SAN JOSÉ STATE UNIVERSITY
URBAN AND REGIONAL PLANNING DEPARTMENT
URBP 275G – GEOGRAPHIC INFORMATION SYSTEMS OVERVIEW
SPRING 2017

Instructor: Rick Kos, AICP
Office location: WSQ-218C
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Email: Richard.Kos@sjsu.edu
Office hours: Wednesdays (2:00 – 4:00 p.m.) and Thursdays (2:00 p.m. – 4:00 p.m.)
Appointments strongly preferred. Sign up here: https://goo.gl/pEvVod
Class days/time: Five Wednesdays 4:30 p.m. – 7:00 p.m.: Feb. 8, 15, 22; March 8, 15
Classroom: Washington Square Hall (WSQ) 208
Class website: http://urbp275G.pbworks.com/
Prerequisites: None
Units: 1

Course Catalog Description
An overview of Geographic Information Systems with a focus on applications to urban planning, including the history of cartography, land use mapping, cartographic techniques, map design and methods for determining the most appropriate display of quantitative data for a variety of intended audiences.

Course Description and Course Learning Objectives
This course provides a broad overview of key principles of GIS and will allow students to begin developing an appreciation for the technology and its application to urban planning. Through a combination of short lectures, demonstrations by the instructor, and plenty of hands-on time using ArcGIS Online and ArcGIS Desktop 10.4.1, we will cover the field of GIS and related terminology broadly. Students will be encouraged to build on the topics covered in this course by enrolling in URBP-278 (Intro. to GIS) and URBP-279 (Advanced GIS).

As this is a one-unit course, we will meet five times during the course of the semester. Meeting dates are listed in the table above as well as the class schedule on the last page.

Upon successful completion of the 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 http://www.sjsu.edu/urbanplanning/courses/pabknowledge.html.

Required Course Texts


- We will use the web-based version of this book, so you do not need to purchase the book.
- We will complete three of the exercises during in-class assignments.


- Available as a free e-book from the SJSU library: http://goo.gl/m8U18F
- Click on the link above, then click “An electronic book is available to SJSU Students and Faculty”.
- Please download and save the seven chapters and three appendices as PDF files.

Additional short, no-cost, online readings are likely to be assigned during the course; announcements will be made in class.

Course Requirements and Assignments

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

<table>
<thead>
<tr>
<th>Assignments</th>
<th>Due Date</th>
<th>Course Learning Objective(s) Covered</th>
<th>Percent of Course Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Site Suitability using “Pre-Digital” Map Overlay Approach</td>
<td>Feb. 15</td>
<td>2</td>
<td>30%</td>
</tr>
<tr>
<td>2 – Urban Sustainability Analysis with ArcGIS Online</td>
<td>Mar. 8</td>
<td>2, 3</td>
<td>30%</td>
</tr>
<tr>
<td>3 – Portfolio of Substandard and “Best Practice” Map Designs</td>
<td>Mar. 15</td>
<td>1, 2</td>
<td>30%</td>
</tr>
</tbody>
</table>

**Participation** – Consistent and active engagement in lectures and discussions, small team tasks, complete five in-class exercises

10%

Assignment 1 will introduce students to “pre-digital” map-making as a way to build appreciation for the accuracy and speed with which digital maps can be created today using GIS software. Students
will be given a series of printed sheets, each representing a thematic set of data (e.g. sewer lines, land cover). Using these sheets, the assignment will challenge students to locate the best site for a new office building, given seven specific site location criteria.

**Assignment 2** is a guided exercise related to urban sustainability that will require students to use a browser-based mapping tool. Students will undertake a comparative analysis of neighborhood-level urban sustainability indicators (e.g. income distribution, racial diversity, access to food stores, health care access) using Esri’s browser-based mapping tool, ArcGIS Online.

**Assignment 3** will have students gather a portfolio of three maps that represent "substandard" map design as well as three maps that represent “best practice” in map design. Students will draw heavily upon the assigned text, *GIS Cartography: A Guide to Effective Map Design*. To demonstrate both substandard and best practice qualities, students will critique each of the six published maps and include a brief (~3 paragraphs) description of what makes the designs substandard or well-made. I will grade the portfolio based on the quality of student critiques, the overall readability of the gathered maps, and how well the student articulated the elements of substandard/“best practice”–layout, font, color, and features. Standard style and referencing requirements apply (see "citation style" section of this syllabus).

### Calculation of Final Course Letter Grade

I will calculate the final letter grade for the course by weighting the grade for each assignment according to the percentages in the table above. To do this, I first convert the letter grade for each assignment to a number using a 4-point scale (A+ = 4.2, A = 4.0, A- = 3.67, B+ = 3.33, B = 3.0, B- = 2.67, C+ = 2.33, C = 2.0, C- = 1.67, D = 1, and F = 0).

I then use these numbers and the weights for each assignment to calculate a final, numerical grade for the course based on a 4-point scale. That number is converted back to a letter grade (A = 3.85+, A- = 3.50 – 3.84, B+ = 3.17 – 3.49, B = 2.85 – 3.16, B- = 2.50 – 2.84, C+ = 2.17 – 2.49, C = 1.85 – 2.16, C- = 1.41 – 1.84, D+ = 1.17 – 1.40, D = 0.85 – 1.16, F = 0 – 0.84).

