GIS 40 – Introductory GIS
COURSE SYLLABUS (version 1a)
Spring 2026, Sec. 7071

Instructor: Annie Maher
Email: emaher@santarosa.edu
Lecture: Tuesday 6:00 pm - 9:00 pm, **ONLINE**
Lab: Thursday 6:00 pm - 9:00 pm, **Lindley 196**
Office Hour: Following class or by appointment

Program and Instructor Web Pages:
Annie Maher SRJC Web Page (Instructor)
Reg_Parks_SRJC_Web_Page (Program Coordinator)
CESGT Program Web Page
Civil Engineering Certificate Web Page
Geospatial /GIS Certificate Web Page
Land Surveying Certificate Web Page

WELCOME TO GIS 40!

GIS 40 is a required 4-unit course for students in the Civil Engineering, Surveying, Geospatial Technology (CESGT) program and is open to anyone who wants to learn GIS. It is listed as a general education course, but is taught WITH SOME EMPHASIS on civil engineering and land surveying as it is a part of the CESGT Associate Degree/ Certificate Program. Lectures will comprise approximately three (3) of the six (6) weekly course hours with the remainder devoted to lab time and activities. The distribution may vary occasionally and slightly depending on student progress and specific class projects. Some portions of class time will be devoted to the use of computers and software applications in the cartographic, data management and problem-solving process.

Mandatory Final Exam Date: Tuesday, May 19, 2026, 6:00PM – 8:45 PM, in PERSON

Course Textbook and Suggested Reading:

GIS 40 Required Course Text:
* GIS Fundamentals: A First Text on Geographic Information Systems, Paul Bolstad, Eider Press, 7th Edition, 2022

GIS 40 Recommended Course Text:
Lining Up Data in ArcGIS: A Guide to Map Projections, Margaret M. Maher, ESRI Press,3rd Edition, 2018

Optional Additional Outside Reading:
Introduction to Geographic information Systems, Kang-tsung Chang, McGraw-Hill, 9th Edition, 2019

GIS Concepts and ArcGIS Methods, David M. Theobald, Conservation Planning Technologies, 2nd Edition (ver. 9.x), 2005

GIS Concepts and ArcView Methods, David M. Theobald, Conservation Planning Technologies, 3rd Edition (ver. 3.x), 2001

Statistical Analysis of Geographic Information with ArcView GIS and ArcGIS, David W.S. Wong. Jay Lee, Wiley Press, 2005

Elementary Surveying: An Introduction to Geomatics, Paul R Wolf, Charles D Ghilani
Prentice Hall, 16th Edition, 2021

** most of these books are on reserve in the Doyle Library

* The GIS Fundamentals textbook can be ordered at the following link: https://www.gisfundamentals.org/order (hardcover $44, digital ebook $26.50, or ebook rental <$20).

SRJC CEGST Technology Certificate Program & Career Technical Education (CTE)

Students enrolled in the CEGST Program must complete all coursework with a grade of C or higher to advance or to qualify for a certificate or degree. 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. As a series, 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 can serve as a gateway course - 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 part of SRJC's Career Technical Education program. It is an introductory course designed to 1) provide fundamental knowledge of ArcGIS Pro and 2) cover conceptual topics essential to map making and geospatial technology. In this course, students will explore basic fundamentals of GIS within the context of preparing students for additional coursework. A serious student attitude is strongly encouraged and a team learning approach underpins the course culture. A team learning approach is one where along with the instructor, the 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 each class session, to read as assigned, complete assignments on time, to be prepared in advance for every class session, and to remain for the entire duration of lecture and lab. It is strongly recommended that students write down any questions about the material while reading and studying and bring them to class for clarification at the beginning of lecture or lab.

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 comfortable with microcomputer operations, Microsoft (MS) Windows Operating System (OS), MS Windows file management, MS Windows File Explorer, web browsers (MS Internet Explorer/Edge, Google Chrome, or Firefox), Adobe Acrobat Pro/Reader or Sumatra PDF (free downloads), Windows Notepad and MS Office Suite (Word, Excel, PowerPoint). Tutorials are available on the SRJC campus and on You Tube.

