U90 311 Web GIS

I. Basic Course Info
U90 GIS 311 Web GIS
3 Credits
Fall 2018

II. Faculty Contact Information
John Lucotch
jlucotch@wustl.edu
970-400-1909
Thursdays 2-4:30PM
Details of contact:
Emails will be returned as soon as possible. All emails and calls will be returned within 24 hours.

III. Course Description
Prerequisites:
GIS 200 Introduction to GIS and GIS 303 Digital Cartography

Course Description:
The world continues to rely more heavily on location aware applications for everyday use, making the availability of accurate online mapping applications a high priority. The main component of online mapping applications is Geographical Information Systems (GIS). Web GIS is a course designed to teach students the basics of designing, creating and deploying web-based data and maps using ESRI software. This class will cover various topics including data management, data publication, web cartography, security, and web mapping platforms. The goal of this course is to prepare students to successfully and autonomously create online applications. Students will learn and demonstrate mastery of the necessary skills for web-based GIS primarily through ArcGIS Online, ArcGIS Portal and ArcGIS Server.

Associated UC programs/certificates:
GIS Certificate

Course Goals:
Students who complete this course successfully will:

1. Fully understand Web GIS and the role it plays in today’s world.
2. Recognize common Web GIS systems (ArcGIS Online and ArcGIS Server) and understand their functionality and limitations.
3. Recognize common Web GIS data types and understand their functionality and limitations.
4. Publish GIS data to a Web GIS system (ArcGIS Online and ArcGIS Server).
5. Create and develop web maps.
7. Design and build web mapping applications.
IV. Course Materials

Textbook:
Getting to Know Web GIS, 2nd Edition by Pinde Fu.

V. Grading Information and Criteria

Grading Scale:

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<thead>
<tr>
<th>Score</th>
<th>Grade</th>
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<th>Grade</th>
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<tbody>
<tr>
<td>100% - 95%</td>
<td>A</td>
<td>86% - 84%</td>
<td>B</td>
<td>76% - 74%</td>
<td>C</td>
</tr>
<tr>
<td>94% - 90%</td>
<td>A-</td>
<td>83% - 80%</td>
<td>B-</td>
<td>73% - 70%</td>
<td>C-</td>
</tr>
<tr>
<td>89% - 87%</td>
<td>B+</td>
<td>79% - 77%</td>
<td>C+</td>
<td>&lt; 69%</td>
<td>F</td>
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Class Weight:
Total Points: 500
Quizzes: 7 Quizzes at 10 points each = 70 points
Assignments: 13 Assignments at 15 points each = 195 points
Mid Term: 100 points
Final: 135 points

Course Grading:
1. Quizzes will be graded based on multiple choice, true/false, and written questions.
2. Assignments will be graded based on the depth of answers and understanding of the exercise.
3. Mid-Term project will be based on:
   - Integration of multiple Web GIS data types: 30%
   - Metadata and Data Management: 20%
   - Map Layout: 20%
   - Messaging: 30%
4. Final project will be based on:
   - Integration of multiple Web GIS data types: 30%
   - Metadata and Data Management: 10%
   - Map Layout: 20%
   - Messaging: 20%
   - Integration of analytical data layer: 5%
   - Integration of query widget: 5%
   - Online Presentation: 10%

Due Dates:
Assignments are due Saturday by 11:59pm the week the assignment is given unless otherwise noted.
Late Policy:
Assignments are due by the designated due date and receive no credit after that date.

Expectations for student attendance:
Students are expected to be actively involved in the class work and demonstrate efforts in learning Web GIS.

