



<b>Instructor:</b>	Douglas Miskowiak, GISP. Senior GIS Education Specialist			
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<b>Class Schedule:</b>	Section 1.	Lecture.	M, W 8 - 8:50AM	Science B328
	Section 1.	Lab.	M, W 8:50 - 9:50AM	Science B228
	Section 2.	Lecture.	M, W 3 - 3:50PM	Science B328
	Section 2.	Lab.	M, W 3:50 - 4:50PM	Science B228

**Course Description:** Develop, use and maintain a geographic-based spatial information system (GIS) for resource management. Acquire and assess spatial data. Compare raster and vector data models. Computer-based geographic data handling, analysis, interpretation, and display. Cartographic and spatial modeling. Available for graduate credit as GEOG 541. Credits: 3 Prerequisites: None

**Course Overview:** This course is an introduction to computer-based *geographic and land management information systems*. The components and functions of a geographic information system are defined and evaluated in relation to the needs of a natural resources or geographic information systems technician or analyst. The creation, acquisition, manipulation, aggregation, analysis, and presentation of geographic information (i.e. the management of a *Geographic Information System*) will be examined. The student will use ArcGIS Pro software to capture, encode, retrieve, process, analyze, and display geographic data.

**Learning Outcomes:** After taking this course, students will be able to...

- Define Geographic Information System and Geographic Information Science.
- Describe the six fundamental components that comprise a functional GIS.
- Categorize the primary functions of a Geographic Information System.
- Illustrate the utility and pervasiveness of spatial thinking using applications-based examples.
- Explain measurement systems for an ellipsoidal earth.
- Describe the procedures for and consequences of projecting earth onto a flat map.
- Present geographic information using maps and visual graphics.
- Explain the process of making a map using cartographic design controls.
- Compare and contrast the characteristics of the Vector and Raster data models.
- Classify measurement reference systems for geospatial phenomena.
- Create and encode a GIS database.
- Read and author geospatial metadata.
- Manage data tables to search and query for geographic phenomena.
- Analyze spatial features using adjacency, proximity, containment, and overlay functions.
- Analyze spatial features in a raster format using map algebra concepts.
- Utilize Global Positioning Systems to collect information in the field.
- Share and Gather Geospatial Information Using the Network and Cloud Computing.
- Examine ethical issues concerning GIS.



**Course Format:** Sections 1 and 2 of the course are taught face-to-face, but are supplemented with online materials, disseminated using Canvas. Lectures, reading materials, lab assignments, examinations, and other learning resources are available via Canvas. *Contact your instructor if you need assistance using Canvas.* The course consists of:

1. Attendance
2. Lectures
3. Online Learning Resources
4. Practice Quizzes
5. GIS Lab Assignments & Lab Quizzes
6. Topical Exams
7. Applied Exams

1. **Attendance:** Attendance will be managed per the [UWSP attendance policy](#). Furthermore, attendance in the classroom is mandatory. Professionally/academically related participation among students and between students and the instructor is highly encouraged. Engaging with your peers is part of the human learning experience. Attendance is worth 100 POINTS toward your final grade. The accumulation of five or more unexcused class periods (lectures or labs) will result in the complete loss of attendance points.

**Excused Absence:** Attendance may be excused only if the student emails the instructor prior to the beginning of the anticipated missed class period with a legitimate explanation. The following provides a list of legitimate explanations:

- Required attendance of field trips or other academic activities for other classes.
- Academic or professional conference attendance.
- Required travel or activities for athletic events, theatre, dance, or other university related activities you participate in.
- Serious or contagious illness (a doctor's note may be requested).
- Death of a family member.
- Military service per UWSP attendance policy.
- If finished with lab work, please ask your instructor to review your work before not attending.
- Other reasons discussed and approved in writing by your instructor

**Attendance Conduct:** Be respectful to your peers and instructor. Attend class on time. Unexcused tardiness will result in a loss of attendance points. Engage with your instructor. Learning is greatly enhanced when students actively engage with their peers and instructor. Be ready to address questions from previous lectures and the current lecture.



- Lectures:** Lectures concentrate on both the basic theoretical and applied techniques of a Geographic Information System. Lectures share the foundational body of knowledge of a GIS professional, including the common language used in the profession. Lectures provide the contextual information necessary to understand lab exercises.

#### Lecture Expectations

- Attend every lecture – attendance will be taken
- Take your own personal notes to supplement the presentation
- Ask your instructor questions when you don't understand a topic
- Engage with your instructor and your peers – share your own perspectives
- Student understanding of lectures will be assessed using examinations

- Online Learning Resources:** Readings and other learning resources will be made available to students via Canvas. These resources will be organized by lecture topic. No book purchase or rental is required for this course.

