



## **GIS 210 – Advanced GIS**

### **Spring 2024**

**Mon/Wed 9:25-12:05**

**Lewis 102**

<https://redlands.instructure.com/courses/10106>

#### Instructor:

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#### Extra Support:

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#### Course Description

This course seeks to deepen and expand students' understanding of the fundamental geospatial analysis concepts and skills introduced in **GIS 110: Introduction to GIS and Spatial Analysis** and introduce additional advanced topics, methods, and applied skills of GIS and geospatial data science. Students will practice and strengthen their skills through hands-on labs, exercises, and course projects that seek to reinforce topics introduced in lecture and discussion.

#### Class Meetings

Our scheduled class time is Mondays & Wednesdays 9:25-12:05 (2hrs 40mins). Our class time will generally consist of lectures, demos, discussions, and lab activities/assignments. Lab activities and assignments are designed to reinforce concepts and apply skills introduced during the lecture and readings.

Class time following the lecture is considered Lab Time and is to be spent working in the lab on assignments along with your peers and instructor(s). These assignments can often be completed during our designated lab time and students are expected to take advantage of this time. Most assignments will be due the Monday after the assignment is given, but assignment due dates are provided on the Canvas site.

### [Canvas Class Site](#)

Our Canvas class site can be found here: <https://redlands.instructure.com/courses/10106> as well as through your list of classes on <https://my.redlands.edu> or <https://redlands.instructure.com>

All course materials and announcements will be provided through the Canvas site so please check back regularly and monitor deadlines.

### [Software access](#)

All software for this class will be provided in the computer lab in Lewis 102, as well as all other Windows-based computer labs on campus and the [Apporto Virtual Lab](#). The Lewis 102 computer lab has been specifically configured for GIS classes and it is recommended that you use the lab to complete your assignments.

**ArcGIS Pro** is the primary GIS software package used in this class. ArcGIS Pro will be installed on your virtual machine or you may also decide to install the software and use your own computer if it meets the hardware requirements (see the [Center for Spatial Studies website for information on installing ArcGIS Pro](#)).

**Microsoft OneDrive** will be used to sync work completed on your lab computer to the cloud and your own computer (if desired). The software is already installed in the computer lab and you may install OneDrive to your own computer from the following link:

<https://www.onedrive.com/download>

Some activities will also require web tools such as **ArcGIS Online** that can be accessed through a browser from any computer with an internet connection.

### [Course Text](#)

There is no required textbook for this course. All readings will be either online or distributed in class.

### [Participation and Attendance](#)

Regular attendance and participation is expected of every student. Attendance will not always be taken and will not be directly graded, but you cannot participate if you are not in class and your grade may suffer due to absence. Activities, quizzes, and assignments may be given in-class that are difficult or impossible to make-up, so unexcused absences on these days will affect your grade.

Some absences are, of course, unavoidable, and I will not penalize *excused* absences. Please contact me before class (to the extent possible) to excuse any absences.

Students are responsible for reviewing materials and doing any missed work due to absence.

Assignments must be submitted by the due date and time unless other arrangements have been made.

## Late Work Policy

Assignment due dates are provided on Canvas. **Most** assignments will be due the Monday after the assignment was given but please refer to the assignment information on Canvas for due dates. It is critical that you keep up with the assignments and turn things in on time. The best way to learn these concepts and skills is to complete the hands-on labs thoughtfully and critically. I do, however, accept late work and encourage students to complete any late or missing assignments for partial credit. Unless other arrangements are made, you will be penalized 4 percentage points for every 24 hours after the due date & time down to maximum deduction of 40 points. This means that if you turn in an assignment after 10 or more days late, you can get is a 60% - that's much better than a zero, so I encourage you to take advantage of this!

## Spatial Events (Extra Credit)

You are encouraged to attend/participate in **four** spatial events. Event information will be announced in class, posted to Moodle, as well as on the Center for Spatial Studies website and social media. Spatial events will predominantly be comprised of webinars, training, virtual activities, and other online "events" like Ted Talks, Esri training, YouTube, etc. You are free to choose your own spatial event. Confirmation of your attendance or participation will be required along with posting a brief reflection to the class site on Canvas.

You will receive a full percentage point of extra credit for each event complete (max 4).

## Grades

Course grades will be allocated as follows.

Lab assignments	60%
Assessments/Quizzes	10%
Midterm	15%
Final Project	15%

## Assignment Grading

All assignments are graded on a 5-point scale unless a rubric is given or otherwise stated in the assignment.

