# San José State University

# Urban and Regional Planning Department

# URBP 275G – Geographic Information Systems Overview

# Fall 2015

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| **Instructor:** | Indu Jeyachandran, PhD |
| **Office location:** | WSQ 218B |
| **Telephone:** | (801)869-0540 |
| **Email:** | [indumathi.jeyachandran@sjsu.edu](mailto:indumathi.jeyachandran@sjsu.edu) (E-mail preferred for communication) |
| **Office hours:** | Mondays from 10:15 am to 11:15 am during class weeks and on October 12 |
| **Class days/time:** | Wednesdays 4:30 pm to 7:00 pm on Aug. 26; Sep. 2, 9, 23; Oct.7 |
| **Classroom:** | Washington Square Hall (WSQ) 208 |
| **Prerequisites:** | None |
| **Units:** | 1 |

## Course Catalog 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.

## Course Description and Course Learning Objectives

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

1. Explain the influence of spatial literacy on both the historical evolution of human settlement patterns and contemporary efficacy of public policy
2. Describe the design principles that make for clear, accurate and compelling maps.
3. Describe how urban planners typically use GIS as a tool for the analysis and display of quantitative data.
4. Critique and evaluate existing maps to assess how well they apply good map design principles.
5. Access and download GIS data from commonly used sources such as the US Census Bureau and the National Map Viewer.
6. Prepare a basic and complete map.
7. Explain the basic components of GIS Technology.

## Planning Accreditation Board (PAB) Knowledge Components

This course partially covers the following PAB Knowledge Components:

1d) Human Settlements and History of Planning: understanding of the growth and development of places over time and across space.

1f) Global Dimensions of Planning: appreciation of interactions flows of people and materials, cultures, and differing approaches to planning across world regions.

2b) Written, Oral and Graphic Communication: ability to prepare clear, accurate and compelling text, graphics and maps for use in documents and presentations.

A complete list of the PAB Knowledge Components can be found at <http://www.sjsu.edu/urbanplanning/courses/pabknowledge.html>.

## Required Course Texts

Peterson, Gretchen N. [GIS Cartography: A Guide to Effective Map Design.](http://discover.sjlibrary.org/iii/encore_sjsu/record/C__Rb3981472?lang=eng) Boca Raton, FL: CRC Press, 2009. ISBN. 9781420082142

**Permalink to access Peterson textbook:**

[**http://discover.sjlibrary.org/iii/encore\_sjsu/record/C\_\_Rb3981472?lang=eng**](http://discover.sjlibrary.org/iii/encore_sjsu/record/C__Rb3981472?lang=eng)

Thrower, Norman J.W. [Maps and Civilization: Cartography in Culture and Society. 3rd ed.](http://discover.sjlibrary.org/iii/encore_sjsu/record/C__Rb3903976) Chicago: The University of Chicago Press, 2008. ISBN: 9780226799759

**Permalink to access Thrower textbook:**

[**http://discover.sjlibrary.org/iii/encore\_sjsu/record/C\_\_Rb3903976**](http://discover.sjlibrary.org/iii/encore_sjsu/record/C__Rb3903976)

Both the textbooks listed above will be available as free e-books from the SJSU Library. To access the text books, click on the permalinks listed above. As a next step click on the link “An eBook is available to SJSU Students and Faculty”.

Additional readings will be assigned during the course; information will be provided in the class and/or posted to canvas.

## Course Assignments and Grading Policy

Your grade for the course will be based on the following assignments and other activities:

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| --- | --- | --- |
| **Assignments and Graded activities** | **Percent of Course Grade** | **Course Learning**  **Objectives Covered** |
| Assignment 1 - Introduction to GIS and Spatial Data | 20% | 1, 2, & 3 |
| Assignment 2 - Analysis using Esri Community Analyst | 20% | 1, 2, & 5 |
| Assignment 3 - Map Creation and Design | 20% | 4 & 6 |
| Pre-Announced Quiz | 20% | 1, 3, & 7 |
| Assignment 4 - Land Use Change Analysis | 20% | 3 & 5 |

**Assignment 1**: Consists of three parts: 1a) Writing a paragraph on the use of maps in daily life and how using digital maps makes life easier; 1b) Performing an exercise on finding the latitude, longitude coordinates of two cities by conducting an internet search; 1c) Identifying one case study involving the use of GIS for an urban planning application and be prepared to talk about it briefly in the next class meeting.

