

URBP 179/278: GIS Applications to Urban Planning

A combined undergraduate/graduate GIS course
in the Department of Urban and Regional Planning at San José State University
Course Syllabus, Fall Semester 2008

Course Number, Official Course Titles and Meeting Time.

- ◆ Undergraduate: URBP 179, "Urban GIS Technology", Course Code 47049, Section I
- ◆ Graduate: URBP 278, "GIS Planning Applications", Course Code 47050, Section I
- ◆ Class is held on Tuesdays, 7:15 pm to 10:00 pm in WSQ 208

Instructor Information.

- ◆ Instructor: Rick Kos, AICP
- ◆ Office Hours: Tuesday, 3:00 pm - 7:00 pm in WSQ 216G, or by appointment
- ◆ Email (*preferred method of communication*): rickkos@mindspring.com
- ◆ Department Phone: (408) 924-5882 Fax: (408) 924-5872
- ◆ Course web site: <http://gis-planning-applications.pbwiki.com>

Course Overview.

Geographic Information Systems, GIS, is a rapidly-evolving technology involving the study of spatial location and relationships. Environmental Systems Research Institute's (ESRI) suite of GIS software - ArcGIS in particular - has become the industry standard and is used by a majority of government agencies and private firms engaged in GIS activities.

Because the work of urban planners fundamentally involves the study of location and spatial relationships, today's employers increasingly expect graduates of urban planning programs to possess a basic understanding of ArcGIS. Specifically, employers are seeking professionals armed with a grasp of geospatial data types, spatial analysis techniques and GIS project management skills in order to effectively study a host of urban planning issues. San José State University's Urban and Regional Planning Department offers two courses specifically devoted to GIS - the course you are taking now, and a follow-up course in the Spring semester: *Advanced GIS for Urban Planners*. Both courses aim to build sought-after GIS skills through a comprehensive, real world-focused course of study in GIS.

The majority of students interested in taking either elective course typically do not intend to pursue careers dedicated specifically to the use of GIS; rather, they wish to learn just enough about the technology so it can be one of many tools available to them in their urban planning careers. As such, the GIS courses offered by the Urban and Regional Planning Department are as practical in nature as possible, favoring case studies and the hands-on use of ArcGIS software over theory and abstraction, and with a particular focus on the acquisition and analysis of real-world geospatial data typically used by urban planners.

The class is taught mainly as a combined lecture and computer laboratory course using ESRI's ArcGIS 9.2 software in a variety of hands-on exercises.

The course provides a balance between the "how-to" of using ArcGIS and the "why" by explaining the roles GIS technology plays in analyzing local and regional (even global) problems. During the first half of the course, you will learn the specific steps necessary to navigate ArcMap and ArcCatalog, acquire and manage geographic data

layers, and query the data to answer typical planning-related questions. The second half of the course will focus on cartography and effective techniques for displaying quantitative and spatial data. For some exercises you will use real GIS data from Bay Area cities, “warts and all”, in order to learn how to overcome typical problems encountered by GIS practitioners. Since the visual communication of quantitative data is a vital skill for urban planners, a final project will allow you to further develop your GIS skills by framing an urban planning issue that excites you, developing a set of high-quality GIS maps to illustrate the issue, and presenting a focused summary of your methodology and findings. The goal of the final project is to provide you with a portfolio piece to present to current and future employers as evidence of your GIS abilities.

During the course, you will be encouraged to think about integrating GIS into your other San José State coursework and Master's project.

I am looking forward to helping you learn ArcGIS 9.2 this semester! There are many avenues for assistance and to accelerate your understanding of GIS: in-class exercises and personal guidance from me, at least four office hours per week, and the ability to reach me via e-mail (I typically reply to messages very quickly). My primary goal is to ensure that by completing the course you will possess the fundamental GIS skills valued by today's employers.

Course Learning Objectives.

Students completing this *GIS Applications for Urban Planners* course will be able to:

- I. Describe how urban planners typically use GIS as a tool for analysis and the display of quantitative data to solve urban planning problems
- II. Utilize the core components and functionality of ArcGIS 9.2
- III. Describe a variety of geospatial data types, data sources and metadata management techniques
- IV. Create, manipulate and query geospatial data
- V. Symbolize and classify geospatial data, understanding available choices and the implications of each
- VI. Critique others' cartographic styles and implement effective cartographic and display techniques

The following section lists each objective above, followed by specific topics and skills that will be covered during the semester.