5	Assignment was completed correctly
4	Assignment was <u>mostly correct</u> and/or complete
3	Assignment was <u>somewhat correct</u> and/or complete
2	Assignment was <u>mostly incorrect</u> and/or incomplete
1	Assignment was <u>completely incorrect</u> but at least turned in
0	Assignment was not turned in

Weekly Schedule (Subject to change – see Canvas for details)

Class 1	Wed Jan 8	<a href="#">Introductions, Syllabus, and GIS Review</a>
Class 2	Mon Jan 13	<a href="#">Review: Vector Data</a>
Class 3	Wed Jan 15	<a href="#">Cartography &amp; Map Layouts</a>
	Mon Jan 20	MLK Holiday
Class 4	Wed Jan 22	<a href="#">Vector Data Queries and Simple Stats</a>
Class 5	Mon Jan 27	<a href="#">Relational Data (Joins &amp; Relates)</a>
Class 6	Wed Jan 29	<a href="#">Coordinate Systems and Projections</a>
Class 7	Mon Feb 3	<a href="#">Georeferencing and Vector Data Editing</a>
Class 8	Wed Feb 5	<a href="#">Vector Analysis: Vector Geoprocessing</a>
Class 9	Mon Feb 10	<a href="#">Vector Analysis: Geoprocessing Workflows</a>
Class 10	Wed Feb 12	<a href="#">Vector Analysis: Automation with Model Builder</a> <a href="#">Take-home midterm (Due Sun Feb 16 by 11:59PM)</a>
Class 11	Mon Feb 17	<a href="#">Address Locators and Network Analysis</a>
Class 12	Wed Feb 19	<a href="#">Web GIS</a>
Class 13	Mon Feb 24	<a href="#">GPS and Geolocation</a>
Class 14	Wed Feb 26	<a href="#">Field GIS</a>
	Mar 3 - Mar 8	Spring Break
Class 15	Mon Mar 10	<a href="#">GIS in Business</a>
Class 16	Wed Mar 12	<a href="#">Raster Analysis: Raster Fundamentals</a>
Class 17	Mon Mar 17	<a href="#">Raster Analysis: Suitability Analysis and Cost Distance</a>
Class 18	Wed Mar 19	<a href="#">Raster Analysis: Spatial Interpolation and Spatial Stats</a>
Class 19	Mon Mar 24	<a href="#">Remote Sensing: Aerial Photography &amp; Photogrammetry</a>
Class 20	Wed Mar 26	<a href="#">Remote Sensing: Satellite Multispectral Imagery</a>
Class 21	Mon Mar 31	<a href="#">Remote Sensing: Image Classification and GeoAI</a>
Class 22	Wed Apr 2	<a href="#">Remote Sensing: Drones in GIS</a>
Class 23	Mon Apr 7	Individual project workday
Class 24	Wed Apr 9	Individual project workday
Class 25	Mon Apr 14	Student Presentations - 5 minutes each. Dress Business Casual
Class 26	Wed Apr 16	Last Day of Class Extra lab day - Will in the lab 9:25-12:05
Final Project Due!	Fri Apr 20	Individual Final Projects due! <a href="#">Submit your final project here</a>
<a href="#">Spatial Events</a>		You can earn up to 4 extra percentage points on your grade by doing additional training activities or attending events. <a href="#">Add your events here.</a>

## University Policies

### Grading Scale

LETTER GRADE	GRADE POINTS	NUMERICAL
A+	4.0	97–100
A	4.0	94–96
A-	3.7	90–93
B+	3.3	87–89
B	3.0	84–86
B-	2.7	80–83
C+	2.3	77–79
C	2.0	74–76
C-	1.7	70–73
D+	1.3	67–69
D	1.0	64–66
D-	0.7	60–63
F	0.0	0–59

**I: Incomplete.** An “incomplete” is not given for poor or neglected work. A grade of “incomplete” is to be granted only for very special reasons and should occur only after a discussion between faculty and student, initiated by the student. The decision of whether to grant an incomplete is dependent on an emergency that prevents the student from completing (on time) the work necessary for the course. An incomplete grade will be converted to a permanent grade within eight weeks from the last session of the course. This means that the instructor must turn in the grade to the Registrar no later than the eighth week. Any incomplete work must be submitted to the instructor with enough lead time for the instructor to evaluate the work and issue a final change. See U of Redlands Catalog.

**W: Withdraw.** Student officially withdraws from the course. A student who stops attending the course may be administratively withdrawn and issued a grade based on the amount of work completed for the entire course, not a pro-rata grade based on the completion of work done up to the point the student stopped attending. Details are outlined in the U of R Catalog.

### Academic Honesty

The University of Redlands Policy on Academic Honesty will be strictly adhered to and applied. The Procedures for Addressing Academic Honesty are set forth in the [University of Redlands Catalog](#). It is expected that all students read and understand the Policy and the provisions outlined in the Catalog.

### AI Policy

**You may use AI – just don’t try to pass it off as your own work.** In this course, we will discuss how to use AI ethically. I will assume you are using AI to the extent it might be useful for every project and that you will cite it accordingly, just as you would any other source. Grades and assessment will address knowledge, skills, and expertise you need to meet course learning objectives with generative AI as a resource, just as you might use Google, meetings with an Armacost librarian, or time with me in office hours. Failure to cite generative AI use will be considered a violation of the university’s academic honesty policy.

Please see the [Supplemental Syllabus Statements](#) regarding Accommodations, Office of Equity & Title IX, and additional resources such as the Counseling Center, CARE Team, and financial resources.