **Urban GIS** |

Course Title: (full title of course if longer than 30 characters)

N/A

For information regarding CIP codes contact your department chair or visit: http://www.uco.edu/academic-affairs/ir/program_inventory.asp

CIP Code: **45.0702**

For graduate courses, please attach a syllabus for this course. (See syllabus requirement policy 2.2.)

Course description as it will appear in the appropriate catalog.

Course description only Do not include prerequisites or enrollment restrictions, these should be added under questions 6-12.
(Please use standard American English including full sentences.)

**Urban GIS offers advanced geographic information system techniques applied to urban and socio-economic issues including urban and regional planning, urban ecology, and demographic analysis.**

**History and Geography**
Department submitting the proposal

| **Dr. Brad Watkins** | **bwatkins8@uco.edu** | **5842** |
|---|---|---|
| Person to contact with questions | email address | Ext. number |

Approved by:

Katrina Lacher Digitally signed by Katrina Lacher Date: 2020.09.17 09:00:44 -05'00'
Department Chairperson Date

Rozilyn Miller, Ph.D. Digitally signed by Rozilyn Miller, Ph.D. Date: 2020.09.17 13:44:16 -05'00'
College Curriculum Committee Chair Date
(Please notify department chair when proposal is forwarded to dean.)

Dean Catherine Webster Digitally signed by Dean Catherine Webster Date: 2020.09.18 09:19:51 -05'00'
College Dean Date
(Please notify the department chair when proposal is forwarded to AA.)

Academic Affairs Curriculum or Graduate Council Date

Office of Academic Affairs Date

Effective term for this new course
(Assigned by the Office of Academic Affairs.)



Functional Review ____CS____
undergraduate proposals only)

1. Does this course have an undergraduate / graduate counterpart?
   **X Yes** ___ No

2. Is this proposal part of a larger submission package including a program change?
   ___ Yes **X No**

3. Does this new course affect a teacher preparation program? (All courses required for any teacher preparation program must have approval from the Council on Teacher Education (CTE) before approval from AACC or Graduate Council.)
   ___ Yes **X No** If yes, send copy of proposal to the Education Curriculum Committee Chair, Dr. Darla Fent.
   CTE Approval (Stamp or initial)_____

4. Has this course been previously taught as a common course (4910 seminar, 4960 institute, etc.)?
   ___ Yes **X No** If yes, when was the most recent offering? _____

5. Does this course affect majors or minors outside the department?
   Yes **X No** If yes, provide name(s) of department chair(s) contacted, dates, and results of discussion.
   _____

6. Prerequisite courses:
   Example 1: MATH 1213 and (MATH 2165 or MATH 2185) and CHEM 1213 Example 3: 8 hours of biology including BIO 1404
   Example 2: (ACCT 2113 and 2213) and (MGMT 3013 or ISOM 3613)
   **N/A**

7. Co-requisite(s): Which of the above prerequisite courses, if any, may be taken in the same semester as the proposed new course?
   **N/A**

8. Concurrent enrollment: Courses that must be taken the same semester. Example: lab courses.
   **N/A**

9. Will this course have enrollment restrictions?
   **X Yes** _____ No If No, go to question 13.

10. Specify which major(s) may or may not take this course. Specifying a major, excludes all other majors from enrolling.
    Check one: N/A May _____ May not _____

    Major Code: _____|_____|_____|_____|_____|_____|_____|_____|_____

11. Which of the following student classification(s) may enroll in this course?

| | | Check all that apply: |
|---|---|---|
| Graduate | (2) 19 + hours | X |
| Graduate | (1) 0-18 hours | X |
| Post Baccalaureate * | | |
| Senior | | |
| Junior | | |
| Sophomore | | |
| Freshman | | |

    * Graduate level courses are not open to Post Baccalaureate students.

12. Check or list other restrictions for this course.

    Admission to Graduate Programs _____
    Admission to Nursing Program _____
    Admission to Teacher Education _____

    Other _____

13. Course objectives: Objectives should be observable, measurable and include scholarly or creative activities to meet the course level characteristics. Course objectives should also be in line with the course description. (Please refer to instructional objectives documents at: http://www.uco.edu/academic-affairs/faculty-staff/aacc.asp#FAQ/Helpful%20Hints.)

