GEOGRAPHY 525, Fall 2018 (09/04 – 12/13)

Geographic Information Science
[Lectures Sec 401] T 2:00PM-4:40PM @ BOL 281
[Lab Sec 801] 1:00-2:50PM W/ [Sec 802] 2:00-3:50 PM R, Both @ BOL 289

Instructor: Zengwang Xu
Office: Bolton 410C
Office Hours: T q2R 2-4 PM or by appoint.
Telephone: (414)229-4874
E-Mail: xuz@uwm.edu

Teaching Assistant: TBD
Office: TBD
Office Hours: TBD
E-Mail: TBD

COURSE DESCRIPTION

This course is an advanced undergraduate class, on geographic information science (GIS). It covers the fundamental concepts, theories, and the state-of-the-art techniques of GIS. It introduces the map projections and coordinate systems, vector and raster data models, geodatabase management and query, and generic spatial data analyses. The GIS technique will be practiced in the computer laboratory using ArcGIS™ software. Students will be expected to attend and participate the lectures and labs, and assessed by weekly lab assignments, in-class and online quizzes, and examinations.

Prerequisites: GEOG215 and equivalent.

LEARNING OUTCOMES

1. Understanding fundamental concepts in GIS
2. Conducting basic operations on data manipulation and management using ArcGIS
3. Understanding basic operations in spatial analysis using ArcGIS
4. Completing and presenting a GIS project.

REQUIRED TEXTS (RESERVED IN LIBRARY)


Lab/Exercise book:

Combo packages are available in ecampus virtual book store.

Both original books are reserved in library.

COURSE REQUIREMENTS

1. ATTENDANCE: Class attendance and participation are required except verified emergency.
2. LABS/ASSIGNMENTS: See lab syllabus for details. The laboratory exercises will require the use of ArcGIS software.
3. TIME APPROXIMATION, for this semester, an average student is expected to spend the following amount of time (hrs) in this class:
   time in classroom (40), time spent online reading lecture and other materials (13), time in discussions online or in persons (8), time in laboratories (22), time taking exams (4), time in tutorials (44), time for completing assignments (22), and time for preparation and study (39).

GRADING AND EVALUATION

1. Examinations (50% of class grade)
   There will be a mid-term and a final examination for this course (20% for midterm and 30% for final).
2. **Laboratory exercises (30% of class grade)**  
Weekly lab assignments will be given and collected. Late penalty may apply.

3. **Class & Online participation (5% & 5%)**  
Attendance and participation in class discussion are expected to all students. Quizzes and other assignments may be given in class as a component of class participation. Participation to the online Q&A forum will be counted as online participation.

4. **Online quizzes (10%)** will be given via Canvas during the semester.

**Grading Scale:**
- A = 90-100%, A- = 87-89.99%
- B+ = 83-86.99%, B = 80-82.99%, B- = 77-79.99%
- C+ = 73-76.99%, C = 70-72.99%, C- = 67-69.99%
- D+ = 63-66.99%, D = 60-62.99%, D- = 57-59.99%
- F = 0-56.99%

**CANVAS**
Announcements, lecture slides, lab instructions, and grades will be distributed through Canvas. It is students’ responsibility to check your Canvas account regularly. Especially, you should regularly check the due date.

**SOFTWARE**
The exercise book is based on ArcGIS 10.5 or higher. The book comes with DVD disks for ArcGIS software with activation code and the tutorial data. If you purchase a new book, the software and code should be usable. If you purchase a used book, there is great chance that the software has been activated and code is no longer usable.

The campus computers that have ArcGIS installed has updated to ArcGIS 10.5.x. Refer to the following link [http://www4.uwm.edu/technology/authenticated/computer_labs/campus/index.cfm](http://www4.uwm.edu/technology/authenticated/computer_labs/campus/index.cfm) to see where the computers on campus have ArcGIS installed. You can work on your exercises and homework using campus computers. You might need a thumb drive (flash drive) to copy what you have completed, so that you don’t have to start over next time. There might be some minor inconsistency between your exercise book and the ArcGIS 10.5.1. These inconsistencies should be very easy to figure out. ArcGIS is rapidly changing software, and dealing with these inconsistency is a part of ArcGIS experience.

