

GIS 40 – Introductory GIS
COURSE SYLLABUS (v1b) - SP 2020, Sec. 7107

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Program and Instructor Web Pages:

- [Reg Parks SRJC Web Page](#)
- [CESGT Program Web Page](#)
- [Civil Engineering Certificate Web Page](#)
- [Geospatial /GIS Certificate Web Page](#)
- [Land Surveying Certificate Web Page](#)

Lect: T-Th, 5:30 PM – 6:30 PM, Kunde 111
 Lab: T-Th, 6:30 PM - 8:00 PM, Kunde 111
 Office Hour: T-Th 8:00 PM - 8:30 PM

WELCOME TO GIS 40 !!!

Lectures and Laboratory: Lectures will comprise approximately two (2) of the five (5) weekly course hours with the remainder devoted to laboratory activities. The distribution may vary occasionally depending on student progress and specific class projects.

Mandatory Final Exam Date: TENTATIVE – Tuesday, May 19th, 4:00PM – 6:45 PM.
Office Hour (in Kunde 111): 8:00 PM to 8:30 PM Tues. & Thurs. or by appointment.

Textbook and Required Supplies:

<p>GIS 40 Required Course Texts:</p> <p>1.) <u>GIS Fundamentals: A First Text on Geographic Information Systems</u>, Paul Bolstad, Eider Press, 6th Edition, 2016</p> <p>2.) <u>Lining Up Data in ArcGIS: A Guide to Map Projections</u>, Margaret M. Maher, ESRI Press, 3rd Edition, 2018, ISBN-13: 978-1589485204</p>	<p>GIS 40 Course Reference Materials:</p> <p>1.) GIS Library Folder: articles, handouts, white papers and user guides and manuals (work in progress and constant revision)</p> <p>ALSO REQUIRED: Scientific-Engineering calculator (I will only support the following: HP 33s, HP 35s, TI- 30X-IIs models).</p>
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Additional Outside Reading: OPTIONAL!!!

<p>1.) Introduction to Geographic information Systems, Kang-tsung Chang, McGraw-Hill, 5th Edition, 2010</p> <p>2. <u>GIS Concepts and ArcGIS Methods</u>, David M. Theobald, Conservation Planning Technologies, 2nd Edition (ver. 9.x), 2005</p> <p>3. <u>GIS Concepts and ArcView Methods</u>, David M. Theobald, Conservation Planning Technologies, 3rd Edition (ver. 3.x), 2001</p>	<p>3.) <u>Statistical Analysis of Geographic Information with ArcView GIS and ArcGIS</u>, David W.S. Wong. Jay Lee, Wiley Press, 2005</p> <p>4.) <u>Elementary Surveying: An Introduction to Geomatics</u>, Paul R Wolf, Charles D Ghilani Prentice Hall, 11th Edition, 2005 **</p> <p>** these books are on reserve in the Doyle Library</p>
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SRJC GIS Technology Certificate Program & Career Technical Education (CTE)

Students enrolled in the SRJC Geospatial Technology Program must complete all coursework with a grade of C or higher to advance or to qualify for a certificate. For more information, please consult the Program Coordinator (see links above). CESGT Certificate students should begin immediately by establishing their certificate candidacy in their cubby, Link: "District Announcements" > "Degree Audit Available". This is an introductory course in a series of college courses that prepare the student for a career as a GIS technician/professional. These courses are designed to develop entry-level or mid-

level career skills and are designed in conjunction with guidance from local professionals who assist in establishing course curriculum. Introductory courses are also gateway courses leading to a degree or certificate. SRJC recognizes its responsibilities to all CTE students and to the professional community into which they will graduate.

GIS 40 COURSE CONTENT:

Student Learning Outcomes:

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

1. Define the elements of a geographic information system (GIS)
2. Describe the applications of GIS for different disciplines
3. Create a GIS using image, geographic and database information

Objectives:

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

1. List the primary functions of a GIS.
2. Understand elementary spatial analysis of data.
3. Define image, geographic and database methods of representing data.
4. Describe the differences between CAD and GIS.
5. Use different types of graphic symbols.
6. List and identify different file structures and their advantages and disadvantages.
7. Describe data storage, editing and retrieval techniques used in a GIS.
8. Create a GIS using image, geographic and database information.