**By the end of this course students will be able to:**
**- Demonstrate advanced skill-level in GIS techniques**
**- Design an original geodatabase that facilitates urban planning**
**- Assemble a functional historical geographic information systems database form archival sources**
**- Apply advanced GIS techniques to address urban/social issues**
**- Demonstrate advanced mapping techniques**
**- Demonstrate functional knowledge of and integrate global positioning system data**
**- Develop a research topic and create a conference-quality research poster**

Course Detail Information:

14. Contact Hours (per week)

**3** Lecture hours (in class)

_____ Lab hours (also studios)

_____ Other (outside activities)

15. Repeatable course.

**1** Number of times this course can be taken for credit.

16. Schedule type: (select one only)

_____ Activity P.E. (A)
_____ Lab only (B)
_____ Lecture/Lab (C)
**L** **Lecture only (L)**
_____ Recitation/Lab (R)
_____ Student Teaching (STU)
_____ Studio Art/Design (XSU)

17. List existing course(s) for which this course will be a prerequisite. Adding a "new course" as a prerequisite to an existing course will likely cause enrollment problems. (Please submit a prerequisite change form for each course for which this course will serve as a prerequisite.)

**N/A**

18. What resources, technology or equipment must be acquired to teach this course? List items, which must be purchased and estimate cost. (Be specific, e.g., technology software, equipment, computer lab; etc.)

**No additional resources will be required.**

19. The UCO Library has the required library resources available for this new course?

**X** **Yes** __ No If yes, provide names of Librarian/Faculty Liaisons contacted, dates, and results of discussion.

**Aaron Sterba reported on 11/14/19 that the library has sufficient sources to support the course.**

If no, what additional library resources must be acquired for this new course? List items which must be purchased and estimated cost. (Be specific, e.g., books, magazines, journals, etc.)

**N/A**

20. Names of current faculty qualified to teach this course.

**Dr. Brad Watkins**

21. Additional faculty (adjunct or full-time) required and specific competencies required to teach this course:
**None**

22. How will this course be staffed and equipped? Identify the additional costs associated with this new course. If no costs, explain why not.
**Current faculty teach the undergraduate counterpart to this course. No additional funds are required because it is part of the existing course rotation.**

23. Identify the source(s) of funds for any additional costs for the new course. i.e. internal reallocations, special fees from students, etc. If you plan to propose special fees be assessed for this course, be aware there is a separate approval process for special fees.
**N/A**

24. Projected enrollment for two academic years following approval of new course:

| Semester | 2022 | 2023 |
|---|---|---|
| Fall | | 5 |
| Spring | 5 | |
| Summer | | |

25. Using State Regents' definition of liberal arts and sciences (quoted below), characterize the course as follows:
_____ Non-liberal arts and sciences
**X** Liberal arts and sciences

"The liberal arts and sciences are defined as those traditional fields of study in the humanities; social and behavioral sciences; communications; natural and life sciences, mathematics; and the history, literature, and theory of fine arts (music, art, drama, dance). Courses in these fields whose primary purpose is directed toward specific occupational or professional objectives, or courses in the arts which rely substantially on studio or performance work are not considered to be liberal arts and sciences for the purpose of this policy. Courses required for the General Educational Program are not necessarily synonymous or mutually exclusive with the liberal arts and sciences." State Regents Policy and Procedures. Chapter 2, Section 5, "Degree Requirements" part 1, (2). P. II-2-86

26. Please provide a concise, yet comprehensive, statement that explains the reasons for requesting the new course. Include documentation or assessment information supporting the specific request (if possible). Indicate the expected source of student enrollment (majors, minors, programs etc.)
**The proposed course will meet a need expressed by graduate students in multiple disciplines (Biology, Business Analytics, Public Administration, History) for graduate-level GIS courses.**

27 Which of the six transformative learning tenets does this course incorporate? (check all that apply or only those that apply) This question was a directive from the Provost and is used for informational purposes.

| | |
|---|---|
| Discipline Knowledge | **X** |
| Leadership | **X** |
| Research, Scholarly and Creative Activities | **X** |
| Service Learning and Civic Engagement | |
| Global and Cultural Competencies | |
| Health and Wellness | |

28. Clearly explain how the characteristics of this course meet or exceed those outlined in Course Level Characteristics. (Copy and paste table from "Course Level Characteristics" document for the appropriate course level of proposed course. Document may be found on: http://sites.uco.edu/academic-affairs/files/course-level-characteristics-table.doc .

