

## Introduction to Urban Geographic Information Systems

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Urban Planning 945-791/591

### Instructor

Michael Benedict

### Email

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### Office Location

SARUP 194

### Office Hours

Mondays 6:20 PM to 6:50 PM

Or by appointment

### Course Overview

This course is the first in a series of four Geographic Information System classes offered by the Department of Urban Planning. It's designed to give students a comprehensive understanding of modern GIS through real-world examples and theory.

At the completion of the course, students will be able to:

- Have a basic, practical understanding of core GIS concepts, techniques, and real-world applications.
- Understand different GIS technologies and software.
- Know how GIS is used in real-world scenarios.
- Understand basic GIS data concepts.
- Perform basic spatial analysis tasks.
- Have practical experience using esri software.
- Understand how to find and search for geospatial information.

### Required Text

- GIS for Planning and the Built Environment: An Introduction to Spatial Analysis, *Ed Ferrari, Alasdair Rae*
- The ArcGIS Book, *Christian Harderand Clint Brown, Editors*
- The ArcGIS Imagery Book, *Christian Harderand Clint Brown, Editors*

### Grading

- 5% Class and Lab Attendance and Participation
- 25% Lab Assignments
- 15% Mid Term Exam
- 15% Mid Term Lessons
- 40% Story Map and Presentation

### Course Schedule

Week	Topic	Reading
Week 1	What is GIS?	
Week 2	History and Industries	GIS for Planning and the Built Environment – Chapters 1,2
Week 3	How GIS Works	The ArcGIS Book - Chapter 1
Week 4	Mapping with GIS	GIS for Planning and the Built Environment - Chapters 5,6 The ArcGIS Book - Chapter 2
Week 5	Data Principles	GIS for Planning and the Built Environment - Chapters 3,4 The ArcGIS Book - Chapter 4
Week 6	GIS Analysis	GIS for Planning and the Built Environment - Chapter 7 The ArcGIS Book - Chapter 5
Week 7	GIS Apps	The ArcGIS Book - Chapter 7
Week 8	GIS Software GIS Data Formats Imagery	The ArcGIS Book - Chapter 8 The ArcGIS Imagery Book - Chapter 1, 3, 5
Week 9	Exam	
Week 10	Mapping the Internet of Things ArcGIS Pro	The ArcGIS Book - Chapter 9

Week 11	Introduction to Code and Modeling ArcGIS Pro	GIS for Planning and the Built Environment - Chapter 8
Week 12	Location Intelligence	GIS for Planning and the Built Environment - Chapter 9
Week 13	Presentations	
Week 14	Presentations	

### Exam/Project Schedule

Week	Description
Week 3	Introduction to Final Project – esri Story Map <a href="https://storymaps.arcgis.com/en/">https://storymaps.arcgis.com/en/</a>
Week 6	Three-minute presentation on Final esri Story Map Project Topic
Week 9	Exam – <i>GIS for Planning and the Built Environment</i> and Lecture Mid-Term ArcGIS Lessons Due (2)
Week 13	Final Project Presentations – esri Story Map
Week 14	Final Project Presentations – esri Story Map

### Mid-Term ArcGIS Lessons (2)

Complete three (3) esri Lessons from <https://learn.arcgis.com/en/>. Minimum 30-minute lesson for each of the three lessons. One lesson must use ArcGIS Pro.

1. One-page summary for each Lesson is due at Week 8 class. Summary must include:
2. What types of base maps were used?
3. What industry was the lesson related to?
4. What types of data were used?
5. What questions could you ask of the data?
6. Screen shot of completed lesson or map.