I. Describe how urban planners typically use GIS as a tool for analysis and the display of quantitative data to solve urban planning problems. Examples include:

- Applicability of GIS to all areas of urban planning (land use, transportation, housing, conservation, environmental justice, etc.)
- Accessing, analyzing and presenting demographic data from the U.S. Census Bureau
- Creating maps of zoning districts, General Plan land use designations, hazards and other local features
- Calculating areas and lengths (e.g. parcels, streets, jurisdictions, wetlands, farmland, habitat areas...)
- Community buildout calculations and alternatives analysis
- Proximity analysis (which features are closest, which features intersect, features within a distance of...)
- Selection of features by attribute or spatial location
- Creating reports that summarize geographic data using tables, graphs and other display techniques
- Preparation of maps for community meetings, Environmental Impact Reports and General Plans

II. Utilize the core components and functionality of ArcGIS 9.2

- Define the primary functions of a GIS (data capture, data storage, tools for querying data, tools for analyzing data, tools for displaying data, export functions)
- Explain the basic functionality of ArcMap, ArcCatalog and ArcToolbox
- Explain how MXD files work and how to repair broken links to map layers
- Steps for creating and managing spatial bookmarks
- Measuring distances and calculating area
- Saving maps with relative paths vs. absolute paths
- Joining and relating tabular data
- Spatial joins between multiple features
- Basic geoprocessing -- buffering, unions, intersections, dissolves
- Editing data layers with the Editor toolbar (e.g. changing locations of vertices, using Sketch tool)
- Customizing ArcMap (adding toolbars, creating toolbars, dockable toolbars)
- Data View vs. Layout View
- Working with multiple data frames
- Using map templates
- Creating and using Layer (.LYR) files to store symbology

III. Describe a variety of geospatial data types, data sources and metadata management techniques

- Understanding the definition and importance of metadata
- Using ArcCatalog as the primary management tool for creating, reading, searching and sharing metadata
- Using Census data
- Shapefiles and geodatabases
- Vector data and raster data
- Understanding the components of a shapefile (DBF, SHP, SHX and others)
- Locating GIS data sources in Internet data portals (local, state, federal)
- Working with Text (TXT), Excel (XLS), Comma-delimited (CSV) files
- PRJ files for storing coordinate system information
- XML files for storing metadata documentation
- Raster data types (TIF, GeoTIFF, JPG, GIF, PDF, AI, MrSID, etc.)
- Moving, copying and sharing data within ArcCatalog and with other users
- Geographic vs. projected coordinate systems

IV. Create, manipulate and query geospatial data

- Converting Excel (XLS) files to DBF and adding to ArcMap, or working with Excel files natively
- Understanding the “anatomy” of data tables (records, attribute fields, cells, formulae)
- Opening, sorting and adding data fields
- Arranging columns
- Summarizing data columns
- Editing and adding records
- Creating definition queries
- Viewing selected records and creating a layer of selected features
- Creating new shapefiles and geodatabases

V. Symbolize and classify geospatial data, understanding available choices and the implications of each

- Understanding thematic map types (choropleth, isarithmic, flow, multivariate, dot density, graduated symbol, graduated color, cartogram) and when to choose a particular type to convey information
- Understanding data measurement scales (nominal, ordinal, ratio, interval)
- Understanding data classification methods (natural breaks, quantile, equal interval, standard deviations) and the ability to read a histogram
- Dynamic labels, interactive labels and annotation (both map-based and geodatabase-based)
- Knowing when to normalize quantitative data

VI. Critique others' cartographic styles and implement effective cartographic and display techniques

- Understanding the needs of map audiences (e.g. public, stakeholders, technical staff, decision-makers)
- Learning techniques to “tell the story” of the map effectively, quickly and responsibly
- Including all standard map elements: title, data sources, scale bar, north arrow, legend, etc.
- Ensuring that all data sources are properly cited on maps
- Creating visual balance in maps
- Determining cartographic choices (color, labels, line weights, etc.)
- Developing awareness that not everyone is comfortable reading or using maps
- Developing awareness that maps are a powerful medium for conveying information and the attendant implications for the map designer
- Developing awareness that biases can be introduced by the map designer
- Printing maps to large format plotters

Prerequisites.

No prior knowledge of GIS is required; however, there is a lot of material to cover and this will be a fast-moving and fairly technologically-advanced course. As such, there are a few basic prerequisites:

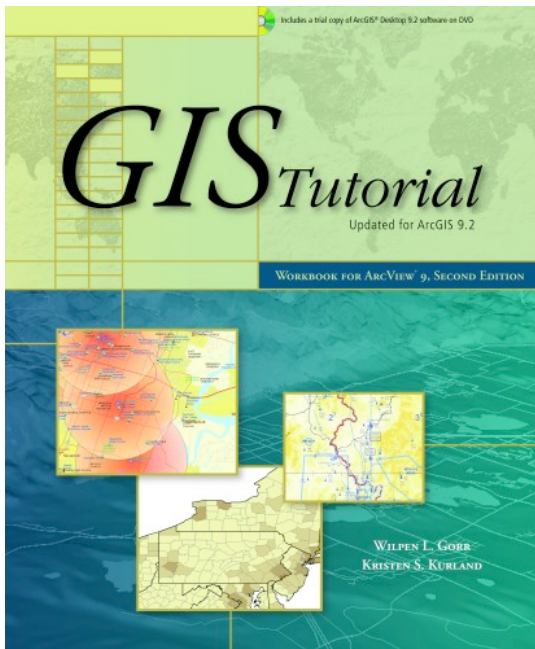
- ◆ Competence with the Windows XP operating system, including the storing, copying and management of multiple data types; managing multiple windows and applications; and discipline to save work frequently.
- ◆ Familiarity with data entry, sorting, editing and filtering using Microsoft Excel.
- ◆ A strong 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.
- ◆ An e-mail account. You will be asked to provide your email address on the first day of class in order to facilitate communications with the instructor.

Required Textbooks and Software.

In keeping with the joint focus of this course on ArcGIS 9.2 skills and the development of effective cartographic techniques, two textbooks are required and are listed below. The first, *GIS Tutorial, Second Edition* will serve as a reference throughout the course and provides detailed, step-by-step instructions in the use of ArcGIS 9.2. The second book, *Designing Better Maps: A Guide for GIS Users*, provides a great number of useful and effective design techniques and considerations which you will incorporate into your final course project in order to produce professional-quality maps.

A few purchase options for each book are listed below; the prices for each book tend to be less costly on Amazon.com, but you can also purchase them directly from the publisher or from the Spartan bookstore.

Note that if you purchase a used textbook online, you are responsible for obtaining the book from the seller in a timely manner for use in this course.



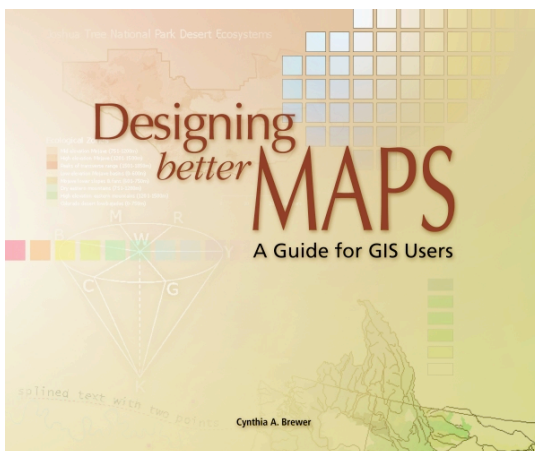
Required Textbook #1:

GIS Tutorial Updated for ArcGIS 9.2, Second Edition, by Wilpen L. Gorr and Kristen S. Kurland

****Get the 2nd Edition for 9.2, not the 3rd Edition for 9.3****

Options for purchase:

- ◆ Spartan bookstore (\$52.46 used, \$69.95 new)
- ◆ ESRI Press
- ◆ Amazon.com



Required Textbook #2:

Designing Better Maps: A Guide for GIS Users by Cynthia A. Brewer

Options for purchase:

- ◆ Spartan bookstore (\$26.21 used, \$34.95 new)
- ◆ ESRI Press
- ◆ Amazon.com

Required Software: ArcGIS 9.2 and Extensions

This software is installed on each WSQ208 lab and department lounge computer. Also, each student will receive a free copy of ESRI's ArcGIS 9.2 software for use on a personal computer; it is a fully-functioning version and will expire one year after installation. Please note that ArcGIS software is optimized for Windows 2000 or XP. Windows Vista is supported, so long as the latest ArcGIS Service Pack (currently at #6) from ESRI is installed prior to use. In order to run ArcGIS in Windows on an Intel-based Mac, virtualization software is needed such as Apple's BootCamp (available at apple.com), SWSOft's Parallels (\$79) or VMware Fusion (\$79).



Recommended Hardware and Software.

The computer laboratory in WSQ208 and “mini-lab” (in the Planning Department lounge area) are available to you to complete in-class assignments and homework. If you plan to use your personal computer to complete assignments started in class, a USB Flash Drive with at least 2 GB of capacity and/or a rewriteable CD-ROM or DVD is strongly recommended for saving your in-class work and transferring it to your personal computer.

To take full advantage of the course resources, each student should have access to a computer with an Internet connection and have access to the following software: Microsoft Internet Explorer (or Firefox), Adobe Acrobat Reader (available for free at www.adobe.com), Microsoft Word, Microsoft Excel, and Microsoft Powerpoint.

Course Outline.

The course outline is subject to change with reasonable notice. Please visit the Syllabus page on the course web site regularly for updates and new information.

