Instructor:	Douglas Miskowiak, GISP. Senior GIS Education Specialist
Office:	Science B305 (Third Floor, Eastern Most Wing)
Office Hours:	**Virtual.** Email to schedule office hours by appointment.
Contact Info:	dmiskowi@uwsp.edu
Class Schedule:	Section 1. Lecture. M,T,W,Th,F 9-10:50 Virtual or asynch
	Section 1. Lab. M,T,W,Th,F 11-12:50 Virtual or asynch
	Science B308 Computer lab is available and recommended for students. Students working remotely from UWSP will need reliable internet to access the UWSP remote lab. Instructions for accessing remote lab are here: https://www.uwsp.edu/infotech/Pages/ComputerLabs/Remote-Lab.aspx

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 cartographic design controls as a process in map design.
- 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.
- 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: This course is taught in an asynchronous environment, but will also be available to students virtually, in real-time via Zoom. The computer lab in Science B308 is available and recommended to students. Students working remotely will require reliable internet and access to the UWSP Remote Lab. Most course materials and content are 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 is at the students' discretion, but highly recommended. While the course is designed for asynchronous learning, students are welcome to attend the virtual classroom in real-time. Professionally/academically related participation and engagement among students and between students and the instructor is an important part of the human learning experience.

   Attendance Conduct: Be respectful to your peers and instructor. If you attend, please attend class on time. Engage with your instructor. Learning is greatly enhanced when students actively engage with their peers and instructor.

2. **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. Lectures will be held virtually using Zoom, Zoom recordings will be made available on Canvas. Downloadable PowerPoint presentations have a written script. Look for zoom invitations via campus email.
   Lecture Expectations
   - 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 are assessed using examinations

3. **Online Learning Resources:** Readings and other learning resources are 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 the learning resource
   - Student understanding of online resources is assessed using examinations

4. **Practice Quizzes:** Practice quizzes 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

5. **GIS Lab Assignments:** GIS Lab Assignments are 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 is accompanied by a graded quiz available via Canvas. Lab assignments are worth 20 – 100 points each, for a total of 430 course points. Lab demonstrations will be made available using Zoom - Look for invitations.

   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 is associated with a graded quiz available via Canvas
   - GIS Lab Assignments are worth a total of 430 course points
   - Individual assignments vary from 20 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 takes 1 to 4 hours to complete
   - Late assignments are not 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 test your understanding of GIS concepts and application of GIS concepts. Expect exams to contain a combination of multiple-choice, multiple-selection, true/false, matching, and short answer questions. Topical exams are conducted via Canvas. Topical exams are worth 200 points toward your final grade, 100 points each.

   Topical Exam Expectations

   - 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 is handed out within the week 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

   - 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.
   - **Plagarism 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: 830 total points are possible in this course. Students are graded based upon attendance, GIS lab exercises and lab quizzes, topical exams, and applied exams.

GIS Lab Exercises and Quizzes	= 430 Points (20 – 100 Points each)
Midterm Topical Exam	= 100 Points
Midterm Applied Exam	= 100 Points
Final Topical Exam	= 100 Points
Final Applied Exam	= 100 Points
Total	= 830 Points