Access to a computer, reliable internet, and the ability to launch and use Zoom is required for lecture. Please ensure you have video capabilities. SRJC has Zoom Backgrounds available at the following link that can be use if interested: https://marcom.santarosa.edu/srjc-zoom-backgrounds. Please contact your instructor if this is a concern or hardship. Loaner laptops may be available through the library at SRJC.

GIS software, word processor, spreadsheet application, PDF organizer/editor, an ergonomic desk setup, and a large curved monitor will all be available for your use in the Lindley 196 computer lab. Time during lab is given to work on assignments. You are expected to utilize this time and stay for the duration of lab. It is expected that additional time will be required outside of regular class hours to complete assignments.

To complete assignments, students will have the option of (1) utilizing **open lab hours** in Lindley 196 (scheduled lab hours will be posted when available) or (2) downloading and installing ArcGIS Pro software (a free license will be provided for your use, for the duration of your enrollment in the course). Option 2 will be discussed during the first week of class.

The computer lab manager is Todd Amos, Micro Computer lab Specialist. He will issue notices to student regarding important Lindley Computer Lab issues during the semester. Please pay close attention to those emails as they are issued.

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:

- Attendance is required for both lab and lecture sessions. A lack of attendance will affect one's grade for this course.
- It is good practice to notify your instructor 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 covered in lecture and lab as well as course readings and assignments. ***Students are responsible for correctly obtaining any missed lecture or laboratory course information from their fellow classmates.*** Taking notes is strongly recommended.
- Class participation can and will affect one's final grade as will one's class conduct.

- There will be no make-ups for missed class activities (quizzes, exams, in-class demonstrations, etc.).
- Late assignments may be turned in up to 1 week late with a 20% penalty. Any other instances will be solely at the instructor's discretion. No late assignments will be accepted after the end of the semester.
- According to school policy, if a student misses over 10% of official course hours, they can be dropped from that course. This course has 17.5 wks x 6 hrs/week = 105 hrs.

Assignments and Examinations:

- According the SRJC policy, 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., 4-8 hours per week for a 4 unit course).
- All assignments are to be completed per instructions and are due at the specified time on the assigned due date.
- Course deliverables shall be submitted as follows:

  - ✓ Maps and diagrams shall be submitted on 8½" x 11", 11" x 17" or 24" x 36" sheets as specified (paper and/ or PDF files shall be submitted as specified). Larger paper maps are to be folded as demonstrated.

  - ✓ *When* submitting a pdf assignment, submit the assignment as a SINGLE PDF FILE. PDFs should be saved/ exported from an application (ArcGIS, C3D, MS Word, etc.) and the resulting PDFs should be combined into a single file. PDFs should be appended in page/ logical assigned order.

  - ✓ Each file will have a prescribed filename that will be provided in each assignment's instructions. *When an assignment originates from an MS Word file, **BOTH** the .DOC AND the .PDF files are to be submitted.*

  - ✓ Put your name, course number, assignment parameters (module number, exercise number, problem numbers, etc.), and due date on the first page (cover page) of every assignment. A cover sheet is required for modules.

  - ✓ Any written reports, essays, or term papers shall be word processed and formatted per instructions provided. No handwritten assignments will be accepted,

Failure to observe any of these conditions may result in papers being returned without credit!
Completed assignments are the student's responsibility. Familiarize oneself with assignments early, if clarification is needed or an ambiguity is noted, contact the instructor early. Waiting until the night or morning before the due date to inquire and not receiving a timely answer is on YOU!
Your instructor WILL NOT CONVERT third party software like Libre Office Apps, or Google Docs, Google Sheets, anything Google!!!

Lab Modules:

Students will complete between six and eight **(6-8)** laboratory modules. Modules include exercises and mapping assignment utilizing various functions in ArcGIS Pro. Most will be further explained with additional supplementary instructions. Each will be work 30 – 150 points. Lab Modules will account for a significate portion of a student's grade and should be well thought out and visually presented. Any s*upplementary handouts will be provided at the time of the assignment and reviewed in class.*

Students will follow the exercises instructions and handouts as directed by your instructor, completing (submitting) all map layouts where directed. 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 specifications and instructor directions
- ✓ All pages stapled together and folded to 8.5 x 11" format size (excepting 24x36") – if hard copy

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 work 50-150 points. Challenge modules will be more rigorous than the Modules and worth more points than a standard module. Please take them very seriously.