**Assignment 2:** Students will be introduced to browser based mapping tool ESRI Community Analyst and gain exposure to its use for demographic analysis for their community of interest through an in-class exercise using Census 2010 data. Also, students will be introduced to the comparison and reporting capability of Community Analyst by performing income profile comparison.

**Assignment 3:** Students will be introduced to effective map design techniques. Using ArcGIS 10.2.2 Desktop, students will create a complete map with all necessary cartographic components. In addition, students will be involved in critiquing poorly designed maps and suggesting ways of improving those maps.

**Assignment 4:** Students will be introduced to the concepts of urban sustainability and the applications of GIS in the field of urban sustainability. Students will download land use data (NLCD) from the National Map Viewer and perform land use change analysis in ArcGIS Desktop.

### Calculation of Final Course Letter Grade

### The course grade consists of four assignments and one quiz. The assignments and quiz are worth 20 points each. If a student named “Joe” obtains 15 points on the first assignment, 15 on the second, 19 on the third, 19 on the fourth assignment, and 20 on the quiz his final letter grade can be calculated using the following steps:

### Total points scored by Joe is: 15+15+19+19+20= 88

### The final score will then be converted to a letter grade using the following criteria:

A+ (96 and above); A (93 to 95); A- (90 to 92); B+ (87 to 89); B (84 to 86); B- (81 to 83); C+ (78 to 80); C (75 to 77); C- (72 to 74); D+ (69 to 71); D (66 to 68); D- (63 to 65); F (below 63)

Therefore, the letter grade awarded to Joe for the course would be B+.

### Course Workload

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of forty-five hours over the length of the course (normally 3 hours per unit per week with 1 of the hours used for lecture) for instruction or preparation/studying or course related activities including but not limited to internships, labs, clinical practice. Other course structures will have equivalent workload expectations as described in the syllabus.

Careful time management will help you keep up with readings and assignments and enable you to be successful in all of your courses. For this class, you will have to undertake additional activities outside the class hours such as completing reading assignments.

**Teaching Philosophy**

In the classroom I seek to engage the student in active learning. In my past teaching experience I have had the opportunity to experiment with active learning techniques, and I have found them to successfully engage students. I intend to encourage active learning in the classroom by using standard classroom questioning techniques during classroom presentations, posing discussion points to stimulate critical thinking, and providing team exercises and motivating involvement with extra

credit or required submission of work.

To support an active learning environment, each class will be structured to meet carefully crafted learning objectives. The key element will be a stimulating classroom presentation using electronic platforms (PowerPoint) and traditional delivery methods (blackboard or whiteboard), building upon assigned readings and homework. I will establish a positive classroom atmosphere and build rapport among the students and me. The classroom presentation will be highlighted by frequent individual and team activities addressing specific learning objectives. Frequent classroom assessment techniques will be implemented to ascertain student learning.

I am keenly interested to explore technology-assisted education platforms including the use of computers in the classroom and the Internet (e.g., blogs). I am well versed in GIS software and tools and I will find ways to provide learning opportunities for state-of-the-practice geospatial software and tools.

## Academic Integrity Statement, Plagiarism, and Citing Sources Properly

Your commitment, as a student, to learning is evidenced by your enrollment at San Jose State University. The [University Academic Integrity Policy S07-2](http://www.sjsu.edu/senate/docs/S07-2.pdf) at http://www.sjsu.edu/senate/docs/S07-2.pdf requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The [Student Conduct and Ethical Development website](http://www.sjsu.edu/studentconduct/) is available at http://www.sjsu.edu/studentconduct/.

Plagiarism is the use of someone else's language, images, data, or ideas without proper attribution. It is a very serious offense both in the university and in your professional work. In essence, plagiarism is both theft and lying: you have stolen someone else's ideas, and then lied by implying that they are your own.