Tentative Schedule*

<table>
<thead>
<tr>
<th>Date - Week</th>
<th>Topics/Assigned Readings/Homework</th>
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</table>
| **8/27 - 1** | **Topic:** Web GIS class Overview, Student Introductions, What is Web GIS  
**Homework:** Introduction Discussions  
Web GIS Exercise  
Setup of ArcGIS and ArcGIS Server  
**Quiz:** Syllabus and Web GIS |
| **9/3**      | Labor Day Holiday – no class |
| **9/10 - 2** | **Topic:** Historic and Modern-Day Web GIS Methods and Techniques  
**Homework:** Finding and Analyzing Web Maps Exercise |
| **9/17 - 3** | **Topic:** Web GIS Systems (ArcGIS Online, ArcGIS Portal, and ArcGIS Server)  
**Homework:** Web GIS Platform Exercise |
| **9/24 - 4** | **Topic:** Feature Layers, Tile Layers and Map Items  
**Homework:** ArcGIS Online Data Type Analysis Exercise  
**Quiz:** ArcGIS Online |
| **10/1 - 5** | **Topic:** Dynamic Map Services, Cached Map Services, Image Services, and Geoprocessing Services  
**Homework:** ArcGIS Server Data Type Analysis Exercise |
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Homework</th>
<th>Quiz</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/8 - 6</td>
<td><strong>Topic:</strong> Web GIS Data Management, Documentation and Metadata</td>
<td><strong>Homework:</strong> Data Management Plan and Metadata Exercise</td>
<td><strong>Quiz:</strong> ArcGIS Server</td>
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<td>10/15</td>
<td>Fall break – no class</td>
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<tr>
<td>10/22 - 7</td>
<td><strong>Topic:</strong> Data Publishing to ArcGIS Online and ArcGIS Server</td>
<td><strong>Homework:</strong> Data Publishing Exercise</td>
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<tr>
<td>10/29 - 8</td>
<td><strong>Topic:</strong> Web Maps</td>
<td><strong>Homework:</strong> Building a Web Map Exercise</td>
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<tr>
<td>11/5 – 9 Midterm</td>
<td><strong>Topic:</strong> Web Map Creation and Presentation</td>
<td><strong>Midterm Project:</strong> Web Map Deliverable</td>
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<tr>
<td>11/12 – 10</td>
<td><strong>Topic:</strong> Web GIS Analysis</td>
<td><strong>Homework:</strong> Data Analysis Exercise</td>
<td><strong>Quiz:</strong> ArcGIS Online Data Analysis</td>
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<tr>
<td>11/19 – 11</td>
<td><strong>Topic:</strong> Web Mapping Applications</td>
<td><strong>Homework:</strong> Web Mapping Template Exercise</td>
<td><strong>Quiz:</strong> Web Mapping Applications</td>
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<tr>
<td>11/26 - 12</td>
<td><strong>Topic:</strong> Story Maps</td>
<td><strong>Homework:</strong> Create a Story Map Exercise (Textbook Pages 147-157 from Web GIS Text)</td>
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<tr>
<td>Date</td>
<td>Topic</td>
<td>Quiz:</td>
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<tr>
<td>12/3 – 13</td>
<td>Web Application Builder</td>
<td>Story Maps</td>
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<td></td>
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<td><strong>HomeWork:</strong></td>
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<td></td>
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<td>Create a Web Application Site Exercise (Textbook Pages 163-193 from Web GIS Text)</td>
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<td>12/10 – 14</td>
<td>Begin Web Application Builder Projects</td>
<td><strong>HomeWork:</strong></td>
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<td>Working</td>
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<tr>
<td>12/17 – 15</td>
<td>Web Application Builder Projects</td>
<td><strong>HomeWork:</strong></td>
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<tr>
<td>Final</td>
<td></td>
<td>Presentation</td>
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**Disclaimer:**
The instructor reserves the right to make modifications to this information throughout the semester.

**VII. Technology**
a. Web address for Blackboard and/or other course websites (bb.wustl.edu)
c. Notice on Java updates and supported browsers (see appendix)
d. Technical support (see appendix)
e. “Netiquette” statement on Internet communication (see appendix)

**VIII. UC Policies**
a. Statement regarding academic honesty (see appendix)
b. Student Accommodations (see appendix)

**IX. Academic Support** (see appendix)
a. Cornerstone (Disability Resources)
b. Writing Center
c. A & S Computing
d. Library
X. Other Information to Consider
a. How to get started with the first unit
b. General tips for success in the online classroom (see appendix)
c. Guidelines for discussion forum participation (see appendix)
APPENDIX:
Notice on Java Updates and Supported Browsers
- Blackboard works best in Mozilla Firefox. Some Blackboard features will not work well in Chrome or Internet Explorer. You can visit https://help.blackboard.com/en-us/Learn/9.1_SP_14/Instructor/015_Browser_Support and click on “Browser Support” for more detailed information on which browser works best for Blackboard, based upon your computer’s operating system.
- Be sure you have downloaded the most recent version Java. This free software program helps you to be able to access Blackboard. You can check which version of Java you currently have and update it (if necessary) by visiting www.java.com. Keep Java updated for best results.

