



## ILS 250: Introduction To Geographic Information Systems

### Course Information

- **Course Number and Title:** Spring 2025 ILS 25000-009
- **CRN:** 28127
- **Meeting Days and Times:**  
Lecture: Monday 1:30 p.m. - 2:20 p.m., Krannert Building 250 (KRAN 250)  
Recitation/Laboratory: Thursday 10:30 a.m. - 11:20 a.m., 11:30 a.m. - 1:20 p.m., KRAN 250
- **Instructional Modality:** Face-to-Face/ Lecture
- **Course Credit Hours:** 3
- **Prerequisites (if any):** N/A

### Instructor(s) Contact Information

- **Name of the Instructor(s): Dr. Innocensia Owuor**  
**Office Location:** WALC 2032M  
**Purdue Email Address:** iowuor@purdue.edu  
**Office Hours:** 12 p.m. - 1 p.m. Wednesdays, by email appointment
- **Name of the Instructor(s): Dr. Jing Lu**  
**Office Location:** WALC 3053Q  
**Purdue Email Address:** lu59@purdue.edu  
**Office Hours:** 12 p.m. – 1p.m. Mondays, by email appointment

### Course Description

Geographic Information Systems (GIS) plays an important role in many disciplines as a tool for data management, query, visualization, and analysis. It can be used for natural resource management, environmental studies, agriculture, as well as social and political studies. This course will introduce students the basic knowledge about GIS, including the fundamental concepts of GIS, data models and management strategies, as well as some basic spatial analysis skills. Practical work will be introduced and completed using Esri ArcGIS Pro software.

### Learning Resources, Technology & Texts

#### *Textbook and Course Materials:*

- Optional: Michael Law and Amy Collins. 2024. *Getting to know ArcGIS PRO 3.2*. Esri Press; 352 pages. ISBN-10: 9781589487772. eISBN: 9781589487789. Access this book [here](#)
- Other course materials and notes will be provided via Brightspace
- External hard drive, SSD, 200GB or more.

#### *Software/Web resources:*

This is a computing intensive course. You will be learning to use a complex software package – ArcGIS PRO. All the software used in this class is available in ITAP Instructional Computer Laboratories. You may need to access and copy some of this information to your personal account to complete required assignments. Software that will be used in the class includes:

- *ArcGIS PRO and extensions*, ESRI, Inc. You may be able to download a copy onto your personal PC from <https://communityhub.purdue.edu/storefront/>, search for ArcGIS Pro.
- *Office, Professional Edition*, Microsoft Corporation.

The primary instructional lab computers have ArcGIS Pro software installed. ArcGIS Pro should be available in most other computer labs on campus. Purdue has Esri education license which allows students to use the software on their own device. This software can only be installed on a windows OS.

### ***Use of artificial intelligence (AI) or Large Language Models (LLM) in this Course***

- Generative AI (GAI) tools like ChatGPT and DALL-E 2 can enhance learning by serving as editors, translators, and idea generators. However, they can also produce inaccurate content, so it's important to verify their output. In this course, you may use GAI for refining work, but the core ideas must be your own, and any GAI use must be cited to avoid academic dishonesty. GAI should support, not replace, critical thinking and creativity.

### ***Academic Success and/or Tutoring Support***

- The Helen Bass Williams [Academic Success Center](#), provides a variety of proactive, practical and approachable academic support services for you to strengthen your approaches and strategies for learning, including study skills consultations, peer coaching, workshops, and online handouts. [Visit the ASC website](#) for more information and to access resources.

### ***Purdue Libraries and School of Information Studies Support***

- I encourage you to visit [Ask a Librarian](#) to connect with helpful resources and services provided by the Purdue Libraries and School of Information Studies for course assignments and projects.