### Fundamentals for Success in this Course

I will make every effort to help you succeed in this course so that you develop a clear understanding of GIS applications to our profession. Naturally, it is your responsibility to complete all assignments and to take advantage of the many learning opportunities this semester. Your final grade will reflect your overall commitment to learning; highest grades correlate with student efforts that exceed expectations. Here are some tips to help you succeed this semester:

**Maintain a fast pace:** This will be a fast-moving and somewhat technologically advanced course, but concepts and instructions will be explained as clearly as possible. If you wish to evaluate your readiness for this course at the outset, please see me as soon as possible.

**Computer competencies:** Competence with the Windows operating system is expected, including managing multiple windows and applications; and techniques for saving work frequently.

**Enjoyment of Learning:** A strong motivation to learn, explore and have fun with computer applications is essential. This course will require a significant amount of independent work and relies heavily on student initiative. A sense of humor with computer “headaches” is helpful, too!

**Seek Help Effectively:** Since urban planners are problem-solvers at their core, it is important that you adopt a problem-solving mindset in this course. Asking for assistance this semester is encouraged and signals to me that you are engaged in your work, motivated by excellence and positively challenged by the assignments. Asking for help will never be perceived as a liability in my
class. However, when seeking assistance, it is important for you to (1) clearly communicate the problem and (2) demonstrate that you have attempted to solve the problem on your own and are ready to clearly articulate your attempts.

Also, I am very happy to help you with your work outside of the classroom during office hours or via email. If we work together via email, it is vital that you send me as much information as possible to help diagnose the problem. It is not sufficient to write to me and vaguely state, “I can’t get this to work” and expect useful assistance without also including relevant screen captures and a description of the solution steps you’ve tried. In general, I will be very responsive to queries that meet these criteria and much less so for “lazy queries”, which I probably will not have time to address. This approach mirrors professional practice since supervisors expect valued employees to be proactive in solving problems.

Focus and Respect: I fully understand the temptations and distractions we all face today with email, web sites, Twitter, Facebook and IMs vying for our attention, but lab computers may not be used for getting other work or e-mail done. Out of respect for everyone in a focused learning environment, I will be ruthless in getting everyone to turn computer monitors off when not being used for course exercises. If you have to "get something else done" during the class period, please do it elsewhere. Cell phones need to be in silent mode, or turned off.

Professional Conduct: I conduct this course in a manner that mirrors professional practice in order to help you develop valuable workplace skills. We all need to be in agreement that the following standards will apply, as listed in the two sections below:

**Instructor Responsibilities**

- To create a physically and intellectually safe and stimulating environment for learning
- To assist students as much as possible with their individual and collective learning goals
- To help resolve conflicts that hinder learning by answering student questions clearly and promptly, or to research answers and reply to the student as soon as possible
- To treat students with respect and kindness, using encouragement and humor to foster learning
- To arrive at the start of each class session fully prepared and organized, with clear learning objectives and a schedule for the day’s tasks ready to go
- To evaluate and grade student work fairly and accurately while providing constructive feedback

**Student Responsibilities**

- To attend each class session and to arrive punctually, bringing all needed materials
- To treat other students and the instructor with absolute respect, supporting fellow students whenever possible with their learning objectives, and minimizing distractions in class
- To complete all assignments on time and professionally according to the requirements listed in this syllabus
- To fully read and understand all aspects of this syllabus and to carry out the requirements herein
- To actively and consistently participate in class discussions and question-and-answer sessions
- To demonstrate self-reliance and self-direction in setting and completing learning objectives
- To accept responsibility for working collaboratively in the learning process
Final Examination or Evaluation
There is no final examination for this one-unit course.

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 practica. Other course structures will have equivalent workload expectations as described in the syllabus.

Because this is a one-unit class over five weeks, you can expect to spend a minimum of 45 hours (5 weeks * 9 hours per week) in addition to time spent in class and on scheduled tutorials or activities. Special projects or assignments may require additional work for the course. Careful time management will help you keep up with readings and assignments and enable you to be successful in all of your courses.

University Policies
Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs’ Syllabus Information web page at http://www.sjsu.edu/gup/syllabusinfo/

Plagiarism and Citing Sources Properly
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 at www.indiana.edu/~istd/overview.html
- Examples of plagiarism at www.indiana.edu/~istd/examples.html
- Plagiarism quiz at 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 the "notes" style of referencing.

**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 or 408-808-2096.

**A Little About Me…**

My formal training is in environmental planning and urban design (B.S., Rutgers University, 1985) as well as regional planning and New Urbanism (Masters, University of North Carolina at Chapel Hill, 1993). In the late 1980s, I worked as an assistant planner in Middlesex County, NJ, reviewing subdivision and site plan proposals for compliance with county regulations. In the 1990s, I served two rapidly-growing North Carolina municipalities in a dual role as town planner and GIS coordinator (the latter being a role I created for both towns), so I am equally conversant in the language of both disciplines. From 1996 - 2000, I served as Senior Town Planner for Huntersville, North Carolina - the fastest-growing town of its size in the state at the time. The New Urbanist principles mandated by the Town’s development regulations applied to both greenfield and infill sites. Since the regulations were design-based (i.e., non-Euclidean), they required me to make frequent subjective judgments on the visual qualities of streets, the orientation of proposed buildings to public spaces, and the relationship of buildings and land uses to one another.

