



GIS 669 Online – GIS for the Web Spring 2025

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Class Meetings: Lewis 104, 6:00pm – 8:00pm (Pacific Time), Monday's starting Jan 13

Online at Zoom: (I will share a URL used to connect to Zoom to your email address)

Office Hours: Tuesdays and Wednesdays – 7:00pm to 8:00pm or by appointment.

Course Description

Web GIS combines the web and GIS (Geographic Information Systems) forming a promising new field. Web GIS unlocks the power of GIS by putting maps and geospatial intelligence online making it accessible to anyone with a web enabled device.

Web GIS has immense applicability to e-government, e-business, e-science, and daily life. Government employees can utilize Web GIS to improve public services and enhance collaboration across agencies. Businesses can use Web GIS to enhance their existing business models and create new ones. Researchers can find new solutions to meet the challenges of the new frontiers. Web GIS has great practical value to our world today and into the future.

Course Objectives

Provide students with a comprehensive and up-to-date overview of Web GIS, including the basic concepts, principles, related fields (e.g. mobile GIS) and frontiers. Inspire students with the broad and real-world applications of Web GIS, especially in e-Government and e-Business. Provide students with the state-of-art technical skills to:

1. Build Web GIS applications.
2. Web GIS development using Web app builders where no programming is necessary.
3. Understand the code in an app's underlying html, CSS, and JavaScript.

Textbook

- Pinde Fu, 2022, *Getting to Know Web GIS* (5th edition). Esri Press. Redlands, CA. ISBN: 9781589487284, ASIN: B09Y68TXGF. (Book at Amazon)

The book has its own web site at Esri Press where you can download PowerPoint slides and data.

<https://go.esri.com/gtkwebgis5>

Additional material may be provided in video or other digital formats.

Prerequisites

This course assumes that the student has a basic level of competency in mathematics.

Statement about Intellectual Property, Video or Audio Recording, or Screenshots

It is possible that we have to move to an online teaching environment due to unforeseeable circumstances. The content of the course is the intellectual property of the faculty member and should not be disseminated or reproduced without explicit consent. To protect the privacy of all class members, no video or audio recordings of any part of video- or audio-conferences should be made without the explicit prior consent of all students and the instructor. To protect the privacy of all class members, no screenshots or still images of videoconferences should be taken without the explicit prior consent of all students.

Assignments

Each student will complete a series of assignments that complement the lecture presentations. The focus of the assignments will be to reinforce the theoretical concepts introduced through lectures and discussions.

Point deduction will be assessed on late assignments at the rate of 10% of the maximum points of the assignment per day. Due date extension is possible if there is an unforeseeable condition keeping you from finishing the assignment on time. However, extension can only be made to the immediate upcoming assignment due. Extension will not be granted to past assignments.

Assessment

Students will be evaluated based on in class lab exercises, discussion participation, homework assignments, and the final exam. The in-class lab assignments will help enforce student understanding by working on close-to-reality datasets using GIS software. The exam will test your understanding and problem-solving skills. This course has many assignments that are interesting, fun, and applicable in real world projects.

Grade = Homework (50%) + Final Exam (40%) + Participation (10%)

Missed class policy

There is a proportional deduction from the participation score per missed class. To avoid the deduction let the instructor know that you are going to miss a class and submit a plan to complete a makeup assignment and the work to be done in that class meeting.

Academic Honesty

The University policy on academic honesty (University of Redlands Catalog) will be strictly enforced. You should read this. If you have any questions about what constitutes academic dishonesty on a particular assignment, ask the professor.

Grading scale

0-59	59-63	63-67	67-70	70-73	73-77	77-80	80-83	83-87	87-90	90-95	95-100
F	D-	D	D+	C-	C	C+	B-	B	B+	A-	A
0	0.7	1.0	1.3	1.7	2.0	2.3	2.7	3.0	3.3	3.7	4.0

Tentative Class Schedule (Spring 2025)

Date	Lectures	Labs	Assignment
Week 1	Web GIS basics	ArcGIS Online Map Viewer; Create web apps from geotagged photos;	#1
Week 2	Hosted feature layers and storytelling with GIS	Smart mapping, pop-ups, and Arcade; Create a (new) story map	#2
Week 3	Building Web Applications	Create web apps with Web AppBuilder; Create web apps with Experience Builder;	#3
Week 4	Mobile GIS (1)	Create layers, views, related tables for field mapping; Create smart forms using Web Designer & Survey123 Connect;	#4
Week 5	Mobile GIS (2)	Offline data connection; QuickCapture; Create native apps using ArcGIS AppStudio	#5
Week 6	Connect to a GIS portal and publish web layers	Publish and compare raster tile / vector tile layers;	#6
Week 7	Real-time Web GIS	Incorporate time from web layers using animation and Dashboards	#7
Week 8	Incorporating 3D Data <ul style="list-style-type: none"> 3D web scenes 	Create scene layers, web scenes, and 3D web apps, page 266, create a 3D web scene	#8

