

SAN JOSÉ STATE UNIVERSITY
URBAN AND REGIONAL PLANNING DEPARTMENT
SPRING 2020
URBP-278: INTRODUCTION TO GIS FOR URBAN PLANNING

Instructor	Rick Kos, AICP
Office location	WSQ-218C
Telephone	(408) 924-5854 (<i>I rarely check this phone, so email is a much better way to reach me</i>)
Email	Richard.Kos@sjsu.edu
Office hours	Wednesdays (11:00 – 1:00 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	Thursdays 4:30 p.m. – 7:00 p.m.
Classroom	WSQ-208
Class website	All course material available on Canvas
Prerequisites	<p>No prior knowledge of GIS is required to take this course; 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 instituted by the instructor:</p> <ol style="list-style-type: none"> 1. Competence with the Windows operating system, including the storing, copying and management of multiple data types; managing multiple windows and applications; and discipline to save work frequently. 2. Familiarity with data entry, sorting, editing and filtering using Microsoft Excel. 3. 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. 4. An e-mail account that you plan to check frequently. You will be asked to provide your email address on the first day of class in order to facilitate communications with the instructor.
Units	4 units

Course Catalog Description

Examination of geographic information systems (GIS) applications to urban and regional planning topics. Course may be repeated for credit when topic changes.

Course Description

Geographic Information Systems, GIS, is a rapidly evolving technology involving the study of the spatial (geographic) location of features on the Earth's surface and the relationships between them. 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 working knowledge of GIS.

Environmental Systems Research Institute's (Esri) suite of GIS software – ArcGIS Pro in particular – has become the industry standard and is used by a majority of government agencies and private firms engaged in GIS activities. Specifically, employers are seeking professionals armed with a grasp of geospatial data types (vector, aerial imagery, satellite imagery, geodatabases, etc.), spatial analysis techniques and GIS project management skills in order to effectively study a host of multi-faceted urban planning topics.

My primary goal is to ensure that by completing the course you will possess the fundamental GIS skills valued by today's employers. Quite a number of "alumni" from this course have secured internships and full-time jobs at agencies including the San Francisco Municipal Transportation Agency, the Valley Transportation Authority and numerous municipal planning departments specifically because they demonstrated GIS expertise in their portfolios and during job interviews.

San José State University's Urban and Regional Planning Department offers three courses specifically devoted to GIS: (1) the course you are taking now, (2) an elective Advanced GIS course, and (3) a one-credit core course, GIS Overview: Urban Planning Applications. All three courses aim to build sought-after GIS skills through a comprehensive, real world-focused course of study in GIS. The introductory and advanced GIS classes are taught mainly as a combined lecture and computer laboratory course using Esri's ArcGIS Pro software and a variety of hands-on exercises.

The majority of students interested in taking either elective course typically do not intend to pursue careers dedicated *exclusively* 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 during 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 course strives to provide a balance between the "how-to" of using ArcGIS Pro and the "why" of GIS by explaining the roles GIS technology plays in analyzing local and regional (even global) problems. During the first part of the course, you will learn the specific steps necessary to navigate ArcGIS Pro, acquire and manage geographic data sets, develop effective cartographic techniques, and query the data to answer typical planning-related questions. For some exercises, you will use real geospatial data from Bay Area cities, "warts and all", in order to learn how to overcome typical problems encountered by GIS practitioners. The last part of the course will focus on the development, execution and presentation of a final GIS project.

Since the visual communication of quantitative data is a vital skill for urban planners, this final project will help you further develop your skills by framing an urban planning issue, developing a set of high-quality GIS maps to illustrate the issue, and presenting your maps to the class. A key objective 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. I am continually impressed by the work that beginning learners produce for their final projects!

I am looking forward to helping you learn ArcGIS Pro this semester. As we work together over the next few months, you will be encouraged to think about integrating geospatial analysis into your other San José State coursework and master's project. 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, assistance from my fantastic student assistant, and the ability to reach me via e-mail (I typically reply to clearly-worded messages very quickly). There is a lot of work to complete in this course, but I'm here to help you succeed – and we'll have some fun, too. Again, my primary goal is to ensure that by completing the course you will possess the fundamental ArcGIS Pro skills valued by today's employers.