**Plagiarism will lead to grade penalties and a record filed with the Office of Student Conduct and Ethical Development. In severe cases, students may also fail the course or even be expelled from the university.**

**If you are unsure what constitutes plagiarism, it is your responsibility to make sure you clarify the issues before you hand in draft or final work.**

Learning when to cite a source and when not to is an art, not a science. However, here are some common examples of plagiarism that you should be careful to avoid:

* Using a sentence (or even a part of a sentence) that someone else wrote without identifying the language as a quote by putting the text in quote marks and referencing the source.
* Paraphrasing somebody else's theory or idea without referencing the source.
* Using a picture or table from a webpage or book without reference the source.
* Using data some other person or organization has collected without referencing the source.

The University of Indiana has developed a very helpful website with concrete examples about proper paraphrasing and quotation. See in particular the following pages:

* [Overview of plagiarism](http://www.indiana.edu/~istd/overview.html) at [www.indiana.edu/~istd/overview.html](http://www.indiana.edu/~istd/overview.html)
* [Examples of plagiarism](http://www.indiana.edu/~istd/examples.html) at [www.indiana.edu/~istd/examples.html](http://www.indiana.edu/~istd/examples.html)
* [Plagiarism quiz](http://www.indiana.edu/~istd/test.html) at [www.indiana.edu/~istd/test.html](http://www.indiana.edu/~istd/test.html)

If you still have questions, feel free to talk to me personally. There is nothing wrong with asking for help, whereas even unintentional plagiarism is a serious offense.

### Citation style

It is important to properly cite any references you use in your assignments. The Department of Urban and Regional Planning uses Kate Turabian’s *A Manual for Writers of Research Papers, Theses, and Dissertations*, 8th edition (University of Chicago Press, 2013, ISBN 780226816388). Copies are available in the SJSU King Library. Additionally, the book is relatively inexpensive, and you may wish to purchase a copy. Please note that Turabian’s book describes two systems for referencing materials: (1) “notes” (footnotes or endnotes), plus a corresponding bibliography, and (2) in-text parenthetical references, plus a corresponding reference list. In this class, students should use in-text parenthetical references, plus a corresponding reference list.

## Accommodation for Disabilities

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. [Presidential Directive 97-03](http://www.sjsu.edu/president/docs/directives/PD_1997-03.pdf) at http://www.sjsu.edu/president/docs/directives/PD\_1997-03.pdf requires that students with disabilities requesting accommodations must register with the [Accessible Education Center](http://www.sjsu.edu/aec) (AEC) at http://www.sjsu.edu/aec to establish a record of their disability.

## Accommodation to Students' Religious Holidays

San José State University shall provide accommodation on any graded class work or activities for students wishing to observe religious holidays when such observances require students to be absent from class. It is the responsibility of the student to inform the instructor, in writing, about such holidays before the add deadline at the start of each semester. If such holidays occur before the add deadline, the student must notify the instructor, in writing, at least three days before the date that he/she will be absent. It is the responsibility of the instructor to make every reasonable effort to honor the student request without penalty, and of the student to make up the work missed. See [University Policy S14-7](http://www.sjsu.edu/senate/docs/S14-7.pdf) at http://www.sjsu.edu/senate/docs/S14-7.pdf.

## Consent for Recording of Class and Public Sharing of Instructor Material

[University Policy S12-7](http://www.sjsu.edu/senate/docs/S12-7.pdf), http://www.sjsu.edu/senate/docs/S12-7.pdf, requires students to obtain instructor’s permission to record the course and the following items to be included in the syllabus:

* “Common courtesy and professional behavior dictate that you notify someone when you are recording him/her. You must obtain the instructor’s permission to make audio or video recordings in this class. Such permission allows the recordings to be used for your private, study purposes only. The recordings are the intellectual property of the instructor; you have not been given any rights to reproduce or distribute the material.”
  + It is suggested that the greensheet include the instructor’s process for granting permission, whether in writing or orally and whether for the whole semester or on a class by class basis.
  + In classes where active participation of students or guests may be on the recording, permission of those students or guests should be obtained as well.
* “Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without his/her approval. You may not publicly share or upload instructor generated material for this course such as exam questions, lecture notes, or homework solutions without instructor consent.”

## Library Liaison

The SJSU Library Liaison for the Urban and Regional Planning Department is Ms. Toby Matoush. If you have questions, you can contact her at [toby.matoush@sjsu.edu](mailto:toby.matoush@sjsu.edu) or 408-808-2096.