ArcGIS Pro modules are being adapted from ArcGIS Desktop for ArcGIS Pro. This is a work in progress across multiple instructor platforms that began in Fall 2024 when the department migrated from ArcGIS Desktop 10.8.2 to ArcGIS 3.x. If you believe you have found a typo or are needing clarification, please inquire with sufficient time to complete your work.

Occasionally, ArcGIS application version dialog boxes and screens will appear slightly difference than in the course PDF due to recent version changes. 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 or semi-annually revised. My advice… STOP, reread the instruction, and think about what it is you are doing to the data and to the map in that particular step.

ArcGIS Desktop is a great application and interface but it is no longer supported by ESRI and no longer used in the CESGT program.

Be advised that one of the BEST sources of help after trying ArcGIS Pro3.x help functions is *a focused online key word search.* PLEASE become familiar with how to use online help to support your work just as one would if they were employed in the industry. Save your work often and in a location KNOWN TO YOU! Do not save to your local workstation C:\ drive in L196.

Quizzes & Exams: Students may expect one (1) to four (4) unannounced quizzes, usually administered at the beginning of class, over the course of the semester. Students may expect one (1) to three (3) midterms and one oral final exam**.** Exams are usually worth 100-350 points each. Midterms may include short answer questions, short essays, and lab component. Class examinations are mandatory as scheduled. There will be no make-up exams. Please note: a message a few minutes before class stating that you cannot be present is an appropriate courtesy but does NOT constitute an excused absence. Please plan ahead.

Student Mini Map Project (Final): 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 / Report Assignment Submittal and Format:

All essay assignments are to be neatly word processed. *Electronic copies (Word and PDF) should accompany any hard copy submittals and shall be submitted as specified by your instructor.*

Laboratory assignments (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 questions will follow the standard 5 paragraph essay format for writing style.

Links to additional examples of writing styles discussed above:
A. Scientific Writing Format:
http://writing.colostate.edu/guides/processes/science/pop2a.cfm

B. Essay Writing Format:
https://www.grammarly.com/blog/five-paragraph-essay/

Scientific Calculators:

If completing the CEGST program or pursuing a career in civil engineering, land surveying, or geospatial technology, a programed (or programable), Scientific-Engineering Calculator (HP 33s, HP 35s models, or similar), is strongly recommended for continuing education, licensure exams, board examinations, and general career progression. If pursuing licensure, check exam specifications to confirm which models are allowed. A scientific calculator is not required for this course and programing a scientific calculator will not be covered as part of this class. HP Programming guides are discussed in APTECH 191 and SURV60.

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.

Work Distribution		Point Weighting		Percentage (Grade)
Modules/Challenge Assignments		~60%		90 - 100% (A)
Quizzes/ Discussions/ Essay's		~20%		80 - 89% (B)
Student Final Map Project		~11%		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. In order to advance in the CESGT program students must receive a grade of "C" or better.

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/
SRJC Rights and Responsibilities: https://rightsresponsibilities.santarosa.edu/
(Please take careful note of the section on Academic Integrity, cheating of any type will not be tolerated)

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 Lindley 196 and 194.

Academic Integrity:

Per SRJC Policy 3.11; Academic dishonesty is regarded as any act of deception, benign or malicious in nature, in the completion of any academic exercise. Examples of academic dishonesty include cheating, plagiarism, impersonation, misrepresentation of idea or fact for the purposes of defrauding, use of unauthorized aids or devices, falsifying attendance records, violation of testing protocol, or inappropriate course assignment collaboration.

Class Conduct & Courtesy:

During lectures: Students should be on time, prepared, attentive, and timely with assignment submittals. Per SRJC district policy, absolutely no recording of lectures is permitted without express permission of the instructor. Disruptive or distracting 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.

During Open Laboratory / In-class Laboratory (in L196): In addition to field lab times. there will be open lab time supervised by Mr. Todd Amos, SRJC Micro Computer Lab Specialist. While on campus in-person or virtually, GIS 40 students will comport themselves per the course syllabus guidelines; field and laboratory rules. You represent the CESGT Program to others. When in doubt, please ask.

When using the computer labs, kindly remember that other students may have different study habits and priorities than you do. Please speak softly when briefly conversing with other students. Take phone calls outside the room. For remote access open labs, please use breakout rooms when meeting or conversing with other students.