Course Learning Objectives

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

1. Describe how contemporary urban planners use GIS as a tool for the analysis and display of quantitative data such as demographic information from the US Census Bureau;
2. Utilize the core components and functionality of ArcGIS Pro;
3. Prepare a professional-grade map with all necessary cartographic elements;
4. Conduct attribute and spatial queries with geospatial datasets;
5. Conceptualize, design, and execute a structured GIS-based project;
6. Create new geospatial datasets and edit existing datasets;
7. Utilize geoprocessing tools to transform geospatial datasets into new ones;
8. Interpret municipal zoning code information and translate it into a GIS-based map.

Planning Accreditation Board (PAB) Knowledge Components

This course partially covers the following PAB Knowledge Components:

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

2c) Quantitative and Qualitative Methods: data collection, analysis and modeling tools for forecasting, policy analysis, and design of projects and plans.

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

Required Course Text and Software

Understanding GIS, An ArcGIS Pro Project Workbook, Fourth Edition is required and will serve as a reference throughout the course. The textbook provides detailed, step-by-step instructions in the use of ArcGIS Pro.

Smith, David et al. *Understanding GIS: An ArcGIS Pro Project Workbook (fourth edition)*. Redlands, CA: Esri Press, 2018. (e-book): ISBN-13: 9781589485273 | (printed book): ISBN-13: 9781589485266

ArcGIS Pro 2.x will be used in this course. Each student will receive a free Education Edition of Esri's ArcGIS Pro software for use on a personal computer; it is a fully-functioning version and will expire one year after installation. Please note that ArcGIS Pro software only runs on the Windows operating system. In order to run ArcGIS in Windows on a Mac, virtualization software is needed such as Apple's BootCamp, SWSoft's Parallels, or VMware Fusion.

Students are not required to install ArcGIS Pro on their personal computer since the labs in WSQ208 and "mini-lab" (in the Planning Department lounge) are available to all students to complete class assignments and homework. If you choose to install the software on your own computer, you are responsible for installing and maintaining it by properly following Esri's installation instructions, which the instructor will provide. It is HIGHLY recommended that your personal computer have at least 8 GB of RAM installed, since ArcGIS Pro is a memory-intensive application. Ideally, more than 8 GB of RAM is best if your computer supports it.

If you do plan to use your personal computer to complete assignments started in class, a USB flash drive with at least 2 GB of capacity is strongly recommended for saving your in-class work and transferring it to your personal computer. Alternatively, you can use services like Dropbox, Google Drive, Box, etc.

Recommended Readings and Materials

Designing Better Maps: A Guide for GIS Users, is optional but strongly recommended since it provides a great number of useful and effective design techniques and considerations that you can use to produce professional-quality maps.

Brewer, Cynthia A. *Designing Better Maps: A Guide for GIS Users*. Redlands, CA: Esri Press, 2015.
ISBN: 9781589484405

Other recommended readings on data visualization, GIS applications, and cartography include (and are posted to Canvas):

Al-Kodmany K. “Using Visualization Techniques for Enhancing Public Participation in Planning and Design: Process, Implementation, and Evaluation”, *Landscape and Urban Planning* 45, no. 45 Issue 1, September 1999.

“GIS Best Practices: GIS for Urban and Regional Planning”, Esri white paper, January 2011.
<http://www.esri.com/library/bestpractices/urban-regional-planning.pdf> (accessed July 3, 2012)

Nedovic-Budc, Zorica. “Geographic information Science implications for Urban and Regional Planning”, *URISA Journal*, Vol. 12, No. 2, Spring 2000. <http://www.urisa.org/files/BudicVol12No2-7.pdf> (accessed July 3, 2012)

Peterson, Gretchen N. *GIS Cartography: A Guide to Effective Map Design*. Boca Raton, FL: CRC Press, 2009.

Rantanen, Heil. “Tools to Facilitate Housing and Urban Processes: Mapping and Managing Local Knowledge”, paper presentation at 2007 ENHR International Conference, Rotterdam.
http://www.enhr2007rotterdam.nl/documents/W21_paper_Rantanen.pdf (accessed July 3, 2012)

Fundamentals for Success in this Course

I will make every effort to help you succeed in this course so that you can use ArcGIS Pro confidently and successfully in your future career endeavors. 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 the storing, copying and management of multiple data types; managing multiple windows and applications; and techniques for saving work frequently. Familiarity with data entry, sorting, editing and report generation using Microsoft Excel is also expected.

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 GIS practitioners and 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 the inclination to address quickly. 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, websites, Twitter, Facebook and text messages 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 strict about 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. Mobile 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

Course Assignments and Grading Policy

Your grade for the course will be based on the following assignments and other components. All relevant materials and assignment details will be posted to Canvas.