Date and Topic	Lecture and In-Class Lab Work	Readings For Next Week and Assignments
<p style="text-align: center;">August 26</p> <p>TOPICS: - Instructor and Student Introductions - Course Overview and Syllabus Review - Overview of GIS and Hands-on Practice Using Google Earth and ArcMap</p>	<p>Students will engage in a guided, hands-on exercise to build familiarity with ArcMap and ArcCatalog.</p>	<p><u>Reading:</u> Overview of GIS, Overview of ArcGIS 9.2, Urban Planning Case Study using GIS</p> <p><u>Homework A:</u> Map Design Critique, Due 7:15 p.m., Sept 2.</p>
<p style="text-align: center;">September 2</p> <p>TOPICS: - Thinking About Maps: What Constitutes a “Good” Map? - Diving into ArcMap</p>	<p><u>Lecture:</u> Map Design and ArcMap Overview</p> <p><u>GIS Tutorial 1: Introduction to ArcMap</u></p> <ul style="list-style-type: none"> - Map Layers - Zoom and Pan - Magnifier Window - Overview Window - Spatial Bookmarks - Measure Distances - Identify Features - Selecting Features - Find Features - Feature Attribute Tables - Labeling Features - Relative Paths - Saving Maps 	<p><u>Homework A Due:</u> 7:15 p.m.</p> <p><u>Reading:</u> Thematic Map Types</p> <p><u>Tutorial 1:</u> GIS Tutorial Assignment 1-1 (Statistics on U.S. Housing) and Assignment 1-2 (Erin Street Crime Watch). Due 7:15 p.m., Sept. 16</p> <p><u>Homework B:</u> Finding Examples of Thematic Map Types. Due 7:15 p.m., Sept. 9</p>

Date and Topic	Lecture and In-Class Lab Work	Readings For Next Week and Assignments
<p align="center">September 9</p> <p>TOPIC: - Thematic Map Types</p>	<p><u>Lecture:</u> Thematic Map Types</p> <p><u>GIS Tutorial 2: Map Design</u></p> <ul style="list-style-type: none"> - Create Choropleth Maps - Create Group layers - Create Threshold Scales for Dynamic Display - Create Choropleth Maps Using Custom Attribute Scales - Create Pin (Point) Maps - Create Hyperlinks - Create Tool Tips 	<p><u>Homework B Due:</u> 7:15 p.m.</p> <p><u>Reading:</u> “The Big Picture on Design”; Brewer pgs. 1 - 29</p> <p><u>Tutorial 2:</u> <i>GIS Tutorial</i> Assignment 2-1 (Pittsburgh School Enrollment) and Assignment 2-2 (K-12 Population vs. School Enrollment). Due 7:15 p.m., Sept. 23</p> <p><u>Homework C:</u> GIS Case Study and Short Summary. Due 7:15 p.m. Sept. 16</p>
<p align="center">September 16</p> <p>TOPICS: - GIS Outputs - Map Design Considerations</p>	<p><u>Lecture:</u> Map Design Considerations, Graphic File Types</p> <p><u>GIS Tutorial 3: GIS Outputs</u></p> <ul style="list-style-type: none"> - Use Interactive GIS - Produce Print Layouts - Create a Custom Map Template and Map Series - Create a Custom Map Template for Multiple Maps - Add Reports to Layouts - Export Layouts as Files - Generate Other Outputs 	<p><u>Homework C Due:</u> 7:15 p.m.</p> <p><u>Tutorial 1 Due:</u> 7:15 p.m.</p> <p><u>Reading:</u> “The Big Picture on Design”; Brewer pgs. 30-37</p> <p><u>Reading:</u> Geodatabase Overview</p> <p><u>Tutorial 3:</u> <i>GIS Tutorial</i> Assignment 3-1 (Orange County Population School Enrollment) and Assignment 3-2 (Walking Map of Pittsburgh Historic Districts). Due 7:15 p.m., Sept. 30</p> <p><u>Homework D:</u> Census Data Mapping. Due 7:15 p.m. Sept. 23.</p>