Cell Phones: Please turn cell phone ringtones off. Please step outside of the classroom if you need to receive a call or make sure you are muted if online.

NO FOOD OR EATING ALLOWED IN THE COMPUTER LABS and NO OPEN CONTAINERS!!!

Password Accounts and Access Codes: Students will be given SRJC computer user accounts and will be required to establish a user account at other websites such as ESRI. In some cases, authorization codes may be assigned to each student. 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.

Computer Labs. Computers, Equipment and Equipment Handling: (for CESGT equipment)

The Department of Engineering and Applied Technology CESGT Program updates and maintains excellent computer hardware, software, printing and plotting devices. In order to provide optimum laboratory access and usage experience; all students are expected to be familiar with and follow the posted and expressed rules for the computer labs (L196 and L186). **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 (e.g. SURV to GIS to SURV), the same computer profile may NOT follow you to another workstation. Desktops may appear a bit different and privileges may differ slightly. Please take that into account.

The Lindley STEM Center is a brand-new building; students are advised that the normal ongoing transition and its attendant security and technology issues may present minor hiccups and instructors and students will have to adapt.

Students are to treat CESGT course equipment with proper care. Any damaged or malfunctioning computer or survey 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 may 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 (named folders) on the various L196 network drives. Some will contain equipment documentation files for the various devices and software applications on the 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 SOFTWARE DOCUMENTATION FILES ON SRJC PRINTERS.

Lindley STEM Center Computer Lab Network Drives ***(if operational during room access)***
Drive names and functions to be confirmed during lecture

Drive C:
Local hard drive on the workstation. **Do NOT** work or leave files on this drive

Drive F:
Individual network drive space, copy class materials TO this drive. SECURE

Drive N:
Read-only to students. Full-access to faculty and staff. Copy distributed class materials FROM this drive ASAP). INSTRUCTOR SECURE

Drive M:
Full-access to everyone will be deleted periodically. Please don't leave your important files on this drive. NOT SECURE.

VIP NOTE: Student USB drives or external HDDs should be inserted **AFTER** workstation logon is complete. External HDDs and USB drives should be used for backup and transfer of materials to outside/personal computers.

Syllabus Purpose and Disclaimers:

This syllabus is an agreement. Continued enrollment in GIS40 means that you, the student agrees 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 guidance as to in what will be expected 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 lectures, labs and readings in this course are not easy. They are designed and sequenced to orient and prepare students for the workplace, certification and licensure exams. They also reflect the serious professional obligations that newly certificated technicians and licensed professionals will undertake for the state or states in which they practice. Please make the absolute best use of your time.

Thank you and WELCOME!

– *Annie Maher*

Santa Rosa Junior College
Engineering & Applied Technology
CESGT Program

Access and Accommodations

If there are aspects of the instruction or design of this course that result in barriers to your inclusion or to an accurate assessment of your achievement, please notify me as soon as possible. Students are also welcome to contact the Disability Resources Department (DRD) at https://drd.santarosa.edu/getting-started, which provides authorization for academic accommodations and support for academic success.

If you experience any medical, mental health, or learning disabilities, or have spent time in a detention facility, please reach out to DRD to find out if you qualify for services. Some common health and learning needs include ADHD, dyslexia, auditory processing differences, PTSD, depression, chronic pain, substance use recovery, and more

Attendance and Justice-Related Obligations

Missing all or part of a class due to court, probation, or parole appointments may be considered a special circumstance. Attendance and class participation are a portion of your grade; however, I make exceptions if you must be absent due to a medical appointment, childcare issue, probation/parole appointment, etc. Please communicate with me as soon as you are able so we can make a plan.

Second Chance Program

Santa Rosa Junior College's Second Chance Program supports students who are formerly incarcerated. The program offers academic counseling, peer support, community-building activities, and connections to campus and community resources. Participation is voluntary and confidential.

For more information, contact ***secondchance@santarosa.edu*** *or visit the Second Chance office on the 2nd floor of the Bertolini Student Center.*

Students who are seeking information, prevention support, harm-reduction resources, or a recovery community are encouraged to connect with ***Students for Recovery****, a campus group offering weekly recovery meetings, prevention and education events, referrals to community resources, and free naloxone (Narcan) for students. For more information, contact* ***Jason Reid*** *at* ***jreid@santarosa.edu****.*