## 5000 LEVEL COURSES

| Course Level Characteristics | Please describe how this course meets this requirement. |
|---|---|
| 1. It is assumed that students in these courses have acquired the ability to use language effectively, to engage in analytical thought and creative processes, and to use information and bibliographic sources with skill. | **Students are required to create a research proposal outlining the project scope, study area, methods, and conclusions. The quality must be suitable for presentation at a conference.** |
| 2. It is assumed that students in these courses have achieved a significant level of maturity in the discipline, evidenced by a considerable background of knowledge. | **Students will complete a literature review putting their research topic into the context of their respective fields of study. Students will complete literature reviews for project proposals and for research posters.** |
| 3. These courses should be more than a mere extension of undergraduate courses. Rather, they should be qualitatively different. At a minimum:<br>a. Students should be required to undertake original scholarly/creative activity.<br>b. Students should assume greater responsibility for mastering the subject matter.<br>c. Close working relationships should exist between instructors and students. | **a. Students will develop an original data set for the course.**<br>**b. Students will create a research poster suitable for conference presentation.**<br>**c. Students will meet with instructor outside of class time bi-weekly to report on progress towards project completion.** |

# GEO 5733
# Urban GIS
**Spring 2022**
Department of History and Geography
College of Liberal Arts

**Meeting Time:** Arranged (CRN XXXXX)
**Classroom:** LAN 145
**Professor:** Dr. Brad Watkins
**Office:** LAN 201C
**Email:** bwatkins8@uco.edu (preferred)
**Phone:** 405-974-5842
**Skype:** ID Available on request
**Office Hours:** M-R: 11:00 am – 12:00 pm; T: 2:00 pm – 3:00 pm *or by appointment*

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## COURSE DESCRIPTION

Urban GIS offers advanced geographic information system techniques applied to urban and socio-economic issues including urban and regional planning, urban ecology, and demographic analysis.

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## OBJECTIVES

By the end of this students should be able to:
- Demonstrate advanced skill-level in GIS techniques
- Design an original geodatabase that facilitates urban planning
- Assemble a functional historical geographic information systems database form archival sources
- Apply advanced GIS techniques to address urban/social issues
- Demonstrate advanced mapping techniques
- Demonstrate functional knowledge of and integrate global positioning system data
- Develop a research topic and create a conference-quality research poster

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## THE CENTRAL SIX

At the University of Central Oklahoma, we are guided by the mission of helping students learn by providing transformative experiences so that they may become productive, creative, ethical and engaged citizens and leaders contributing to the intellectual, cultural, economic and social advancement of the communities they serve. Transformative learning is a holistic process that places students at the center of their own active and reflective learning experiences. A student's major field is central to the learning experience and is a vital part of the "Central Six."

This course addresses the following aspects of the Central Six:

**Discipline Knowledge:** Students will complete readings and lab assignments that teach them the fundamental skills needed to work efficiently with GIS software. These assignments will provide them with the skillset needed to obtain GIS internships.
**Leadership:** Graduate students in cross-listed courses have the opportunity to demonstrate the qualities necessary for success in advanced studies. Thus, graduate students will model this qualities for the undergraduate students in the course.
**Research, Scholarly and Creative Activities:** Success in a GIS course means using the software to solve spatial problems. Students will develop their individual project based upon current GIS/GPS techniques with the latest software.

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## ATTENDANCE

**Attendance is required.**

***After 4 unexcused absences, 10% will be deducted from your grade. An additional 10% will be deducted for each additional unexcused absence. If you miss 8 classes, you will fail the course.**

*Students who do not attend the first two weeks of class will be administratively dropped from the course.

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**LATE WORK AND MAKE-UP EXAMS**

**Exams may not be made up.**

**Late work will not be accepted.**

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**CLASSROOM ETIQUETTE**

Please respect the learning environment of students and the professor. Do not sleep or do homework in class. Recording lectures is prohibited. Do not use Facebook or any other social networking site in class. Do not surf the Web unless asked by the professor to visit a particular website. You may use your smart phone/cell phone in class to check email, email professor, or to check text messages as long as it is kept to a minimum. You may not make phone calls during class. You must silence your phone during class. It is considered disruptive behavior to engage in any of these prohibited activities.

Turn off or silence all electronic devices during exams and quizzes. If caught using any electronic device during an exam, you will receive no points for that exam and disciplinary action will be considered as outlined in the Code of Student Conduct. I encourage lively discussions during classes, but derogatory comments, negativity, and poor attitudes will not be tolerated and will be considered disruptive behavior. If you engage in these disruptive activities you will be asked to leave the class. If you commit multiple violations of the written policy, disciplinary action will be taken as outlined in the Code of Student Conduct.

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**REQUIRED BOOKS**

Mitchell, Andy. 1999. *The ESRI Guide to GIS Analysis Volume 1: Geographic Patterns & Relationships*. Redlands, CA: ESRI Press.

Mitchell, Andy. 2005. *The ESRI Guide to GIS Analysis Volume 2: Spatial Measurements & Statistics*. Redlands, CA: ESRI Press.