COURSE EXPECTATIONS:

GIS40 is the first in a series of three GIS courses. Together, they are designed to provide the fundamentals of GIS data management, data analysis, basic project development & basic map/report production skills. In GIS 40, we will explore the most basic of skills within the context of preparing students to become entry level GIS professionals upon completion of the certificate requirements. A serious student attitude is strongly encouraged and a team learning approach underpins the course culture. A team learning approach is one where a student takes an equal (or better) measure of responsibility for their learning experience through their participation, performance and professional attitude.

Class Preparation:

Students are expected to arrive on time for class, to be prepared in advance for every class and to remain for the entire session. Note taking in class is strongly recommended. It is also strongly recommended that students write down any questions about the material while reading and studying and bring them to class for clarification.

Students are expected to have successfully completed high school math (Algebra, Geometry and Trigonometry or equivalent) ** with a grade of C or better. Students are expected to be familiar with microcomputer operations, *Microsoft (MS) Windows and MS Windows file management*, MS Windows Explorer, MS Internet Explorer, Adobe Acrobat Reader (free download), MS Notepad and MS Excel spreadsheet software. Tutorials are available on the SRJC campus.

Access to a computer and to the internet is key to passing this course. If students require additional time beyond the allocated lab time to complete their assignments, there will be scheduled open lab hours posted outside Kunde 111 and 151. Eventually, students with home computers or laptops will be able to work, at home, outside of class hours. All students should be proficient in correctly transferring class data to and from their own USB or external drives. Students are strongly recommended to purchase a USB drive of at least 16-32GB capacity by the second class meeting.

Any student who feels that they have not met** or cannot meet the requirements and expectations for this course should contact the instructor before the second class meeting. There are classes available that will help you prepare for this program.

Attendance Issues:

- Attendance is required for both lab and lecture hours. Your lack of attendance can and will affect your grade for this course. Class generally begins on the hour and ends at ten (10) minutes before the hour.
- It is good practice to notify your instructor **by email** if you are going to be tardy or absent. An excused absence may be granted by contacting instructor sufficiently **prior** to the beginning of class.
- Students are responsible for all material discussed in lecture and lab, class readings or instructions via the internet(email) as well as the readings and assignments. Taking notes is a strongly recommended practice.
- **Students are responsible for correctly obtaining any missed lecture or laboratory course information from their fellow classmates.** *Please do not expect your instructor to provide personal email services for absenteeism or failure to retrieve one's files from the network drive.*
- Your class participation can and will affect your final grade as will your class conduct.
- There will be no make-ups for missed class activities (quizzes, exams, in-class demonstrations, etc). Rarely, certain late assignments may be accepted but will be discounted starting at 20% off of total point value depending on how many classes have passed since the due date. Such instances will be solely at the instructor's discretion.
- According to school policy, if a student misses over 10% of any course, they can be dropped from the course.

Assignments and Examinations:

- Required readings, handouts, weekly assignments and other information will be listed in the course planner, at the end of the lecture slides, on the course calendar, and/or on the white board at or near the beginning of each class meeting. The assignments will consist of some combination of mapping exercises, chapter problems, worksheets, mock exercises, short essays and written summaries.
- All assignments are to be completed per given instructions and due at the beginning of class on the assigned due date. Rarely, certain late submittals may be accepted but will be discounted starting at 20% off of total point value depending on how many classes have passed since the due date. Such instances will be at the instructor's discretion. After a certain point in the semester NO late assignments will be accepted - that date will be announced in class.
- Students will include their name, course number, assignment parameters and due date on the first page or cover page. Staple multiple sheets together **prior** to turning in. When multiple assignment sections are due, they should be stapled together SEPARATELY and submitted in chronological order. *(No name / no info / no staple = no score!!!)*
- Any written reports, essays, or term papers shall be typed and formatted per instructions provided.
- Completed assignments per specifications are the student's responsibility. Failure to observe these conditions will result in papers being returned without credit!
- The average student should expect to complete a minimum of 1-2 hours of reading and/or homework for every hour of class (e.g., 3-6 hours per week for a 3 unit course).
- It is strongly recommended (again) that students write down any questions about the material while reading and studying and bring them to class for clarification.