### ***Brightspace Learning Management System***

- Access the course via Purdue's Brightspace learning management system. Begin with the Start Here tab, which offers further insight into the course and how you can be successful on it. It is strongly suggested that you explore and become familiar not only with the site navigation, but also with the content and resources available for this course. See the Student Services widget on the campus homepage for resources such as Technology Help, Academic Help, Campus Resources, and Protect Purdue.

## **Learning Outcomes**

By the end of the course, you will be able to:

1. Understand fundamental GIS concepts, data models
2. Apply basic spatial analysis methods and applications
3. Apply spatial thinking to solve problems
4. Create professional maps, web maps, and mobile maps
5. Apply GIS data skills

## Assignments

Your learning will be assessed through a combination of weekly lab assignments, projects, quizzes, participation, and a final project spread throughout the academic period. Details on these assignments and projects, including a schedule of due dates will be posted on the course website.

*Assignments turned in late will be assessed a 20% reduction penalty.*

Assignment Type	Number	Points per Assignment	Total***
Weekly Lab Assignments	13	20	260
Lecture Quizzes (Theory)	2	15	30
Lab Practical (Hands-on Test)	4	15	60
Mini Project	1	150	150
Final Project**	1	150	150
Participation			50
Total:			700

*Participation is primarily based on participation in class discussions, team participation in class projects, and lab project participation. Attendance in class is a part of this grading component.*

*\*\* Final project includes two parts with different point assignment.*

*\*\*\*Estimated total. Total number of point available from each type of assignment and total number of points available in the course will likely differ.*

## Grading Scale

Each student will be provided with up-to-date graded feedback at least two times during the term – before the final date to withdraw from the course with a W and at least one week prior to the term's final exam period, as outlined in the Academic Regulations on [Mid Semester Academic Progress](#).

See the [Spring 2025 Add/Drop calendar](#) and the [2024-2025 Academic calendar](#) for deadlines. For the 16-week Spring 2025 course see [dates](#) for when to expect graded feedback.

Final grades will be determined according to the scale below.

Grade Scale	
Percent	Letter Grade
≥93% and <100%	A
≥90% and <93%	A-
≥87% and <90%	B+
≥83% and <87%	B
≥80% and <83%	B-
≥77% and <80%	C+
≥73% and <77%	C
≥70% and <73%	C-
≥67% and <70%	D+
≥63% and <67%	D
≥60% and <63%	D-
<60%	F

## Attendance Policy

This course follows the [University Academic Regulations regarding class attendance](#), which state that students are expected to be present for every meeting of the classes in which they are enrolled. Attendance will be taken at the beginning of each class and lateness will be noted. When conflicts or absences can be anticipated, such as for many University-sponsored activities and religious observations, you should inform us of the situation as far in advance as possible. For unanticipated or emergency absences when advance notification is not possible, contact me as soon as possible by Purdue email or phone. For absences that do not fall under excused absence regulations (see below), this course follows the following procedures:

1. Do not come to class if you are feeling ill, but DO email the instructors, with the subject line: ILS 250 absence. I do not need details about your symptoms. Just let me know you are feeling ill and cannot come to class. If it is an emergency, please follow the University regulations on medical care (see below).
2. Unless it falls under the University excused absence regulations (see below), any work due should be submitted on time via our course Brightspace.
3. If that day's class involves assessed work such as a test or presentation, you and I will plan if and how you can make up the work, following the assignment guidelines. This plan must be done before the next class period, so again, email me immediately when you know that you will miss class.
4. The most important consideration in any absence is how it will affect your achievement of the assignment objectives and the course learning outcomes.

For cases that fall under **excused absence regulations**, you or your representative should contact or go to the [Office of the Dean of Students \(ODOS\) website](#) to complete appropriate forms for instructor notification. Under academic regulations, excused absences may be granted by ODOS for cases of grief/bereavement, military service, jury duty, parenting leave, or certain types of medical care. The processes are detailed, so plan ahead.