#### Online Learning Resources Expectations

- Read or complete the resources associated with each lecture topic
- Take your own personal notes to summarize and supplement the learning resource
- Student understanding of online resources will be assessed using examinations

- Practice Quizzes:** Practice quizzes will accompany lecture topics and learning resources as an aide to student learning. Practice quizzes are not graded. Students can take a practice quiz an unlimited number of times to help prepare for examinations. Practice quizzes are available via Canvas.

#### Practice Quizzes Expectations

- Complete the practice quiz during the week associated with lecture
- Take practice quizzes to determine your progress
- If you're having difficulty answering a question, ask your instructor for help

- GIS Lab Assignments:** GIS Lab Assignments will be assigned that require students to learn and practice various GIS competencies. Students will use ArcGIS Pro and other geospatial software/equipment to complete hands-on exercises. Each hands-on exercise will be accompanied with a graded quiz available via Canvas. Lab assignments are worth 25 – 100 points each, for a total of 500 course points.

All students have a class folder made available on UWSP servers, often referred to as the Z drive. Students will access data and projects and save their work to their project folders. Your instructor will provide instructions about how to access the student folder.



#### GIS Lab Assignment Expectations

- Lab instructions are provided that guide the student through the exercise
  - Grading rubrics describe how students earn points for their work.
  - Each lab assignment will be associated with a graded quiz available via Canvas
  - GIS Lab Assignments are worth a total of 500 course points
  - Individual assignments vary from 25 to 100 points each
  - Assignments are graded from work submitted to your student folder, Canvas quizzes, and Canvas submissions.
  - Depending upon student skill, each assignment will take 1 to 4 hours to complete
  - Late assignments will not be assessed, and quizzes will not be reopened, unless you contact your instructor prior to the due date. Note due dates!
6. **Topical Exams:** There are two topical examinations, a *mid-term*, covering the first half of the course, and a *final comprehensive exam*. The exams will test your understanding of GIS concepts and application of GIS concepts. A combination of multiple-choice, multiple-selection, true/false, matching, and short answer questions should be expected. Topical exams are conducted via Canvas. Topical exams are worth 200 points toward your final grade, 100 points each.

#### Topical Exam Expectations

- Each exam counts for 10 percent of your final grade.
  - Exams are available on Canvas. The exam is timed. You have 60 minutes to complete topical exams. Once you begin the exam, you must finish it through to completion.
  - Exams are open book and open note.
  - **You are not allowed to receive assistance from or give assistance to others in taking the exams. This is considered cheating and UWSP Chapter 14 policies will be pursued.**
7. **Applied Exams:** There are two applied examinations, a *mid-term*, covering the first half of the course, and a *final comprehensive exam*. The exams test your ability to perform a series of geospatial applications using ArcGIS Pro software. Applied exams are administered using your student folders. Applied exams are administered as take-home exams. The exam question will be handed out to students one week before it is due. The exam is open note and open book. You may use ArcGIS Online help. Applied examinations are found in Canvas. Applied exams are worth 200 points toward your final grade, 100 points each.

#### Applied Exam Expectations

- Each exam counts for 10 percent of your final grade.
- Exams are available on Canvas.
- The exam is administered as a take home exam.



- Your exam shall be saved to your student folders in the file folders specified.
- **Plagiarism and cheating are NOT tolerated. You are expected to directly and personally take the exam, take the exam alone and without assistance from others. You are not allowed to witness another person taking the exam. UWSP procedures will be followed if students are suspected of plagiarizing materials or cheating (see <http://www.uwsp.edu/admin/stuaffairs/rights/rightsChap14.pdf> ). Penalties can include, but are not limited to failing the exam, failing the course, and expulsion from the university. Please, do not risk your academic career.**

**Evaluation and Grading:** One-thousand total points are possible in this course. Students are graded based upon attendance, GIS lab exercises and lab quizzes, topical exams, and applied exams.

Attendance	= 100 Points (Can't earn if you miss 5 or more class periods)
GIS Lab Exercises and Quizzes	= 500 Points (25 – 100 Points each)
Midterm Topical Exam	= 100 Points
Midterm Applied Exam	= 100 Points
Final Topical Exam	= 100 Points
Final Applied Exam	= 100 Points
<b>Total</b>	<b>= 1,000 Points</b>

Ranges of percentages, course points and their equivalent letter grades are shown below. By referring to this table you can determine your letter-grade standing at any point in the course.

<u>Percent</u>	<u>1000 Points</u>	<u>100 Points</u>	<u>50 Points</u>	<u>25 Points</u>	<u>Letter Grade</u>
93-100	930	93	46.5	23.25	A
90	900	90	45	22.5	A-
87	870	87	43.5	21.75	B+
83	830	83	41.5	20.75	B
80	800	80	40	20	B-
77	770	77	38.5	19.25	C+
73	730	73	36.5	18.25	C
70	700	70	35	17.5	C-
67	670	67	33.5	16.75	D+
63	630	63	31.5	15.75	D
<63	<630	63	<31.5	<15.75	F