After relocating to the Bay Area in 2000, I worked with the Metropolitan Transportation Commission as a GIS Planner/Analyst. The Bay Area Lifeline Transportation Map that I completed for MTC locates disadvantaged neighborhoods and thousands of geocoded essential destinations (e.g., grocery stores, daycare centers, clinics) within the 9-County region, along with existing public transit services. The spatial analyses enabled by this mapping work allowed transportation planners to locate gaps in transit service so that decision-makers could direct funding to alter bus schedules, connections and routing for improved neighborhood connectivity.

From 2003 to 2007 I served as GIS Manager for Design, Community & Environment, a 45-person planning and design firm in Berkeley. I managed all aspects of the firm’s GIS practice and took great pride in keeping hundreds of data layers organized across multiple projects, ensuring that the firm's metadata was up-to-date, training staff to use ArcGIS and ArcCatalog, and managing the production of hundreds of maps for General Plans and EIRs throughout California.

I have co-authored a book titled *GIS for Economic Development* with Professor Mike Pogodzinski of the SJSU Economics Department. The book was released in late 2012 by Esri Press. I also engage in occasional freelance GIS projects for Mobility Planners, LLC, the Mori Foundation (Japan) and for a San Francisco non-profit called Wordlink where I serve as a digital cartographer.
# URBP-275G: Geographic Information Systems Overview
## Spring 2017
### Course Schedule*

<table>
<thead>
<tr>
<th>Date</th>
<th>Topics</th>
<th>Reading Due</th>
<th>Assignments Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb. 8</td>
<td>- Course overview</td>
<td>None</td>
<td>None</td>
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<tr>
<td></td>
<td>- Student hometown webmap</td>
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<td></td>
<td>- Examples of how GIS is used by urban planners</td>
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<td></td>
<td>- &quot;The Geospatial Revolution' video series (episode 1)</td>
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<td></td>
<td>- Introduction to ArcGIS Online web mapping</td>
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<td>- In-class exercise 1: mapping</td>
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<td></td>
<td>state/county racial diversity</td>
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<td></td>
<td>- Overview of Assignment 1</td>
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<tr>
<td></td>
<td>&quot;The ArcGIS Book&quot;** Chapter 1: Maps, The Web, and You (finish reading after &quot;It All Begins with a Map&quot; section)</td>
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<tr>
<td>Feb. 15</td>
<td>- Discuss Assign. 1 findings</td>
<td>Peterson, Chapters 1-2</td>
<td>1 – Site Suitability using “Pre-GIS” Map Overlay Approach</td>
</tr>
<tr>
<td></td>
<td>- &quot;The Geospatial Revolution' video series (episode 2)</td>
<td>&quot;The ArcGIS Book&quot;** Chapter 2: Cartography is for Everyone (finish reading after &quot;Quickstart&quot; section)</td>
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<td>- In-class exercise 2: Mapping Geography of Hawaii</td>
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<td></td>
<td>- Overview of Assignment 2</td>
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<tr>
<td>Feb. 22</td>
<td>- &quot;The Geospatial Revolution' video series (episode 3)</td>
<td>Peterson, Chapters 3-5</td>
<td>None</td>
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<td>- In-class exercise 3: Deforestation in Brazil</td>
<td>&quot;The ArcGIS Book&quot;** Chapter 2: The Importance of Where (finish reading after &quot;Modeling&quot; section)</td>
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<tr>
<td></td>
<td>- Overview of Assignment 3</td>
<td></td>
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<tr>
<td>Mar. 8</td>
<td>- Discuss Assign. 2 findings</td>
<td>Peterson, Chapters 6-7</td>
<td>2 – Urban Sustainability Analysis with Esri ArcGIS Online</td>
</tr>
<tr>
<td></td>
<td>- &quot;The Geospatial Revolution' video series (episode 4)</td>
<td>&quot;The ArcGIS Book&quot;** Chapter 5:</td>
<td></td>
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<td></td>
<td>- In-class exercise 4: Finding Suitable Building Sites</td>
<td>The Importance of Where (finish reading after &quot;Modeling&quot; section)</td>
<td></td>
</tr>
<tr>
<td>Mar. 15</td>
<td>- Discuss Assign. 3 findings</td>
<td>None</td>
<td>3 – Portfolio of Substandard and “Best Practice” Map Designs</td>
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<tr>
<td></td>
<td>- In-class exercise 5: Exploring ArcGIS 10.4.1 Desktop</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>- Overview of URBP-278 (Intro. GIS) and URBP-279 (Advanced GIS)</td>
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</tbody>
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* This schedule is subject to change with fair notice in class or by email.

** See URL in "Required Course Texts" section of this syllabus, page 2.