Technical Support
This is a fully online, technology-based course. Because computers are not perfect, plan on having technical issues at least once during the term. While this can cause some incredibly frustrating moments, the overall benefits of the technology do outweigh any issues that may arise. Just be ready to contact technical support in the event of difficulties. Send an email to student.technology@wustl.edu or call 935-8200 with any questions/problems concerning Blackboard. (This is technical support for any problems you experience within the Blackboard classroom only, not other external software). For additional Blackboard resources, visit the Blackboard Help Page (https://en-us.help.blackboard.com/Learn/Student).

“Netiquette” Statement on Internet Communication.
- Remember your audience. If you would not say it in a face-to-face classroom, do not include it in the online discussions either. Consider what you write, as it is a permanent record and can be retrieved easily. Use courtesy and common sense in all your electronic communications.
- Write in complete sentences and check spelling before you post anything in class.
- DON'T TYPE IN ALL CAPS. This is hard to read and is considered "shouting."
- Respect the opinions of others and be sensitive to the diverse nature of people in the class. Keep in mind that although you cannot "see" your classmates, you can show respect for individual differences. Diversity issues may include the following and others: race, ethnicity, religion, disabilities, gender, sexual orientation, age, social class, marital status, urban vs. rural dwellers, etc.
- No profanity will be allowed. This includes writing in punctuation. For example, #%%%%%#! is considered profanity and is not permitted. Also, language expressed in inappropriate acronyms is not acceptable.
Expectations for Student Attendance (Bb log-ins, response to emails, discussions, hours per week students should expect to devote to the class, etc.)
You are expected to have an active presence within Blackboard (our online classroom) and that is one of the ways in which I will monitor your attendance in the course. I am able see when last you logged into Blackboard and how much time you’ve spent in various areas of the classroom. The class is not self-paced because we have specific due dates for all assignments, but you will work on the course at your own convenience within those parameters. Lack of participation in discussions or not answering email messages sent to you will be considered lack of attendance and will result in a loss of points.

Statement Regarding Academic Honesty:
Students are bound by the University College policy on academic integrity in all aspects of this course. All references to ideas and texts other than the students' own must be so indicated through appropriate footnotes, whether the source is a book, an online site, the professor, etc. All students are responsible for following the rules outlined in the document regarding the university academic integrity policy: http://ucollege.wustl.edu/faculty/academic_integrity
All students are expected to abide by the citation and attribution techniques explained here:
https://owl.english.purdue.edu/owl/section/2/

Academic Support:
All University College students are encouraged to take advantage of the following Academic Support services on campus:

- **Cornerstone:** Cornerstone provides access to academic peer mentoring, assists students with essential study and test-taking skills, and offers disability resources to students in need. In addition, Cornerstone connects first-generation college students to leadership programs and offers academic, research and career opportunities. Visit http://cornerstone.wustl.edu/ for more information.

- **Writing Center:** The Writing Center staff members are writers helping writers through the process of revision. They are undergraduate students, graduate students and faculty members who love to write and to help others clarify their thoughts and ideas. The Writing Center and The Speaking Studio at Washington University in St. Louis provide free, one-on-one tutoring to all WUSTL students for any writing or public speaking project. Students interested in using the Writing Center should call in advance to make an appointment. Visit http://writingcenter.wustl.edu/ for more information.

- **Arts & Sciences Computing:** Arts & Sciences Computing operates two labs that are open to students, faculty, and staff. Visit http://computing.artsci.wustl.edu/labs for more information.

- **Library:** Washington University Libraries boast an impressive array of services, including course reserves, interlibrary loan, reserved study spaces, the Arc Computing Lab, and so much more. Visit http://library.wustl.edu/ for more information.

Student Accommodations
Washington University is committed to providing equal opportunity for students with disabilities. The Disability Resource Center (DRC) assists students with disabilities by providing services and arranging for reasonable accommodations to ensure equal access and equal academic opportunities. Students wishing to request services or accommodations must register and provide appropriate documentation to the DRC at cornerstone.wustl.edu. The DRC serves as a resource and advisor to students with disabilities and welcomes opportunities to consult with students, families, faculty, and staff. This online course has been designed with accessibility in mind. Be sure to visit Blackboard’s accessibility statement at: http://www.blackboard.com/platforms/learn/resources/accessibility.aspx