Date and Topic	Lecture and In-Class Lab Work	Readings For Next Week and Assignments
<p align="center">September 23</p> <p>TOPIC: - Geodatabases</p>	<p><u>Lecture: Geodatabases</u></p> <p><u>GIS Tutorial 4: Geodatabases</u></p> <ul style="list-style-type: none"> - Create a Personal GDB - Modify a GDB - Join Tables - Aggregate Data - Export Data from a GDB - ArcCatalog Utilities 	<p><u>Homework D Due: 7:15 p.m.</u></p> <p><u>Tutorial 2 Due: 7:15 p.m.</u></p> <p><u>Reading: Importing Spatial Data from Outside Sources</u></p> <p><u>Tutorial 4: GIS Tutorial Assignment 4-1 (Municipal Tax Compositions) and Assignment 4-2 (Youth Population and School Enrollment. Due 7:15 p.m., Oct. 7</u></p> <p><u>Homework E: Collect San Francisco GIS data and create a base map. Due 7:15 p.m., Sept. 30</u></p>
<p align="center">September 30</p> <p>TOPICS: - Working with Geospatial Data from Outside Sources - Coordinates Systems and Projections - Introduce Final Course Project (draft Project Description will be due October 21)</p>	<p><u>Lecture: GIS Data Portals, Tips and Tricks for Working with Geospatial Data</u></p> <p><u>GIS Tutorial 5: Importing Spatial and Attribute Data</u></p> <ul style="list-style-type: none"> - Sources of Maps and Data - Vector Spatial Data Formats - Convert a Coverage to a Shapefile - World and U.S. Projections - State Plane Coordinate System - Stored metadata - Attribute data 	<p><u>Homework E Due: 7:15 p.m.</u></p> <p><u>Reading: Skim Brewer, pgs. 39-181 to assist with Homework F. In-depth reading of these pages will be required later, in November, as the Course Project takes precedence in our work.</u></p> <p><u>Tutorial 3 Due: 7:15 p.m.</u></p> <p><u>Tutorial 5: GIS Tutorial Assignment 5-1 (Maricopa County, AZ Voting Maps) and Assignment 5-2 (Florida Counties and Census Data). Due 7:15 p.m., Oct. 14</u></p> <p><u>Homework F: Evaluate Geospatial Data Sources. Due 7:15 p.m. Oct. 7</u></p>

Date and Topic	Lecture and In-Class Lab Work	Readings For Next Week and Assignments
<p style="text-align: center;">October 7</p> <p>TOPICS: - Creating New GIS Data and Editing - Georeferencing</p>	<p><u>Lecture:</u> Creating New GIS Data and Editing</p> <p><u>GIS Tutorial 6: Digitizing</u> - Create New Polygon Shapefile - Digitize and Edit Polygon Layers - Vertices - Drawing and Editing Tips - Digitizing a Point Layer - Digitizing a Line Layer - Spatial Adjustment - Transforming Features to an Aerial Photo</p>	<p><u>Homework F Due:</u> 7:15 p.m.</p> <p><u>Tutorial 4 Due:</u> 7:15 p.m.</p> <p><u>Reading:</u> to be determined</p> <p><u>Tutorial 6:</u> GIS Tutorial Assignment 6-1 (Digitizing Police Beats) and Assignment 6-2 (Tracking Campus Information). Due 7:15 p.m., Oct. 21</p> <p><u>Homework G:</u> Georeferencing. Due 7:15 p.m., Oct. 14</p>
<p style="text-align: center;">October 14</p> <p>TOPIC: - Geocoding Address Data</p>	<p><u>Lecture:</u> Geocoding</p> <p><u>GIS Tutorial 7: Geocoding</u> - Geocode Data by ZIP Code - Geocode to Streets - Preparing Data and Street Maps - Interactively Locate Addresses - Perform Batch Geocoding - Correct Street Layer Addresses - Use Alias Tables</p>	<p><u>Homework G Due:</u> 7:15 p.m.</p> <p><u>Tutorial 5 Due:</u> 7:15 p.m.</p> <p><u>Reading:</u> to be determined</p> <p><u>Tutorial 7:</u> GIS Tutorial Assignment 7-1 (Geocode Household Hazardous Waste Participants) and Assignment 7-2 (Geocode Ethnic Business to Pittsburgh Streets). Due 7:15 p.m., Oct. 21</p> <p><u>Homework H:</u> Geocoding using San José GIS Data and BatchGeocode.com (note: plan ahead - long assignment!) Due 7:15 p.m., Oct. 28</p>

Date and Topic	Lecture and In-Class Lab Work	Readings For Next Week and Assignments
<p style="text-align: center;">October 21</p> <p>TOPIC: - Geoprocessing - ModelBuilder</p>	<p><u>Lecture: Geoprocessing</u></p> <p><u>GIS Tutorial 8: Spatial Data Processing</u></p> <ul style="list-style-type: none"> - Extract Features to Create a New Shapefile - Clip Streets to Match a Polygon Boundary - Dissolve Polygons Based on ZIP Code - Append Polygons into One Shapefile - Create a Model that Uses the Clip and Union Tool <p><u>Tutorial Assignment 8-2</u> in class</p>	<p><u>Draft Course Project Description</u> Due: 7:15 p.m.</p> <p><u>Tutorial 6 & 7</u> Due: 7:15 p.m.</p> <p><u>Reading:</u> to be determined</p> <p><u>Homework I:</u> Geoprocessing Using Sacramento County GIS Data; Due 7:15 p.m. Oct. 28</p>
<p style="text-align: center;">October 28</p> <p>TOPIC: - Mid-Term Exam Overview - Q&A GIS Topics of Interest - Discuss Course Projects</p>	<p style="text-align: center;">Mid-Term Review with Practice Exercises</p>	<p><u>Homework H and I</u> Due: 7:15 p.m.</p>
<p style="text-align: center;">November 4</p> <p>TOPIC: - Mid-Term Exam (details below)</p>	<p style="text-align: center;">Mid-Term Exam</p>	<p><u>Final Course Project Description</u> Due: 7:15 p.m.</p> <p><u>Next 2 Weeks:</u> Review Instructor Feedback on Course Project and Develop Strategy for Completion of Project</p> <p><u>Homework J:</u> Readings Due Nov. 25: Brewer, pgs. 39-181. Take notes and bring questions to class for group discussion.</p> <p><u>Course Project Concept Map</u> Due November 18, 7:15 p.m.</p>
<p style="text-align: center;">November 11</p> <p style="text-align: center;">No Class (Veteran's Day)</p>	<p style="text-align: center;">No Class (Veteran's Day)</p>	<p style="text-align: center;">No Class (Veteran's Day)</p>