### Final Story Map Project and Presentation

Written Report (3-5) pages

1. Introduction to your Project
2. Data sources
3. Target audience
4. Findings
5. Challenges working with Story Maps
6. Link to Story Map
7. One-page Map

Seven-minute presentation

1. Project goal
2. Data sources
3. Target audience
4. Demonstrate your Story Map
5. Findings
6. Challenges
7. Lessons learned

1895R5, October 19, 2017

1895R4, May 11, 2017

1895R3, February 16, 2012

1895B, January 24, 2008

1895A, March 16, 2006

1895 October 21, 1993

## Syllabus Links

1. *Students with disabilities.* Notice to these students should appear prominently in the syllabus so that special accommodations are provided in a timely manner. <http://uwm.edu/arc/>
2. *Religious observances.* Accommodations for absences due to religious observance should be noted. <https://apps.uwm.edu/secu-policies/storage/other/SAAP%201-2.%20Accommodation%20of%20Religious%20Beliefs.pdf>
3. *Students called to active military duty.* Accommodations for absences due to call-up of reserves to active military duty should be noted.  
Students: <https://uwm.edu/military-veterans/>  
Employees: <https://www.wisconsin.edu/ohrwd/download/policies/ops/bn9.pdf>
4. *Incompletes.* A notation of "incomplete" may be given in lieu of a final grade to a student who has carried a subject successfully until the end of a semester but who, because of illness or other unusual and substantiated cause beyond the student's control, has been unable to take or complete the final examination or to complete some limited amount of term work. <https://apps.uwm.edu/secu-policies/storage/other/SAAP%201-13.%20Incomplete%20Grades.pdf>
5. *Discriminatory conduct.* Discriminatory conduct will not be tolerated by the University. It poisons the work and learning environment of the University and threatens the careers, educational experience, and well-being of students, faculty, and staff. <https://apps.uwm.edu/secu-policies/storage/other/SAAP%205-1.%20Discriminatory%20Conduct%20Policy.pdf>
6. *Title IX/Sexual Violence.* Title IX is a federal law that prohibits sex discrimination in education program or activities, and UWM policy prohibits such conduct (see Discriminatory Conduct, above). This includes sexual violence, which may include sexual harassment, sexual assault, relationship violence, and/or stalking in all educational programs and education-related areas. UWM strongly encourages its students to report any instance of sex discrimination to UWM's Title IX Coordinator ([titleix@uwm.edu](mailto:titleix@uwm.edu)). Whether or not a student wishes to report an incident of sexual violence, the Title IX Coordinator can connect students to resources at UWM and/or in the community including, but not limited to, victim advocacy, medical and counseling services, and/or law enforcement. For more information, please visit: <https://uwm.edu/sexual-assault/>
7. *Academic misconduct.* Cheating on exams or plagiarism are violations of the academic honor code and carry severe sanctions, including failing a course or even suspension or dismissal from the University. <https://uwm.edu/deanofstudents/conduct/academic--misconduct>
8. *Complaint procedures.* Students may direct complaints to the head of the academic unit or department in which the complaint occurs. If the complaint allegedly violates a specific university policy, it may be directed to the head of the department or academic unit in which the complaint occurred or to the appropriate university office responsible for enforcing the policy. <https://apps.uwm.edu/secu-policies/storage/other/SAAP%205-1.%20Discriminatory%20Conduct%20Policy.pdf>
9. *Grade appeal procedures.* A student may appeal a grade on the grounds that it is based on a capricious or arbitrary decision of the course instructor. Such an appeal shall follow the established procedures adopted by the department, college, or school in which the course resides or in the case of graduate students, the Graduate School. These procedures are available in writing from the respective department chairperson or the Academic Dean of the College/School. <https://apps.uwm.edu/secu-policies/storage/other/SAAP%201-10.%20Grade%20Appeals%20by%20Students.pdf>

10. *LGBT+ resources*. Faculty and staff can find resources to support inclusivity of students who identify as LGBT+ in the learning environment. <http://uwm.edu/lgbtrc/>
11. *Smoke and Tobacco-Free campus*. UWM prohibits smoking and the use of tobacco on all campus property. <https://apps.uwm.edu/secu-policies/storage/other/SAAP%2010-8.%20Smoke%20and%20Tobacco-Free%20Campus%20Policy.pdf>
12. *Final Examinations*. Information about the final exam requirement, the final exam date requirement, and make-up examinations. <https://apps.uwm.edu/secu-policies/storage/other/SAAP%201-9.%20Final%20Examinations.pdf>