Assignment (assignment descriptions follow this table)	Percent of Total Course Grade	Course Learning Objectives Covered
A – ArcGIS Pro Basics: San Francisco mapping exercises 1-5	8%	1-7

B – Textbook Chapters 1-3 and supplemental exercises	8%	1-7
C – Textbook Chapters 4-5 and supplemental exercises	8%	1-7
D – Textbook Chapters 6-7 and supplemental exercises	8%	1-7
E – Textbook Chapters 8-9 and supplemental exercises	8%	1-7
F – Applied GIS I: telecommunications tower ordinance analysis	20%	2-8
G – Applied GIS II: independent course project (<i>One-credit professional engagement unit</i>)	25%	1-7
Five Quizzes	10%	1-7
Participation – Consistent, active, well-prepared, and measureable engagement in lectures and reading discussions, small team tasks, and presentations in class	5%	

Assignment A will introduce students to the principles of working with geospatial, location-based data in ArcGIS Pro by conducting demographic data analysis and other forms of geospatial analysis to perform a site suitability assessment. Essential ArcMap Pro tools will be covered, along with steps for creating basic maps and layouts, and thematic maps. The principles of creating professional-looking maps for urban planning purposes will be reinforced. This assignment will allow students to work with the type of demographic analysis maps commonly used by urban planners, thereby building valuable workplace-ready skills.

Assignment B includes the material in chapters 1, 2 and 3 of the textbook and will build on the skills covered in Assignment A, including GIS project workflow and problem identification, exploratory analysis, and best practices for reviewing geospatial data. Additional supplemental material, prepared by the instructor, will reinforce the skills covered in chapter 1, 2 and 3.

Assignment C includes the material in chapters 4 and 5 of the textbook and will cover shapefile and geodatabase management, preparing data for geospatial analysis, and editing/creating new geospatial data. Additional supplemental material, prepared by the instructor, will reinforce the skills covered in chapters 4-5.

Assignment D includes the material in chapters 6 and 7 of the textbook and will cover steps for conducting a proper geospatial analysis, selecting suitable map features for the study's objectives, evaluation of preliminary results, geoprocessing, and ModelBuilder. Additional supplemental material, prepared by the instructor, will reinforce the skills covered in chapters 6 and 7.

Assignment E includes the material in chapters 8 and 9 of the textbook and will cover steps for presenting analysis findings in a professional manner and sharing results via ArcGIS Online. Additional supplemental material, prepared by the instructor, will reinforce the skills covered in chapters 8 and 9.

Assignment F is a platform for applying the core GIS skills covered in previous lessons. To do so, students will be given general direction for conducting an analysis of telecommunications tower siting ordinances in a Bay Area municipality. Students will work in small teams to determine a plan for meeting the project objectives. Each student will then prepare a professional-grade map and summary methodological report. The assignment is intended to reinforce how practitioners utilize GIS to analyze local urban planning policies, store and maintain geospatial data, and prepare quality maps for internal and public uses.

Assignment G involves the conceptualization, development, and execution of an independent GIS project. Tasks include preparing draft and final project descriptions, the development of a concept map, and the production of a summary report and poster map. Students will present their project findings to the class on the final day of the course. Completion of Assignment G will constitute the professional engagement unit for this course since the tasks, in all respects, will mirror the process by which urban planners with GIS skills undertake a professional GIS project.

Five quizzes, some of which will be "open book" and others which will not, are designed to reinforce the material covered during class lectures and in homework assignments.

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+ = 4.33, 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).

This grading scheme will not always be followed strictly since upward adjustment of the final course 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 over time. If such adjustments are made, they usually result in about a half-letter grade improvement. Students are encouraged to meet privately with me early in the semester to discuss expectations.

Other Grading and Assignment Issues

I understand that grades are important to students on both a personal and professional level. They are a measure of your achievements in class and your progress towards meeting the course learning objectives. I also understand that there tends to be a great deal of "grade anxiety" in a university setting. The best way that I can help students with these matters is to be as clear as possible about grading criteria and weightings in this syllabus, so that you can plan accordingly. Please understand that I am a very thoughtful, careful, thorough and fair grader of student assignments and it is a responsibility that I do not take lightly. You are encouraged to review your graded assignments with me at any time to discuss my comments and suggestions for improvement.