Date and Topic	Lecture and In-Class Lab Work	Readings For Next Week and Assignments
<p>November 18</p> <p>TOPIC: - Mid-Term Exam Results & Review - Spatial Analysis</p>	<p><u>Lecture</u>: Spatial Analysis</p> <p><u>GIS Tutorial 9: Spatial Analysis</u> - Create Buffers for Proximity Analysis - Conduct a Site Suitability Analysis - Apportion Data for Noncoterminous Polygons</p>	<p><u>Course Project Concept Map Due</u>: 7:15 p.m.</p> <p><u>Reading</u>: to be determined</p>
<p>November 25</p> <p>TOPIC: - Review Brewer Readings (pg.s 39-181) and Student Questions - Course Project Work in Class</p>	<p>Course Project Work in Class</p>	<p><u>Homework J Due</u>: 7:15 p.m.</p> <p><u>Note</u>: Draft Course Project (First Review) due Monday, December 1 at 3:00 p.m.</p>
<p>December 2</p> <p>TOPIC: - Course Project Work in Class</p>	<p>Course Project Work in Class</p>	<p><u>Draft Course Project Presentation Materials (First Review) Due</u>, Monday, December 1 at 3:00 p.m.</p> <p><u>Draft Course Project Presentation Materials (Second Review) Due</u>, Friday, December 5, 9:00 p.m.</p> <p><u>Note</u>: Final Course Project Presentation Materials due December 9 at 12:00 noon</p>
<p>December 9</p> <p>TOPICS: - GIS Career Paths - Course Project Presentations I</p>	<p>Student Presentations of Course Projects I</p>	<p><u>Final Course Project Presentation Materials due</u> - 12:00 noon</p> <p>Draft Course Project Report due Friday, December 12, 9:00 p.m.</p> <p>Final Course Project Report due December 16, 5:00 p.m.</p>
<p>December 16</p> <p>TOPICS: - Course Evaluation - Course Project Presentations II</p>	<p>Student Presentations of Course Projects II</p> <p>End-of-Course and Pre-Holiday Celebration!</p>	<p>None - Happy Holidays!</p>

Mid-Term Exam.

The exam will be a hands-on demonstration of the skills you've acquired in all course sessions to date. You will be asked to work with real GIS data from the City of Santa Cruz, CA to answer questions and perform tasks common to local planning offices. You will query the city's geographic data to answer specific questions, prepare a number of maps related to existing and General Plan (i.e. future) land use, create new data layers, and georeference at least one CAD or raster layer. You will also acquire GIS data layers from the Web and integrate them into your analysis.

The exam will be "open book", meaning that you will be able to consult your notes and textbooks during the exam. However, the exam will be thorough, so preparation will be important so that you can complete the exam during the class period. There will be plenty of time to prepare in class and independently.

Course Grading.

Your final grade will be determined by your performance in the following weighted areas:

Component	Percentage of Final Course Grade	Notes
GIS Tutorial assignments	25%	These are the assignments that appear at the end of each chapter in <i>GIS Tutorial</i> that are generally due two weeks after the class period in which they are assigned.
Homework assignments	25%	These are the instructor-prepared assignments that are generally due one week after the class period in which they are assigned.
Mid-Term Exam	15%	See the section on page 12 describing the exam.
Final Project Map, Report and Presentation	25%	This is a very important component of the course, resulting in a piece for your portfolio.
Engagement in class	10%	Your participation will be noticed - speak up! :-)

This scheme will not be followed strictly since upward adjustment of the final grade will be made if performance on one activity is an outlier (e.g. exceptionally low) or if the pattern of scores shows a significant improvement. If such adjustments are made, they usually result in about a half-letter grade improvement.