E-Learning Lab Modules: Students will complete **eight (8)** virtual campus laboratory modules **found in a PDF version** of original the ESRI E-Learning Site worth **30-150 points** each. Supplementary handouts will be provided for many of the exercises. They are to be followed along with module

instructions. Students will follow the exercises instructions and handouts as directed by your instructor, completing (submitting) all map layouts where directed (5-20 points per map, usually 10). All module exercises will be completed and submitted as follows:

- Module cover sheet (student name, course, date, module #, exercise #)
- Module maps in order of module assignment per instructor directions
- All pages stapled together and folded to 8.5 x 11" format size (excepting 24x36")

The instructor will scale the total scores as reflected in the point distribution column in the table below. Students will be assigned 2-3 Challenge Exercises related to certain modules, each worth 50 - 150 points. Instructions will accompany the assignment.

VIP!!! The ESRI course materials AND exercise datasets are no longer offered as online courses but as a PDF provided by your instructor. Very occasionally ArcGIS Desktop Version 10.6.1 dialog boxes and screens will appear be slightly differently than in the course PDF. THIS IS A LEARNING OPPORTUNITY and an ongoing challenge found in ANY large application software suite (Adobe, Autodesk, Topcon, Trimble, Microsoft, etc.) that is annually revised. My advice...STOP, reread the instructions, and think about what it is you are doing to the data and to the map in that particular step. Be advised that one of the BEST sources of help after trying ArcGIS desktop onboard help functions is a *focused online key word search*. PLEASE become familiar with how to use online help to support your work. Save your work often and in a location KNOWN TO YOU! Follow the GIS 40 folder structure and file naming as pointed out by the instructor.

Quizzes & Exams: Students will be given one (1) to four (4) unannounced quizzes, usually administered at the beginning of class, over the course of the semester. Students will be given one (1) to three (3) midterms and one final **exam. Exams are usually worth 100-350 points each.** The format for the exam is short answer and essay, and may include a lab component. Class examinations are mandatory as scheduled. There will be no make-up exams. Please note: a phone message left a few minutes before class stating that you cannot be present does NOT constitute a potential prior arrangement or excused absence. Please plan ahead.

Student Mini Map Project: Students will develop and present a special map project over the latter course of the semester. This project will involve submitting a project proposal for instructor approval, obtaining GIS data to complete a preliminary map, completing the map and presenting the map to the class.

Essay Assignment Submittal and Format:

All essay assignments are to be neatly word processed. *Electronic copies (Word and PDF) should accompany all hard copy assignments and deposited on the network M:\ drive in the SURV58 sub-folder bearing the student name as directed by your instructor.*

General Assignment Submittal and Format:

Assignments are due at the beginning of class on the due date for that assignment. All assignments are to be neatly typed or word processed. All maps should be properly appointed. **No handwritten assignments will be accepted.** ESRI Virtual Campus assignments will be submitted with the Module Completion Certificate as a cover sheet followed by any maps in the correct order attached as subsequent pages in the order presented in the module. Proper folding methods will be covered for larger format map submittals, **Staple multiple sheets together prior to turning in. (No name / no date / no staple = no score!!)** Formal laboratory summaries (reports/summaries and class projects) will be submitted in scientific manuscript format (Introduction, Materials & Methods, Results, Discussion and Conclusions). This includes any examinations that require a laboratory report or project report. Any essay type exercises or questions will follow the standard five (5) paragraph essay format for writing style. Links to examples of writing styles discussed above:

Scientific Writing Format:

<http://writing.colostate.edu/guides/processes/science/pop2a.cfm>

<http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWgeneral.html>

Essay Writing Format:

<http://www.englishdiscourse.org/5.paragraph.essay.format.html>

http://www.custom-essays.org/essay_types/Five_5_Paragraph_Essay.html

Scientific Calculators:

Students should have a scientific calculator and know how to use it (the range of recommended models will be discussed). For CESGT certificate students, your instructor recommends the HP33s, the HP 35s and the TI-30XIIs as these are calculators that will be allowed on certifying, licensure and board examinations. The instructor will NOT be responsible for training students in the use or programming of scientific calculators.

Possession **and** working knowledge of a hand calculator is a REQUIREMENT for this class and necessary for all examinations and quizzes. Incorrect results or problem steps secondary to miss-keyed or incorrectly used calculators will be scored as INCORRECT. In order to receive the most credit for work performed, please attempt, at all times, to SHOW YOUR WORK.

Grading Policy:

A score is assigned to all submitted work. A letter grade will be assigned at the end of the semester based on the point weighting and percentage breakdowns described below. A separate handout on how you will be evaluated on your project will be submitted in a few weeks.