UWM students are able to purchase ArcGIS from UWM SoftwareShop for $0. After the purchase, it will take at least 48 hours for campus software team to activate your software.

**COMPUTING HELP**
If you have a computer or computing problem, you can always consider the UWM Help Desk ([https://www4.uwm.edu/uits/help/help_desk/index.cfm](https://www4.uwm.edu/uits/help/help_desk/index.cfm)) a potential help.

Phone: (414) 229-4040  
Email: GetTechHelp@uwm.edu  
Location: Bolton 225

This may include (but not limited to) the unusual problems in Canvas, managing folders and files using Windows Explorer, transferring files using an FTP server, or installing software on your own personal computer.

**POLICIES**
Please be advised that Geography 525 abides by all the University of Wisconsin – Milwaukee’s official policies on disabilities, religious observances, active military duty, incompletes, discriminatory conduct, academic misconduct, complaint procedures, and grade appeal procedures. For more information, please see the following link, [http://www.uwm.edu/Dept/SecU/SyllabusLinks.pdf](http://www.uwm.edu/Dept/SecU/SyllabusLinks.pdf).

Some of them are specified as follows,  
**Students with disabilities.** If you need special accommodations due to disability reason, please submit your VISA from the Student Accessibility Center within the first two weeks of the semester, and inform me your specific accommodation
requirement with the VISA. I’ll be happy to make due arrangements. For more information, see the following link, http://www4.uwm.edu/sac/SACltr.pdf

**Religious observances.** If you require accommodations for absences due to religious observance, I’ll be happy to make due arrangements. Please note you’re required to notify me within the **first three weeks** of the beginning of classes (within the first week of summer session and short courses), of the specific days or dates on which you will request relief from an examination or other academic requirements. I will try my best to schedule accommodations before or after the regular schedule. For more information, please see the following, http://www4.uwm.edu/secu/docs/other/S1.5.htm

**Students called to active military duty.** I will try my best to accommodate the absences due to call-up of reserves to active military duty. Please see the following links for details, Students: http://www4.uwm.edu/current_students/military_call_up.cfm
Employees: http://www4.uwm.edu/secu/docs/other/S40.htm
Tentative Schedule and Topics (GEOG525), Fall 2018 (09/04-12/13)
This schedule is subject to change as the class proceeds.

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<thead>
<tr>
<th>WEEK</th>
<th>DATE</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1</td>
<td>Sep. 4</td>
<td>Introduction</td>
<td>1</td>
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<td>2</td>
<td>Sep. 11</td>
<td>Map projections and coordinate systems</td>
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<td>3</td>
<td>Sep. 18</td>
<td>Map projections and coordinate systems, Cont.</td>
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<td>4</td>
<td>Sep. 25</td>
<td>Vector data model</td>
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<td>5</td>
<td>Oct. 2</td>
<td>Raster data model</td>
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<td>6</td>
<td>Oct. 9</td>
<td>GIS data acquisition</td>
<td>5 &amp;16</td>
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<td>7</td>
<td>Oct. 16</td>
<td>Geometric transformation</td>
<td>6</td>
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<td>8</td>
<td>Oct. 23</td>
<td>Midterm exam on Thursday,</td>
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<td>9</td>
<td>Oct. 30</td>
<td>Spatial data editing</td>
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<td>10</td>
<td>Nov. 6</td>
<td>Attribute data management</td>
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<td>11</td>
<td>Nov. 13</td>
<td>Data exploration</td>
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<td>12</td>
<td>Nov. 20</td>
<td>Vector data analysis</td>
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<td>13</td>
<td>Nov. 27</td>
<td>Raster data analysis</td>
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<td>14</td>
<td>Dec. 4</td>
<td>Data display and Cartography</td>
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<td>15</td>
<td>Dec. 11</td>
<td>Project presentations</td>
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<td>Final Exam</td>
<td>Dec. 21</td>
<td>12:30pm-2:30pm, in the same classroom</td>
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