

SURV 60 – Introduction to Plane Surveying
COURSE SYLLABUS (ver.1b, 7/30/2025) - FALL 2025
 Sec.1305

Instructor: Reg Parks

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(*cell calls/ texting for emergencies only or with permission)

Lect: Tues 9:00 AM - 12:00 PM, ONLINE

Lab: Tues 2:00 PM - 5:00 PM, L196

Office Hrs: Tues 5:00-6:00 PM, Lindley196 or 238
 or by appt.

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](#)

WELCOME TO SURV 60 !!! (Please read this syllabus BEFORE attending the first class session)

Lectures and Laboratory: This is a hybrid online/in-person course. Lectures will comprise approximately three (3) of the six (6) weekly course hours with the remainder devoted to field laboratory activities. The distribution may vary occasionally depending on student progress and specific class projects. Some portions of class time will be devoted to the use of computers and software applications, data management and problem solving process. **Active synchronous Zoom lecture attendance via laptop or desktop is mandatory. In-person lab attendance is mandatory.** This course will NOT use Canvas.

TBA: One or two lectures & labs may be an independent research & problem solving exercise.

Mandatory In-Class Final Exam Date: Tuesday, December 16, 2025, 7:00am – 9:45am.

Required Textbook and Required Supplies: (available online and in SRJC Bookstore)

- Elementary Surveying – An Introduction to Geomatics, Wolf/Ghilani, Prentice Hall, 16th Ed. 2022
- SURV 60 Lab Syllabus, a reference document only, downloadable PDF from SRJC file depot, [links to be arranged first week of instruction \(TBA\)](#) --- links will be sent or a password assigned
- Surveying field book, hardbound only, NO spiral or loose leaf. only two acceptable options:
 Elan Standard Engineer's 64 - 4x4 spacing or
 Sokkia #8152-60.4x4 spacing
- HP 35s or HP 33s Programmable Scientific Calculator: REQUIRED; these HP calculators are programmable and allowed under the [LS & CE state and federal licensing exam policy](#).
- Surveying Solutions for the HP35s Calculator by Ted Kerber, 5th Printing, 12/2021, Published by [Software by D'Zign](#), Tollhouse CA...Distributed by [CalculatorSource](#) and SRJC Bookstore
- Engineer's scale, mechanical pencil, eraser and straight edge. No ink allowed in field books!

Recommended Books and Recommended Supplies:

- Three-ringed binder for syllabus, class notes and assignments (note taking during lecture is strongly encouraged/recommended)
- **TI-30X IIs** or TI36X Pro, additional inexpensive calculator to use while programming, validating, and learning the HP 35s or HP 33s data entry logic.

SRJC Land Surveying Technology Certificate Program & Career Technical Education (CTE)

The CESGT Program is a fast-paced, rigorous career education and training program leading to potential employment in one's respective professional discipline. Fall introductory courses develop fundamental office and field skills required for entry to spring courses.

SURV60 is a gateway course in a series of courses that prepare the student for a career as a land surveying technician/professional and should be taken very seriously. These courses are designed to develop entry or mid-level career skills and are designed in conjunction with guidance each semester

from regional professionals who collaborate in program and curriculum development. SRJC recognizes its responsibilities to all CTE students and to the professional community into which they will graduate. Students enrolled in the SRJC Land Surveying Technology Program must complete all coursework with a grade of C or higher to advance and to qualify for a degree/certificate. *Students should begin immediately by establishing their certificate candidacy in their student portal or “cubby” under “District Announcements” use the “Degree Audit Available” link.* For more information, please consult the Program Coordinator (see links above).

SURVEY 60 COURSE CONTENT:

Student Learning Outcomes:

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

1. Describe the concepts of Plane Surveying, including the Public Land Survey System
2. Properly set up and operate plane surveying equipment
3. Interpret and record data and field notes
4. Analyze and compute survey and engineering findings

Objectives:

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

1. Define the different types of land surveying and their uses.
2. Summarize the proper procedures and use of surveying equipment used in this course.
3. Prepare proper surveying notes and information.
4. Perform surveying computations involving angles, directions, distances, areas, volumes, and vertical and horizontal positions.
5. Calculate horizontal measurements by manual and electronic methods.
6. Determine the elevation difference between points using multiple survey leveling methods.
7. Lay out, measure, analyze and adjust level runs, field traverses and topographic side shots.
8. Compute direction of a line from field data and record data using magnetic and geodetic information.
9. Compute the relative position of points by traversing.
10. Calculate basic curve data and layout basic horizontal curves.
11. Prepare a simple maps and diagrams from surveying data and information.