Work Distribution	Point Weighting	Percentage (Grade)
Module/Challenge Assignments	~41%	90 - 100% (A)
Quizzes & Exams	~50%	80 - 89% (B)
Student Map Project	same as an exam	70 - 79% (C)
Student Participation	~09%	60 - 69% (D)
		< 60% (F)
Total:	100%	

An incomplete grade "I" will only be given as prescribed by college rules and regulations. **Prior** approval of the instructor is required.

SRJC STUDENT WEB READING (required):

It is the student's responsibility to consult the SRJC web-based information listed below -- please do so, they are considered parts of this syllabus:

SRJC Academic Schedules & Calendar to identify all important dates, deadlines and academic policies such as those relating to unexcused absences, adding and dropping classes. Students will follow all directions on exams and assignments sheets. When asked to work independently that means no collaboration *Also, please observe the emergency evacuation signs in each of the classrooms & computer labs...*

Schedule of Classes: <https://classes.santarosa.edu/>

Academic Calendar: <https://admissions.santarosa.edu/academic-calendar/>

SRJC Academics Information: <https://www.santarosa.edu/academics/>

SRJC Affairs and Programs: <https://studentlife.santarosa.edu/student-affairs-engagement-programs>

SRJC Disability Resources: <https://drd.santarosa.edu/home>

SRJC Rights and Responsibilities: <https://studentlife.santarosa.edu/rights-and-responsibilities>
(Please take careful note of the link to Academic Integrity, cheating of any type will not be tolerated)

Class Conduct and Courtesy:

During lectures: Students will be listening to the presentation. Please refrain from having conversations checking your email or web browsing. These behaviors are distracting to others and to the instructor. **No student is allowed to print or plot during any lecture under any circumstances.** This includes visiting students working on course work during other class periods when the instructor may be lecturing. Disruptive behavior during class is grounds for being excused from class with a loss of that day's work. Repeated events will result in disciplinary action via the Department Chair or Dean.

The above distractions or any disruptive behavior during class **are grounds for being excused from class with a loss of that day's work.** Repeated events will result in disciplinary action via the Department Chair, Dean or Vice President of Academic Affairs.

In the interest of class time and scheduling, extended classroom or lab dialog of any kind may be deferred or terminated at the discretion of the instructor.

During Laboratory: Kindly remember that other students may have different study habits and priorities than you do. Please speak softly when conversing with other students. Avoid long and/or social (unrelated to class matters) dialog in the classroom. Take such conversations outside.

During open lab times or when other classes are in progress.

There will be open lab time in Kunde 111 and 151. A schedule will be posted on the doors to the labs. There may be lab seats available during other courses in progress. When desiring to occupy an empty station during a lecture, students should politely inquire with the instructor prior to just taking a seat. If a student shows up late and you are occupying their seat, you must vacate IMMEDIATELY. GIS 40 students will comport themselves per the course syllabus guidelines whenever using the computer labs. You represent the CESGT Program to others.

Cell Phones: Turn cell phone ringtones off and if you must receive a call please **go outside** during your phone conversation.

***ABSOLUTELY NO FOOD OR OPEN DRINKS ALLOWED IN CLASS or COMPUTER LABS!!!
and once again for the cheap seats.....***

ABSOLUTELY NO FOOD OR OPEN DRINKS ALLOWED IN CLASS or COMPUTER LABS!!!

Passwords, Accounts and Access Codes: Students will be given SRJC computer user accounts and will be required to establish a user accounts at other websites such as ESRI. Authorization Codes will be given to each student so that they do not have to pay the ESRI online tuition. It is the responsibility of the student to keep track of their user names, passwords and security codes. Lost or forgotten passwords are not an acceptable reason for incomplete assignments.

Classroom Safety:

Students are expected to follow all posted and published SRJC classroom safety and courtesy rules during class or when working during open or available lab times.

Please familiarize yourselves with the emergency evacuation diagrams and instructions on the walls of Kunde 111 and 151.

Computers, Equipment and Equipment Handling:

In comparison to many other campuses, SRJC has BRAND NEW excellent computer hardware, software and output facilities. In order to provide optimum laboratory access and usage experience; all students are expected to be familiar with and follow the posted rules for the computer labs (Kunde 111 and 151). **Any student observed violating the rules may be excused from class (first offense). Repeat offenses will result in a student being dropped from the class.** In some classes your computer profile will NOT follow you to another station. Students will be assigned a workstation which will be their workstation for the entire semester. You may not sit at another workstation without permission from the instructor. Students will be provided with computer access account numbers on the first day of class. All students will complete a laboratory compliance agreement during the first class meeting.