Week 9	Spatial Data Science <ul style="list-style-type: none"> • Notebooks and Python • Online spatial analysis • Geoprocessing services • Big data & GeoAnalytics • Image services and raster analysis 	Create a web app for site selection, page 319, 8.1, Site Selection	#9
Week 10	Basics; HTML, JavaScript, and CSS and mapping parts	Getting started with JavaScript Adapt ArcGIS JavaScript samples	In class assignment
Week 11	ArcGIS Maps API for JavaScript	Build a JavaScript mapping App	#10
Week 12	Sharing and collaboration	Build a Hub or Storymaps Collection to showcase all your homework	In class assignment
Week 13	Final Exam		

Statements

Accommodations

If you are a student with a disability requesting reasonable academic accommodations in this course, please contact Academic Support and Accessibility (ASA). ASA is located in the Student Success Center on the ground floor of the Armacost Library. You can reach the office at 909-748-8069 or asa@redlands.edu. All requests for reasonable accommodations require registration with ASA in advance of need. Faculty, students, and ASA will work together regarding classroom accommodations. You are encouraged to discuss approved accommodations with your faculty. More information is available on the [ASA webpage](#).

Office of Equity and Title IX

In order to provide a safe and equitable learning environment for all students, faculty, and staff, discrimination, harassment, retaliation, sexual misconduct, and sexual harassment (including sexual assault, dating or domestic violence, and stalking) are not tolerated at the University of Redlands. The University prohibits unlawful discrimination or harassment (as defined in the [Policy Prohibiting Discrimination, Harassment, Sexual Misconduct, and Retaliation](#)) on the basis of age, color, race, ethnicity, national origin, ancestry, sex, marital status, pregnancy, status as a complaining party of domestic violence, sexual orientation, gender, gender identity or expression, physical or mental disability, genetic information, religion/creed, citizenship status (except to comply with legal requirements for employment), military/veteran status, or any other characteristic protected by law. If you or someone you know has experienced or experiences any of these behaviors, know that you are not alone. You can contact the Office of Equity and Title IX for reporting options, supportive measures, and resources to support you.

Many faculty and staff at the University of Redlands are considered “Responsible Employees,” which means that if you tell me about a situation involving any of the above, I must report the matter to the Office of Equity and Title IX. Although I make that report, you are in control of how you would like to proceed, including whether or not you wish to pursue a formal complaint. Our goal is to make sure you are aware of the range of reporting options available to you and have access to the support and resources you need.

To report an incident directly, you can:

- Contact the Interim Director of Equity & Title IX, Christopher Jones, at 909-748-8289 or titleix@redlands.edu
- Report online at: www.redlands.edu/titleixandequity

You can also report to local law enforcement at 909-798-7681, ext. 1. If you are ever in immediate danger, please call 911 or email/text 911@redlandspolice.org if you cannot call. To reach Public Safety on campus, call 909-748-8888 or use the [Rave Guardian](#) app. If you wish to speak to someone confidentially (meaning not connecting with the Office of Equity and Title IX Office), you can contact the following resources:

Campus: [Counseling Center](#): 909-748-8108 or 24-Hour Crisis Line: 909-748-8960
[TimelyCare](#), 24/7 emotional support; 12 free telehealth counseling sessions
Community: [Partners Against Violence](#), 24-hour sexual assault crisis line: 909-885-8884
[Option House](#), 24-hour dating/domestic violence crisis line: 909-381-3471
Online: <https://www.rainn.org/> (sexual assault); <https://www.loveisrespect.org/>

For more information, visit www.redlands.edu/titleixandequity

Counseling Center

The Counseling Center provides free and confidential mental health services, including short-term individual therapy, group therapy, single-session therapy, consultations, and urgent appointments to all students with in-person or virtual options. Our Counseling Center is committed to inclusivity and to providing a supportive space for everyone. Please call 909-748-8108 to schedule an appointment or email counseling_center@redlands.edu. If a student is in crisis, please call 909-748-8960 for the 24/7 mental health crisis line. For more information on our resources, go [here](#). Another option for individual therapy for all students is [TimelyCare](#), which provides virtual therapy immediately (Talk Now) or up to 12 scheduled virtual therapy sessions per year. Students can choose their therapist from a list of providers for the scheduled therapy option.

CARE Team

The University [CARE Team](#) exists to help provide support and resources to students that are overwhelmed, experiencing significant distress, or possibly present some risk to themselves or others. As a faculty member, I may reach out to students about whom I am concerned to talk individually, and/or refer them to the CARE Team. If you have concerns about a fellow student, consider sharing your concern with the CARE Team via their [online form](#). This is part of who we are as a caring, proactive community where we all look out for one another. Additionally, if you feel that you or someone else needs immediate mental health support, the University has a 24/7 mental health crisis line at 909-748-8960, and the [Timely Care](#) app, which offers on-demand emotional care. Both services connect to a live, licensed counselor.

Emergency Student Loans:

Student Financial Services (SFS) administers a short-term, no-interest loan fund to assist students experiencing an emergency or cash-flow problem. Except in unusual circumstances, these loans do not exceed \$200 and are billed to the student's account. Evidence of repayment ability is a prerequisite for all short-term loans made to students. Students are eligible for one emergency student loan per term.

Contact: SFS@redlands.edu or x8047