## Course Schedule

Week	Date (Monday Start)	Lecture (M)	Recitation (Th)	Lab (Th)
Week 1	January 13, 2025	Introduction, Mapping Basics		Getting Started with ArcGIS Pro
Week 2	January 20, 2025	MLK Day - University Closed	Quiz 1- Intro & GIS Basics (Theory)	Designing Maps with ArcGIS Pro
Week 3	January 27, 2025	GIS Data Models		Using Vector and Raster Data
Week 4	February 03, 2025	Features and Attribute Table	Quiz 2 – GIS Data Models (Theory)	Data Queries
Week 5	February 10, 2025	Projection and Geocoding		Coordinate Systems, Projection, Geocoding
Week 6	February 17, 2025	Geodatabase	Lab Practical 1- Projection and Geocoding (Hands-on Test)	Creating and Editing Data
Week 7	February 24, 2025	Join and Relate		Join and Relate
Week 8	March 03, 2025	Basic Spatial Operation	Lab Practical 2- Geodatabase & Join & Relate (Hands-on Test)	Buffer, Overlay, Clip

<b>Week 9</b>	March 10, 2025	Terrain Modeling	Mini Project (Instructional Overview)	Digital Elevation Models (DEM) and Terrain Analysis
<b>Week 10</b>	March 17, 2025	Spring Break (No Class)	Spring Break (No Lab)	
<b>Week 11</b>	March 24, 2025	Raster Analysis	Final Project Proposal (Instructional Overview)	Raster Calculator, Neighborhood Analysis
<b>Week 12</b>	March 31, 2025	Spatial Modeling	Lab Practical 3– Spatial Operations, Terrain Modelling & Raster Analysis (Hands-on Test)	Suitability Analysis
<b>Week 13</b>	April 07, 2025	Field Data Collection	Lab Practical 4 - Spatial Modeling (Hands-on Test)  Final Project Execution & Report (Instructional Overview)	ArcGIS Field Maps
<b>Week 14</b>	April 14, 2025	GIS Applications		Web GIS, ArcGIS Online
<b>Week 15</b>	April 21, 2025	Q & A		Independent – Final Project
<b>Week 16</b>	April 28, 2025	Q & A		Independent – Final Project

Schedule and assignments subject to change. Any changes will be posted in the learning management system.

### Academic Integrity

Academic integrity is one of the highest values that Purdue University holds. Individuals are encouraged to alert university officials to potential breaches of this value by either emailing [integrity@purdue.edu](mailto:integrity@purdue.edu) or by calling 765-494-8778. While information may be submitted anonymously, the more information is submitted the greater the opportunity for the university to investigate the concern. More details are available on our course Brightspace under University Policies and Statements.

See the University Policies and Statements section of Brightspace for guidance on Use of Copyrighted Materials. Effective learning environments provide opportunities for students to reflect, explore new ideas, post opinions openly, and have the freedom to change those opinions over time. Students and instructors are the authors of the works they create in the learning environment. As authors, they own the copyright in their works subject only to the university's right to use those works for educational purposes. Students may not copy, reproduce, or post to any other outlet (e.g., YouTube, Facebook, or other open media sources or websites) any work in which they are not the sole or joint author or have not obtained the permission of the author(s).

### *Ethical Use of Generative AI in this Course*

Generative AI tools like ChatGPT, Google Gemini, and DALL-E 2 are reshaping many fields, including academia. In this course, you can use GAI for tasks such as editing, translating, generating ideas, visualizing data, and tutoring. While GAI can be a valuable resource, it has limitations and can produce convincing but inaccurate content. Always verify GAI-generated information, especially references and calculations, to ensure accuracy in your learning.

While GAI can enhance your work, misuse can harm your education and professional growth. Therefore, the following guidelines apply to only to this course:

1. Graded Assignments and Exams:

- Do not use GAI for graded assignments or exams unless instructed. Your work should reflect your own thoughts. Violations will be treated as academic dishonesty and may result in disciplinary action.
- Using GAI to refine or paraphrase your work is fine, but core ideas must be original. If GAI helps with outlining, editing, or completing an assignment, cite it and briefly describe its role (e.g., editor, idea generator, data visualization). Failure to cite GAI use is considered plagiarism.