All students are to treat the course equipment with proper care. Any damaged or malfunctioning equipment shall be promptly reported to the instructor. Students observed mistreating the equipment will be warned either openly or in conference. Students who are repeatedly observed misusing equipment will be excused from that class. Students excused from class activities for mistreating equipment will not be allowed to make up that day's work. A second such event may result in a student being dropped from the course.

There are data volumes (folders) and documentation files for the various devices and software applications. This documentation can be found in the \PATHNAME*\Library folder and the various subfolders on the student local and network drives. Any hard copy documentation and display articles are **NOT** to be taken off the lab premises or off campus for **ANY** reason without prior approval of the instructor. STUDENTS ARE NOT PERMITTED TO PRINT THE DOCUMENTATION FILES ON SRJC PRINTERS. When such documentation is required for an out of class assignment, it may be obtained from the \PATHNAME*\Library folder in electronic format. Assignments and support information will be provided on the SRJC network drive and should be copied to the student's local drive BEFORE opening or operating on the file or files. The majority of the support documentation is in PDF format. Students are expected to be familiar with the use of Adobe Acrobat Reader software. Please make certain that you allow yourself the necessary time to transfer the appropriate support documentation in advance of assignments and class exercises.

GIS 40 students will receive a familiarization presentation covering the in-class computing, printing and plotting equipment as part of the first-day regular curriculum (class time). Account passwords and authorization codes will be issued at that time. These presentations will not be repeated. SRJC provides laboratory supervision and limited software support during the open lab hours on the Santa Rosa Campus. Please familiarize yourselves with Mr. Todd Amos' schedule. He is super knowledgeable and a valuable resource.

* PATHNAME=the SRJC network drive pathname to be established in class for the file location or locations

KUNDE 111 and 151 Local and Network Drives

- Drive C: Local hard drive in the computer
- Drive F: (Network - Private drive unique to each person-copy all class materials to this drive)
- Drive N: (Network - Read-only to students. Full-access to faculty and staff. Copy class materials FROM this drive ASAP)
- Drive M: (Network - Full-access to everyone) will be deleted periodically. Please don't leave your important files on this drive.

NOTE: Student USB drives or external HDDs should be connected **AFTER logon is complete. External HDDs and USB drives should be used for backup & transfer of materials to outside computers.**

Students will maintain identical folder structures and file names for their module assignments between network and USB and home drives. This will avoid the loss of internal software data linkages. (aka: the red exclamation point of death in ESRI software)

File Distribution:

Certain course files for distribution will be available on the classroom network drive (N:\ drive) and on the SRJC File Depot (link below).

This semester, I will be using the Google Drive-like **SRJC FILE DEPOT** to distribute large files over the internet and to receive large files and assignments. This will keep my SRJC mailbox from over filling with large attachments (assignments). Use of this site will be discussed at the first class meeting.

Note: instructor-posted files will remain on the N:\drive or File Depot site for ~ 2 weeks after posting and then be deleted. Be certain to download the files right away.

Syllabus Purpose and Disclaimers:

This syllabus is an agreement. Continued registration in GIS40 means that you, the student agree to the policies and procedures outlined in this document. If some aspect or aspects of the syllabus are unclear to a student, it is their responsibility to inquire regarding that matter at the outset of the course.

This syllabus is intended to provide the student with guidance in how course components will be covered during the semester and will be followed as closely as possible. However, the instructor reserves the right to modify, supplement or make changes as necessary for general course needs as the semester progresses.

Instructor Commentary:

The 1-year program moves along quickly. The fall courses are introductory, gateway courses to the spring semester courses. The follow-on spring semester courses offer additional curriculum towards the Geospatial certificate / degree and build the foundation for a professional career in GIS.

The lectures, labs and examinations in these courses are not easy. They are designed to orient and prepare students for the new geospatial qualification exams. They also reflect the serious professional obligations and responsibilities that geospatial practitioners will undertake as they practice. Please make the absolute best use of your time. Thank you and WELCOME.

Respectfully,

Reg Parks

SRJC E&AT CESGT Program