Adjustments will also be made for students taking the course as enrolled undergraduates or through Open University; generally this will be accomplished at the instructor's discretion via more lenient grading on graded materials. Students are encouraged to meet with the instructor early in the semester to discuss expectations.

Grades on your work will be assigned as follows:

90% and above	A	69%-62%	C
89% - 87%	A-	61%-60%	C-
86%-83%	B+	59%-55%	D+
82%-78%	B	54%-52%	D
77%-73%	B-	51%-50%	D-
72%-70%	C+	Below 50%	F

Participation in Class and Attendance.

Student participation in class discussions is a vital component of this course. There is no formal course credit for participation, however, students should make every attempt to attend all classes and actively participate in discussions. In rare cases where a student misses a significant number of lectures or does not actively participate in discussions, this will impact the final course grade. According to University policy F69-24, "Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to ensure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading."

Assignments.

Assignments are due at the date and time specified in the course syllabus.

In only rare instances will late assignments be accepted, as described below. Late assignments will receive a one letter grade deduction for each day an assignment is late. For example, if the assignment would normally receive a grade of "B" but is submitted one day late, it will receive a final grade of "C".

If a student expects not to be able to complete an assignment on time, it is important for the student to contact the instructor at least 24 hours prior to the due date and, if appropriate, the other students in a group (for group project work). The student will also provide a date and time by which the late assignment will be submitted. If a student does not communicate an anticipated late assignment within this time frame or if the late assignment is not received after the time promised, the assignment will receive a grade of zero. The grading policy described in the previous paragraph will still apply. A maximum of two late assignments which adhere to this policy will be accepted; all subsequent late assignments will receive a grade of zero.

No exceptions to these policies will be granted, in fairness to students who commit to submitting their assignments on time.

Since this course focuses on the development of professional skills used by urban planners, the presentation of submitted materials will be considered as part of the assignment's grade. All assignments must include the student's name, date, course number, assignment number and other items as directed by the instructor. Neatness, clarity and organization do count. As in a professional setting, typed submissions are expected; handwritten assignments are not acceptable. Assignments not meeting these policies of professional presentation will generally receive a one-half grade point deduction.

University, College or Department Policies

◆ Academic integrity statement (from Office of Judicial Affairs).

SJSU's Policy on Academic Integrity states: "Your own commitment to learning, as evidenced by your enrollment at San José State University, and the University's Academic Integrity Policy requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the Office of Judicial Affairs". The policy on academic integrity can be found at <http://www.sjsu.edu/senate/S07-2.htm>

◆ Plagiarism and Proper Citation of Sources.

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 on either draft or final work handed in to your instructor will lead to grade penalties and a record filed with the SJSU Office of Judicial Affairs. It may also result in your failing the course. If you are unsure what constitutes plagiarism, it is your responsibility to make sure you clarify the issues before you hand in written work. Faculty will from time to time submit student work to Turnitin.com to check for plagiarism.

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:

- If you use a sentence (or even a part of a sentence) that someone else wrote and don't identify the language as a quote by putting the text into quote marks and referencing the source, you have committed plagiarism.
- If you paraphrase somebody else's theory or idea and don't reference the source, you have committed plagiarism.
- If you use a picture or table you found in a web page, book, or report and don't reference the source, you have committed plagiarism.
- If your paper incorporates data someone else has collected and you don't reference the source, you have committed plagiarism.

San José State University has created a website tutorial on how to identify and avoid plagiarism that students are encouraged to visit. The site is available at <http://tutorials.sjlibrary.org/tutorial/plagiarism/index.htm>. In addition, the "Academic Dishonesty Procedures" are available in any SJSU Schedule of Classes.

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*, 7th edition (University of Chicago Press, 2007, ISBN-10: 0-226-82336-9). Copies are available in the SJSU King Library. Additionally, the book is relatively inexpensive, and you may wish to purchase a copy (\$11.56 recently listed at amazon.com). Please note that Turabian's book describes two systems for referencing materials: (1) footnotes or endnotes, plus a corresponding bibliography, and (2) in-text parenthetical references, plus a corresponding reference list. Either system is fine, but you need to be consistent with your referencing style.

If you still have questions after reading this section, feel free to talk to your advisor. There is nothing wrong with asking for help, whereas even unintentional plagiarism is a serious offense.

◆ **Campus policy in compliance with the Americans with Disabilities Act.**

If you need course adaptations or accommodations because of a disability, or if you need special arrangements in case the building must be evacuated, please make an appointment with the instructor as soon as possible, or visit during office hours. Presidential Directive 97-03 requires that students with disabilities register with the Disability Resource Center (DRC) to establish a record of their disability. Students requesting accommodation of disabilities must do so through the DRC at <http://www.drc.sjsu.edu/> or by calling (408) 924-6000. Accommodations will be provided only to those students who are registered with the DRC, and who have requested accommodation pursuant to policies of the DRC.