I've been called a "tough grader", and it's true! High grades must be earned and all grades reflect my comprehensive estimation of a student's effort - just as our efforts in a professional work environment are judged accordingly and considered by supervisors for promotions and pay raises. For example, I reserve a grade of "A" only for **exceptional** work, as a way of honoring students who go "above and beyond" when completing course assignments. After all, the strict definition of an "A" grade is "exceptional", not "average" or even "above average".

Opportunities for extra credit will be explained in individual assignment handouts that students can download from the course website on Canvas.

Final Examination or Evaluation

Assignment G, described earlier in the syllabus, will constitute the final examination for this course. The same assignment also serves as the one-credit, department-required "professional engagement unit" for this 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 four-unit class, students can expect to spend a minimum of ten to fifteen hours per week in addition to time spent in class and on scheduled tutorials or activities. Special projects or assignments will 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.

Participation in Class and Attendance

Student participation in class discussions is a vital component of this course and students should make every attempt to attend all classes and actively participate in discussions. In 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."

Completing Assignments on Time and Professionally

Assignments are due at the date and time specified on each assignment handout. 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".

I realize that life happens. If you expect not to be able to complete an assignment on time, it is important for you to contact me **at least 24 hours prior to the due date** and, if appropriate, the other students in a group (for group project work). You must also provide a date and time by which the late assignment will be submitted. If you do not communicate an anticipated late assignment within this time frame or if the late assignment is not received on the date promised, the assignment will receive a grade of zero. The grading policies described earlier in the syllabus will still apply. **A maximum of two late assignments that adhere to this policy will be accepted;** all subsequent late assignments will receive an automatic grade of zero. Sorry, no exceptions to these policies will be granted, in fairness to the majority of students who submit 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. Printing assignments on the clean sides of already-printed paper is neither professional nor acceptable (though the resource conservation intent is appreciated, of course). Assignments not meeting these fundamental practices of professional presentation will generally receive a one-half to one-point deduction in the grade.

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](http://www.sjsu.edu/gup/syllabusinfo/) 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 SJSU MLK Library provides a short (15 minutes) and informative plagiarism tutorial. The MUP faculty highly encourage all students to complete it. Details are here:

<https://libguides.sjsu.edu/c.php?g=853661&p=6111789>

Also, 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** since I feel that it creates a less visually distracting experience for your reader than the parenthetical-reference style.

Library Liaison

The SJSU Library Liaison for the Urban and Regional Planning Department is Ms. Peggy Cabrera. If you have questions, you can contact her at peggy.cabrera@sjsu.edu or 408-808-2034.

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 few months together. We'll have some fun along the way, too. My goal is to teach you introductory 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.

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, 1995). 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 to deviations from the conventional suburban planning model.

After relocating to the Bay Area in 2000, I worked with the Metropolitan Transportation Commission in Oakland 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 nine 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 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 also manage the GIS Education Center for a non-profit organization called BayGeo. Additionally, I have co-authored a book titled *GIS for Economic Development* with Professor Mike Pogodzinski of the SJSU Economics Department, released in late 2012 by Esri Press. I also engage in a number of freelance GIS projects, including transit planning analyses for Mobility Planners, LLC and the development of interactive webapps.

This will be my twelfth year teaching at San José State and, I must admit, it is my favorite job of those listed above. **Welcome!** Let's work hard and have fun! I'm here to help you succeed with GIS.

URBP-278: INTRODUCTION TO GIS FOR URBAN PLANNING SPRING 2020 COURSE SCHEDULE

The following course outline describes the general approach we will take this semester, but please bear in mind that specific details are subject to change with reasonable notice. I will communicate changes via email and verbally in class. The course is generally divided into three parts:

PART I: (Jan. 23 – Apr. 09) GIS for Urban Planning; Mastering ArcGIS Pro Basics

PART 2: (Apr. 09 – Apr. 30) Applying Your Skills I: Telecommunications Tower Ordinance Mapping

PART 3: (Apr. 30 – May 14) Applying Your Skills II: Independent GIS Final Project (*engagement unit*)