Mitchell, Andy. 2012. *The ESRI Guide to GIS Analysis Volume 3: Modeling Suitability, Movement, and Interaction*. Redlands, CA: ESRI Press.

LeGates, Richard. 2005. *Think Globally, Act Regionally: GIS and Data Visualization for Social Science and Public Policy Research*. Redlands, CA: ESRI Press.

Knowles, Anne Kelly, ed. 2002. *Past Time, Past Place: GIS for History*. Redlands, CA: ESRI Press.

Turabian, Kate L. 2018. *A Manual for Writers of Research Papers, Theses, and Dissertations: Chicago Style for Students & Researchers*. 9th ed. Chicago: University of Chicago Press.

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**RECOMMENDED MATERIALS**

*External hard drive*

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**COURSE REQUIREMENTS**

Lab Assignments

You will have six lab assignments throughout the semester, two for each section of class. You will have two weeks to complete each lab. Labs are due at the beginning of class. You will use ArcGIS and GPS Pathfinder Office to

complete the labs. After the first week, we will use Thursday as "lab day". You will have few opportunities to work on your lab assignment outside of our scheduled lab times.

Graduate Meetings

Graduate students will meet with the professor bi-weekly beginning with the second week of the course. During these meetings, students will inform their colleagues and the instructor of the progress made towards the research topic and geodatabase design. Students are required to participate and problem solve during each meeting.

Project Proposal

The choice of topic is yours, but it must be approved by the instructor via a brief project proposal. It is a good idea to meet with the professor during office hours to discuss the project and project proposal. The proposal will consist of a write-up, maps and a concept map. Detailed instructions on the proposal as well as submission information for the assignment will be provided as we the progress through the semester. You will **submit an electronic copy** of your project proposal to the D2L Dropbox. The proposal will be checked for plagiarism using Turnitin. You also will **hand in a hard copy** of the project proposal to be graded. Proposals must follow Chicago Manual of Style, author-date format. Follow style requirements set forth in the *Chicago Manual of Style*.

Project

You will have a graded project in which you will demonstrate various aspects of what you have learned throughout the course. The project will consist of an original dataset, an analysis of a spatial pattern(s) or a spatial problem, a 15 page technical write-up with a literature review, a complete project concept map and at least two maps displaying the project results. The choice of topic is yours, but it must be approved by the instructor via a brief project proposal. Detailed instructions and requirements for the project will be provided as the semester progresses. You also will **submit an electronic copy** of your project to the D2L Dropbox for grading. The project will be checked for plagiarism using Turnitin. You also will **hand in a hard copy** of the project to be graded. You will **submit your dataset** by providing your geodatabase and all appropriate ArcGIS .mxd files in your student drive in a folder called "Project". The data set and project .mxd files saved in the Project folder must be fully functional. Project reports must follow Chicago Manual of Style, author-date format. Follow style requirements set forth in the *Chicago Manual of Style*.

Project Presentation

You will present the results of your project as a formal presentation at the end of the semester. You will deliver in the style of a research poster. Poster dimensions must not exceed 42" by 42".

Exams

You will have two exams during the semester, a mid-term and a final. Each will be a combination of multiple choice, short answer, and true/false questions. They will be taken online using D2L during the class periods. **The final will be comprehensive.**

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**FIELD TRIP**

In addition to regular classroom and lab attendance, you must attend the field trip that will be scheduled for April. It is on this field trip that you will obtain part of the data needed to complete one of the lab assignments. In addition, you will put your skills to work with global positioning system technology and receive field training that accompanies a formal geography education. The destination is the Selman Living Lab in northwestern Oklahoma, six miles west of Alabaster Caverns State Park. The trip takes 3.5 hours one way, so plan to be away for two full days. More details on the field trip will be provided early in the semester. A written assignment requiring an equivalent amount of time will be given to those who cannot attend the field trip.