## SJSU Writing Center

The SJSU Writing Center is located in Clark Hall, Suite 126. All Writing Specialists have gone through a rigorous hiring process, and they are well trained to assist all students at all levels within all disciplines to become better writers. In addition to one-on-one tutoring services, the Writing Center also offers workshops every semester on a variety of writing topics. To make an appointment or to refer to the numerous online resources offered through the Writing Center, visit the [Writing Center website](http://www.sjsu.edu/writingcenter) at http://www.sjsu.edu/writingcenter. For additional resources and updated information, follow the Writing Center on Twitter and become a fan of the SJSU Writing Center on Facebook. (Note: You need to have a QR Reader to scan this code.)  .

## SJSU Counseling Services

## The SJSU Counseling Services is located on the corner of 7th Street and San Fernando Street, in Room 201, Administration Building. Professional psychologists, social workers, and counselors are available to provide consultations on issues of student mental health, campus climate or psychological and academic issues on an individual, couple, or group basis. To schedule an appointment or learn more information, visit [Counseling Services website](http://www.sjsu.edu/counseling) at http://www.sjsu.edu/counseling.

## Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester’s [Catalog Policies](http://info.sjsu.edu/static/catalog/policies.html) section at http://info.sjsu.edu/static/catalog/policies.html. Add/drop deadlines can be found on the current academic year calendars document on the [Academic Calendars webpage](http://www.sjsu.edu/provost/services/academic_calendars/) at http://www.sjsu.edu/provost/services/academic\_calendars/. The [Late Drop Policy](http://www.sjsu.edu/aars/policies/latedrops/policy/) is available at http://www.sjsu.edu/aars/policies/latedrops/policy/**.** Students should be aware of the current deadlines and penalties for dropping classes.

Information about the latest changes and news is available at the [Advising Hub](http://www.sjsu.edu/advising/) at http://www.sjsu.edu/advising/.

## Classroom Protocol

Students are expected to arrive on time and be present till the end of the class. Attendance to all class meetings is required. If unable to attend classes due to emergencies and illness, must inform the instructor through e-mail and exceptions might be granted for medical reasons and other unforeseen emergencies. Use of computers in the classroom during the class is limited only to class use. Use of computers for using Facebook, email and other non-class related use during class hours is strictly prohibited. Use of cell phones during class is not permitted.

# URBP 275G – Geographic Information Systems Overview Fall 2015 Course Schedule

**Note: Schedule proposed here is subject to change with fair notice.**

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| **Date** | **Topic** | **Reading** | **Assignments due** |
| Aug 26 | Brief course overview; Introduction to GIS and basic concepts of GIS; importance of maps with story-telling and examples, urban applications of GIS overview, introduction to ArcGIS Online: ArcGIS Online hands-on lab session |  |  |
| Sep 2 | Introduction to cartography; early history of cartography; introduction to Esri Community Analyst; using Community Analyst for demographic analysis (in-class exercise) | *Thrower, Chapters 1-4* | *Assignment 1* |
| Sep 9 | Modern Cartography; Introduction to Map Design | *Thrower, Chapters 5-9*  *Peterson Chapters 1-3* | *Assignment 2a) – Esri Community Analyst for demographic analysis*  *Assignment 2b) - Esri Community Analyst for neighborhood housing market comparison* |
| Sep 16 | NO CLASS MEETING |  |  |
| Sep 23 | High Standards: Best practices for design of specific map features | Peterson, Chapters 4-7 | *Pre- announced Quiz* |
| Sep 30 | NO CLASS MEETING |  |  |
| Oct 7 | Urban sustainability overview ; using GIS in the field of urban sustainability overview and case studies of previous work:  1. Using GIS for assessing impacts of Green Infrastructure (GI) on urban microclimate and energy use mapping  2. Utilizing GIS for analyzing impacts of land use change on Greenhouse Gas emissions  Exploring land use change with ArcGIS Desktop; downloading data from the National Map Viewer (Assignment 4) | *Assigned online readings and excerpts* | *Assignment 3* |
| Note: Assignment 4 is due by October 13th. Late submissions will be accepted through email till October 14th with grade deduction. | | | |