Date	Topic	Assignment Due
Part I: GIS for Urban Planning; Mastering ArcGIS Pro		
Jan. 23	Getting Started with ArcGIS Pro Course/Syllabus overview, what is GIS and ArcGIS Pro? How do today's urban planners use GIS and what spatial literacy skills are employers looking for? We'll start on San Francisco exercise #1.	
Jan. 30	Skill Set 1: Using Open Data Portals and Geodatabases Proceed with San Francisco exercises #2 and #3.	
Feb. 06	Skill Set 2: Spatial Analysis, Editing, Final Map Layout Proceed with San Francisco exercises #4 and #5.	
Feb. 13	Review Session; Quiz #1; Overview of Textbook Project We'll catch our breath here and review the topics covered in San Francisco exercises #1 through #5. You'll then complete a short quiz to reinforce these skills. Next, we'll discuss the textbook project that will shape the next eight weeks of the course.	<div style="border: 1px solid black; padding: 2px; display: inline-block;">--- QUIZ #1 ---</div> Assignment A <i>(San Francisco project exercises 1-5)</i>
Feb. 20	Skill Set 3: GIS Project Design and Data Management Framing the Los Angeles River problem; exploring the study area; listing data requirements; examining data; choosing relevant data.	
Feb. 27	Quiz #2; Skill Set 4: Map Projections/Coordinate Systems After quiz #2, we'll get into coordinate systems and map projections that are vital to proper geospatial analysis. If time permits we will undertake a "new life for old maps" exercise.	<div style="border: 1px solid black; padding: 2px; display: inline-block;">--- QUIZ #2 ---</div> Assignment B <i>(Textbook Chapters 1-3)</i>
Mar. 05	Skill Set 5: Building a Project Database; Creating New Data Continuing the LA River analysis: preparing the city and county data; preparing demographic data; creating new park features.	
Mar. 12	Review Session; Quiz #3 Time once again to step back and review the skills covered over the past four weeks in chapters 1-5. Then it's time for quiz #3!	<div style="border: 1px solid black; padding: 2px; display: inline-block;">--- QUIZ #3 ---</div> Assignment C <i>(Textbook Chapters 4-5)</i>
Mar. 19	Skill Set 6: Conducting and Automating Spatial Analysis Well focus on a logical and professional approach to GIS work.	

Date	Topic	Assignment Due
Mar. 26	<p>Review Session; Quiz #4 Skill Set 7: Presenting and Sharing Analysis Results Time once again to step back and review the skills covered over the past two weeks in chapters 6-7. Then it's time for quiz #4! Next, we will look at ArcGIS Pro tools that help us create professional-looking maps. Then we'll learn about ways to share the results of your work on the web using ArcGIS Online.</p>	<p style="text-align: center;">--- QUIZ #4 ---</p> <p style="text-align: center;">Assignment D <i>(Textbook Chapters 6-7)</i></p>
Apr. 02	No class today – spring break	
Apr. 09	<p>Review Session; Quiz #5 After a review session we'll finish the last quiz, with a focus on material covered in textbook chapters 8-9.</p> <p>Then we'll get started on Part Two of the course, where you apply your ArcGIS Pro skills to a project that mimics professional practice undertaken by urban planners who know how to use GIS tools. You'll examine local Bay Area zoning ordinances to see how they impact the siting of telecommunications towers and show your findings in a professional map and report. Get ready to build your resume with powerful, marketable, in-demand skills!</p>	<p style="text-align: center;">--- QUIZ #5 ---</p> <p style="text-align: center;">Assignment E <i>(Textbook Chapters 8-9)</i></p>
Part II: Applying Your Skills I – Telecommunications Tower Ordinance Mapping		
Apr. 16	<p>In-Class Work Session: Telecommunications Tower Ordinances. You'll replicate a map and spatial analysis that I undertook as a consultant to a San Francisco legal firm. By the time you are finished on May 7th I hope you will feel empowered by what you've accomplished.</p>	<p style="text-align: center;">Assignment G Part 1 <i>(Draft of Final Course Project Description)</i></p>
Apr. 23	In-Class Work Session: Telecommunications Tower Ordinances	
Apr. 30	<p>In-Class Work Session: Telecommunications Tower Ordinances. as well as the Independent Final Project</p>	<p style="text-align: center;">Assignment G Parts 2 & 3 <i>(Final Course Project Description and Hand-Drawn Concept Map)</i></p>
Part III: Applying Your Skills II – Independent GIS Final Project		
May 07	In-Class Work Session: Final Course Project	<p style="text-align: center;">Assignment F <i>(Tele. Tower Mapping)</i></p>
<p>May 14 Final Exam Date</p>	<p>Final Class Meeting (attendance required)</p> <ul style="list-style-type: none"> - Final Project Presentations - Final Project Report Due - Final Project Poster Maps Due - End of Semester Pizza/Potluck Party! 	<p style="text-align: center;">Assignment G Part 4 <i>(Final Course Project Report, Poster Map and Class Presentation)</i></p>