2. Understanding and Enhancing Learning:

- Use GAI to grasp lecture concepts, plan study schedules, generate project ideas, translate text, or refine grammar and writing style.
- Cite GAI usage in assignments. Use it to enhance learning, not to replace critical thinking. Consult your instructor if unsure.

*Find information on “Purdue’s Student Guide for Academic Integrity” that links to the [Office of Student Rights and Responsibilities Academic Integrity webpage](#) and a link named “Use of Copyrighted Materials” that links to a [University Policy Office webpage](#).*

### **Nondiscrimination Statement**

[Purdue’s Nondiscrimination Policy Statement](#):

Purdue University is committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life. A hyperlink to Purdue’s full Nondiscrimination Policy Statement is included in our course Brightspace under University Policies and Statements

### **Accessibility**

*The Disability Resource Center (DRC) is a resource for students and instructors. Students may present a “Course Accessibility Letter” to you at any point in the semester. Should you have questions about accommodations, please contact the DRC at 765-494-1247 or [email](#). In many cases, the DRC can collaborate with you to develop inclusive teaching strategies that benefit all students in your class.*

**“Purdue University is committed to making learning experiences accessible. If you anticipate or experience physical or academic barriers based on disability, you are welcome to let me know so that we can discuss options. You are also encouraged to contact the Disability Resource Center at: [drc@purdue.edu](mailto:drc@purdue.edu) or by phone: 765-494-1247.”**

### **Mental Health/Wellness Statement**

**If you find yourself beginning to feel some stress, anxiety and/or feeling slightly overwhelmed, try [Therapy Assistance Online \(TAO\)](#), a web and app-based mental health resource available courtesy of Purdue Counseling and Psychological Services (CAPS). TAO is available to all students at any time by creating an account on the [TAO Connect website](#), or downloading the app from the App Store or Google Play. It offers free, confidential well-being resources through a self-guided program informed by**

psychotherapy research and strategies that may aid in overcoming anxiety, depression and other concerns. It provides accessible and effective resources including short videos, brief exercises, and self-reflection tools.

**If you need support and information about options and resources**, please contact or see the [Office of the Dean of Students](#). Call 765-494-1747. Hours of operation are M-F, 8 a.m.- 5 p.m.

**If you find yourself struggling to find a healthy balance between academics, social life, stress, etc.**, sign up for free one-on-one virtual or in-person sessions in West Lafayette with a [Purdue Wellness Coach at RecWell](#). Student coaches can help you navigate through barriers and challenges toward your goals throughout the semester. Sign up is free and can be done on BoilerConnect. Students in Indianapolis will find support services curated on the [Vice Provost for Student Life website](#).

**If you're struggling and need mental health services: Purdue University is committed to advancing the mental health and well-being of its students.** If you or someone you know is feeling overwhelmed, depressed, and/or in need of mental health support, services are available. For help, such individuals should contact [Counseling and Psychological Services \(CAPS\)](#) at 765-494-6995 during and after hours, on weekends and holidays, or by going to the CAPS offices in [West Lafayette](#) or [Indianapolis](#).

### **Emergency Preparation**

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor's control. Relevant changes to this course will be posted onto the course website or can be obtained by contacting the instructors or TAs via email or phone. You are expected to read your @purdue.edu email on a frequent basis.

A link to Purdue's Information on [Emergency Preparation and Planning](#) is located on our Brightspace under "University Policies and Statements." This website covers topics such as Severe Weather Guidance, Emergency Plans, and a place to sign up for the Emergency Warning Notification System. I encourage you to download and review the [Emergency Preparedness for Classrooms document](#).