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**GRADING**

| Assessment | Number | Points Each | Points |
|---|---|---|---|
| Lab Assignments | 6 | 50 | 300 |
| Graduate Meetings | 6 | 15 | 90 |
| Field Trip | 1 | 50 | 50 |
| Project Proposal | 1 | 75 | 85 |
| Research Poster | 1 | 100 | 100 |
| Poster Presentation | 1 | 75 | 75 |
| Midterm Exam | 1 | 100 | 100 |
| Final Exam | 1 | 200 | 200 |
| **Total Points** | | | **1,000** |

A = 1000-900 points
B = 899-700 points
C = 699-600 points
D = 599-500 points
F = 599 and below

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**FINAL EXAM**

Exam Day and Time: **Tuesday, Dec 11th, 1:00 pm - 2:50 pm**

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**ACCOMODATIONS**

The University of Central Oklahoma complies with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. Students with disabilities who need special accommodations must make their requests by contacting Disability Support Services, at (405) 974-2516. The DSS Office is located in the Nigh University Center, Room 305. Students should also notify the instructor of special accommodation needs as soon as possible. Per Title IX of the Education Amendments of 1972 ("Title IX"), *pregnant and* parenting students may request adjustments by contacting the Title IX Coordinator, at (405) 974-3377 or TitleIX@uco.edu. The Title IX Office is located in the Lillard Administration Building, Room 114D.

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**SYLLABUS ATTACHMENT**

http://sites.uco.edu/academic-affairs/files/aa-forms/StudentInfoSheet.pdf

**COURSE OUTLINE** (dates subject to change)

| Week | Topic | Reading Assignment |
|---|---|---|
| 1 (Jan 11/13) | Course Overview/Intro to GIS Review | LeGates xv-xx, Ch 1,2<br>Mitchell v1 Ch 1,2 |
| | **Urban GIS** | |
| 2 (Jan 18/20)<br>*No Class Jan 19th* | Vector-based GIS (buffer, clip, dissolve)<br>U.S. Census Data (geocoding) | LeGates Ch 3<br>Chang Ch 17<br>Mitchell v1 Ch 5,6 |
| 3 (Jan 25/27) | Creating Vector Data (digitizing, editing) | |
| 4 (Feb 1/3) | Raster-based GIS (distance, interpolation, surfaces) | LeGates Ch 6, 7<br>Chang Ch 13, 16<br>Mitchell v1 Ch 4 |
| 5 (Feb 8/10) | Trimble GPS/Digital elevation models<br>**Exam 1 (Thursday, February 10th)** | no reading |
| | **Historical GIS** | |
| 6 (Feb 15/17) | Georeferencing/Line of sight analysis<br>Monmonier Ch 11 | Knowles Introduction, Ch 1<br><br>Chang 302-308<br>Mitchell v1 Ch 7 |
| 7 (Feb 22/24) | Creating an historical GIS: Sanborn Fire Insurance Maps<br>**Project Proposal Due February 24th** | Lamb; Estaville |
| 8 (Mar 1/3) | General Land Office survey plats/BLM online | Mires, Schroeder |
| 9 (Mar 8/10) | GPS for Historical GIS/Relic Geography<br>3D GIS-visualizing history/animations<br>**Exam 2 (Thursday, March 10th)** | Knowles Ch 1,4,10<br>Goldthwait |
| 10 (Mar 15/17)<br>*NO CLASS* | **SPRING BREAK** | no reading |
| | **Field Work in the City** | |
| 11 (Mar 22/24) | Field Prep/GPS Data Dictionary Creation | from instructor |
| 12 (Mar 29/31) | Aerial image interpretation | Jensen Ch 5 |
| 13 (Apr 5/7) | Field Trip | Raitz, Hart |
| 14 (Apr 12/14) | Course Wrap Up | Mitchell v2 Ch 5 |
| 15 (Apr 19/21) | Final Project work time<br>**Final Project Due Thursday, April 21st, 5:00 p.m.** | no reading |
| 16 (Apr 26/28) | **Poster Presentations** | no reading |
| 17 (May 7) | **FINALS WEEK**<br>**Final Exam May 7th 1:00-2:50 p.m.** | |

**LAB OUTLINE** (dates subject to change)

| Week | Lab | Exercise |
|---|---|---|
| | **Urban GIS** | |
| 2 (Jan 21) | Lab 1: Reviewing ArcMap; Vector GIS | LeGates Ex 1,2 |
| 4 (Feb 4) | Lab 2: Raster GIS<br>Heads-up Digitizing | LeGates Ex 3,4<br>Digitizing Lab |
| | **Historical GIS** | |
| 6 (Feb 18) | Lab 3: Historical Edmond | Sanborn Lab |
| 9 (Mar 11) | Lab 4: Historical Reconstruction and Visualization | ArcScene Lab |
| | **Field Work in the City** | |
| 12 (Apr 1) | Lab 5: Historic Preservation with GPS | Data Dictionary Lab |
| 14 (Apr 15) | Lab 6: Urban Setting in 3D<br>Monmonier Ch 11 | Geovisualization Lab |
| 17 (May 8) | **FINALS WEEK**<br>**Final Exam Thursday, May 8th, 1:00-2:50 p.m.** | |