◆ **Academic Honesty.**

Faculty will make every reasonable effort to foster honest academic conduct in their courses. They will secure examinations and their answers so that students cannot have prior access to them and proctor examinations to prevent students from copying or exchanging information. They will be on the alert for plagiarism. Faculty will provide additional information about other unacceptable procedures in class work and examinations. Students who are caught cheating will be reported to the Judicial Affairs Officer of the University, as prescribed by Academic Senate Policy S04-12.

◆ **Eating.**

Eating and drinking (except water) are prohibited in the classroom. Students with food will be asked to leave the building. Students who disrupt the course by eating and do not leave the building will be referred to the Judicial Affairs Officer of the University. There will be at least one, short scheduled break during the class period during which you may eat or drink in the appropriate locations near the classroom.

◆ **Cell Phones & Other Audible Devices.**

Students will turn their cell phones and other audible devices off or put them on vibrate mode while in class. They will not answer their phones in class. Students whose phones disrupt the course and do not stop when requested by the instructor will be referred to the Judicial Affairs Officer of the University. There will be at least one, short scheduled break during the class period during which students may take calls outside of the classroom.

◆ **Computer Use.**

Using your laboratory computer during class time for non-course related activities is disrespectful and distracting to the instructor and to your fellow students. In the classroom, faculty allow students to use computers only for class-related activities. These include activities such as taking notes on the lecture underway, following the lecture on web-based PowerPoint slides that the instructor has posted, and finding Web sites to which the instructor directs students at the time of the lecture.

Students who use their computers for other activities or who abuse the equipment in any way, at a minimum, will be asked to leave the class and will lose participation points for the day, and, at a maximum, will be referred to the Judicial Affairs Officer of the University for disrupting the course. (Such referral can lead to suspension from the University). Students are urged to report to their instructors computer use that they regard as inappropriate (i.e., used for activities that are not class related).

Odds and Ends

◆ **Adds/Drops.**

The student is responsible for understanding the policies and procedures about add/drops, academic renewal, withdrawal, etc. found at <http://www2.sjsu.edu/senate/S04-12.pdf>

◆ **Incomplete Grade.**

An incomplete grade will only be assigned for a documented, serious, non-academic reason.

◆ **Students Adding the Class after the First Day of Class.**

Students who add the class after the first day of class are responsible for completing all work in the course on the same schedule as students who were registered from the first day of the semester.

◆ **Level of Effort.**

This course requires approximately 6 to 8 hours of work per week outside of the normal class period, including the completion of tutorial assignments, instructor-designed assignments and other tasks as assigned. Students should expect to spend more time per week for long-term projects such as the final course project or preparations for the mid-term exam.

About the Instructor: Rick Kos, AICP

I am very much looking forward to working with you this semester and expect that you will learn quite a bit in our 3-1/2 months together. We'll have some fun along the way, too. My goal is teach you a number of fundamental GIS skills clearly, with minimal jargon and maximum time using the software to help you remain competitive in today's labor market.

Throughout my career using GIS, I have never strayed far from my roots in urban and regional planning and this combination of experience is what I am excited to share with you. I take pride in providing personal, one-on-one attention to the needs of my students and strongly encourage you to take advantage of all opportunities to meet with me during class and during office hours.

A little about my background: 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 a planner in Middlesex County, New Jersey, 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. I thoroughly enjoyed defending the principles of traditional town planning, often to developers and citizens that were not particularly receptive, at first, to deviations from the conventional suburban planning model.

After relocating to the Bay Area in 2000, I worked with the Metropolitan Transportation Commission as a GIS Analyst. The Bay Area Lifeline Transportation Map that I completed for MTC was chosen from among thousands of entries for inclusion in ESRI's *2003 Map Book*. This annual publication showcases innovative uses of ESRI's GIS software to solve real-world problems. The Lifeline map 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.

Currently, I am a digital cartographer with WorldLink, based in the Presidio of San Francisco. I am helping to create an engaging software program called Interactive Earth that is designed to excite school-age children about geography and in becoming world citizens. I am also a part-time instructor with the GIS Education Center affiliated with City College of San Francisco. Additionally, I am co-authoring a book titled *GIS Tutorial in Economic Development* with Professor Mike Pogodzinski of the SJSU Economics Department. The book will be released in late summer 2009 by ESRI Press.

I also engage in occasional freelance GIS projects. For example, I am now assisting the City of Mountain View, CA with GIS work related to the update of the city's 1992 General Plan. I also assist Raimi & Associates of Berkeley, CA with GIS work related to their mission of fostering healthy cities.

This will be my third semester teaching GIS at San Jose State and, I must admit, it is my favorite job of the many I've listed above.

Welcome, and let's have some fun with GIS!

- Rick