

**San José State University**  
**Department of Urban & Regional Planning**  
**Course # 44296, UBRP 275G GIS Overview, Section 80, Fall 2022**

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Office Hours: Mondays 11:30-1:30 on Zoom at <https://us02web.zoom.us/j/89068710656>  
Class Days/Time: Online  
Classroom: Canvas

### **Course Description**

An overview of Geographic Information Systems with a focus on applications to urban planning, including demographic data analysis, land use mapping, cartographic techniques, and methods for determining the most appropriate display of quantitative data for a variety of intended audiences (1-unit).

### **Course Format**

This is an asynchronous online course with no scheduled class meetings. All materials such as syllabus, handouts, notes, assignment instructions, etc. on the [Canvas Learning Management System course login website](#).

### **Course Description**

This course provides a broad overview of key principles of GIS and will allow you to begin applying the technology to urban planning analyses used by professional planners with GIS skills. You will work with several browser-based mapping tools such as the ArcGIS Online Map Viewer, Survey123, and Esri's Community Analyst. You'll explore a variety of topics including site suitability analysis using a paper-based map overlay technique, exploring geographic patterns of childhood poverty in Detroit, designing hurricane evacuation routes for Houston, conducting a comparative analysis of two San Francisco neighborhoods using urban sustainability indicators and collecting data in a neighborhood of your choice using a smartphone app and producing a web map of your findings.

### **Course Learning Objectives**

Upon successful completion of this course, students will be able to:

1. Describe the design principles that make for clear, accurate, and compelling maps and apply these principles to critique existing maps.
2. Describe how urban planners typically use GIS to analyze and display quantitative data.
3. Use web-based GIS tools to analyze spatial data and produce maps.

### **Planning Accreditation Board (PAB) Knowledge Components**

This course partially covers PAB Knowledge Components 2a and 2b. A complete list of the PAB Knowledge Components can be found at <https://www.sjsu.edu/urbanplanning/graduateprograms/masters-in-urban-planning/pab-knowledge.php> (accessed January 17, 2022)

## Required Readings

### Textbook (free on Canvas)

Harder, Christian, *The ArcGIS Book: 10 Big Ideas About Applying the Science of Where*, 2<sup>nd</sup> edition. Redlands, CA: Esri Press, 2017.

### Other

“The Age of Megacities” <https://storymaps.arcgis.com/stories/a900831b442e43c79cf9eeb399d5440f>

“Urban Evolution – A Brief Introduction” <https://storymaps.arcgis.com/stories/446efee44f8d49578d3c62bfe2c25fc1>

### Recommended (free on Canvas)

Peterson, Gretchen N., *GIS Cartography: A Guide to Effective Map Design* (2<sup>nd</sup> Edition). Boca Raton, FL: CRC Press, 2014.

## Course Assignments

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/studying, or course related activities.

Every week in this course a new module opens with either an exploratory activity to familiarize students with the breadth of applications and the types of map products that can be created using GIS software or one of the five larger hands-on GIS assignments. The first asks students to undertake a map overlay process in the context of a site suitability study without using any digital tools. This is designed to help students develop an appreciation for the accuracy and versatility of digital GIS mapping in subsequent assignments (CLO 2). The next assignment will introduce students to the principles of working with geospatial, location-based data using the ArcGIS Online Map Viewer. Students will use U.S. Census data in the city of Detroit, Michigan to examine geographic patterns of childhood poverty (CLO 1, 2, 3). Third, students will produce a map of hurricane evacuation routes for the city of Houston, Texas while considering rates of vehicle ownership in that city (CLO 1, 2, 3). The fourth provides students with exposure to Esri’s Community Analyst cloud-based mapping application which has a wealth of demographic and consumer/business data of great value to analyses undertaken during the community assessment phase of work undertaken by urban planners. This guided exercise focuses on urban sustainability by undertaking a comparative analysis of neighborhood-level urban sustainability indicators (CLO 1, 2, 3). Lastly students will collect data in the field using the Survey123 smartphone application and integrate the gathered information into a webmap (CLO 1, 2, 3).

### Final

The final will comprise a 750-word written essay discussing way(s) that GIS can be incorporated into a Master of Urban Planning graduate research project and planning report.

## Grading Information

All assignments have point values that determine the overall course grade.

Assignment	Points
10 Exploratory Activities (20 points each)	200
Exercise 1	100
Exercise 2	100
Exercise 3	100
Exercise 4	100

Exercise 5	100
Final Essay	50
TOTAL	750 points

Grade	Points	Percentage
A plus	720 to 750	96 to 100%
A	697 to 719	93 to 95%
A minus	675 to 696	90 to 92%
B plus	645 to 674	86 to 89 %
B	622 to 644	83 to 85%
B minus	615 to 621	80 to 82%
C plus	570 to 614	76 to 79%
C	547 to 569	73 to 75%
C minus	525 to 546	70 to 72%
D plus	495 to 524	66 to 69%
D	472 to 494	63 to 65%
D minus	450 to 471	60 to 62%

### Course Expectations

This course focuses on the development of professional skills used by urban planners meaning unexcused late work is not accepted. If there are issue completing work on time, please let the instructor know as soon as possible. The presentation of submitted materials will be considered as part of the grade so do your best. Students are expected to understand this syllabus and to carry out the requirements by demonstrating growth through self-reliance and resourcefulness in completing learning objectives. All students and the instructor must be respectful and support one another.

### University Policies

Per [University Policy S16-9](#) ,relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on [Syllabus Information web page](#) (<https://www.sjsu.edu/curriculum/courses/syllabus-info.php>). Make sure to visit this page to review and be aware of these university policies and resources.

## URBP 275G / Geographic Information Science Overview Course Schedule

Week	Dates	Topics, Readings, Assignments, Deadlines
1	8/19 - 8/21	Review the syllabus, familiarize yourself with Canvas Introductions
2	8/22 - 8/28	GIS Basics Activity 1
3	8/29 - 9/4	GIS for Site Suitability Activity 2 Begin Exercise 1
4	9/5 - 9/11	<i>9/6 Labor Day Holiday</i> GIS for Site Suitability Exercise 1 Due
5	9/12 - 9/18	Remote Sensing Activity 3
6	9/19 - 9/25	Using ArcGIS Map Viewer Continued Activity 4 Begin Exercise 2
7	9/26 - 10/2	Using ArcGIS Map Viewer Continued Exercise 2 Due
8	10/3 - 10/9	Story Maps Activity 5
9	10/10 - 10/16	Demographic Analysis Activity 6 Begin Exercise 3
10	10/17 - 10/23	Demographic Analysis Continued Exercise 3 Due
11	10/24 - 10/30	Open-Source GIS Activity 7
12	10/31 - 11/6	Urban Sustainability Activity 8 Begin Exercise 4
13	11/7 - 11/13	<i>11/11 Veterans Day Holiday</i> Urban Sustainability Continued Exercise 4 Due
14	11/14 - 11/20	Field Data Collection and Mapping Activity 9 Begin Exercise 5
15	11/21 - 11/27	<i>11/24 Thanksgiving Holiday</i> <i>11/25 Family Day Holiday</i> Field Data Collection and Mapping Continued
16	11/28 - 12/4	Field Data Collection and Mapping Continued Activity 10 Exercise 5 Due
Final	12/5 - 12/11	Final essay due 12/11