COURSE EXPECTATIONS:

SURVEY 60 is the prerequisite to and the first in a series of four land surveying courses. Together, they are designed to provide the fundamentals of basic land surveying concepts and field surveying methods. In this course, students will explore basic fundamentals within the context of preparing students for spring 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.*

The SURV60 course schedule is somewhat dynamic due to weather conditions, equipment issues and other factors. Changes may occur. Some assignment and lab scheduling directives and changes will be given verbally in class. Please pay attention, ask questions early, take notes, and remain prepared.

*BASIC and ROUTINE COURSE COMMUNICATIONS: primary communications and basic Q&A between student and instructor shall be via my SRJC email. *My cell phone is listed for emergency communications only or if given express situational permission.*

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 time. *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 YouTube.

Access to a computer and to a stable internet connection are key to passing this course. This includes a minimum 5 Mbps UPLOAD speed(when using the Virtual Lab), a functioning webcam that has both video and audio capabilities, and the ability to print and scan 8-1/2 x 11 inch sheets of paper (at the instructor's discretion, clear and legible digital photos may be an acceptable alternative to scanning)..

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 **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 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.). 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 official course hours, they can be dropped from that course. This course runs 17.5 wks. x 6 hrs./week = 105 hrs.

Assignments:

- Required readings, handouts, weekly assignments and other information will be listed on a course planner, on instruction sheets, or provided as verbal instructions in class.
- All assignments are to be completed per the instructions provided and are generally due at the beginning of class in a SRJC FILE Depot drop-off folder (link to be provided). To ensure submittal timeliness, the drop-off folder will be swept at the beginning of class.
- Unless otherwise directed by your instructor, all assignments shall be submitted as a.) word-processed and submitted in standard 8½" x 11" format as a PDF, b.) in legibly hand-lettered and diagrammed field books or c.) on instructor provided worksheets.
- Students will include their name, course number, assignment parameters and due date on the first page. ***(No name / no date / no params = no score!!)***
- Written reports or essays shall be word processed, single-spaced paragraphs, and formatted per instructions provided.
- Essay type exercises or questions will follow the standard five (5) paragraph essay or scientific writing format. Links to examples of writing styles provided below: AI use is discouraged.

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

- Completed assignments per specifications are the student's responsibility. Failure to observe these specifications will result in papers being returned with lower scores or without credit!
- This is a CTE/CE course, if a student believes that the instructor has failed to provide instructions or some details regarding an assignment or procedure; **IT IS THE STUDENT'S RESPONSIBILITY TO INQUIRE IN SUFFICIENT TIME TO COMPLETE THE ASSIGNMENT**...just like one would in any professional workplace.
- 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).
- Again, it is strongly recommended that students write down questions about the reading materials or homework and bring them to class for clarification. Questions will be invited for a brief period at the beginning of class.

Project and Field Exercises:

- Attendance is mandatory. **NO MAKE-UP LABS WILL BE GIVEN!**
- All projects and field exercises (labs) are to be completed as per verbal in-class instructions OR instructions provided (handouts), and are due at the assigned date and time. It is recommended that students prepare in advance, bring questions to lecture/lab, and be prepared to hit the ground running.
- Labs will be held as specified by the instructor. There may be adjustments due to weather or administrative issues. Those will be announced. There may be field or office components associated with each lab. Sometimes there will be both.
- Your completed lab field notes will be due all or in part, at the end of each lab unless otherwise specified by your instructor.
- Field books and computation sheets will be turned in together. Late field lab assignments will not be accepted.
- Field lab exercises are designed so that EACH student is expected to SEQUENTIALLY and INDIVIDUALLY perform their own complete closed or open traverse. Teams observed taking parallel observations where several students observe one station and then move ahead repeating parallel observations and thusly completing only one loop overall, will be asked to box and bag their equipment and leave the field. The group members will receive no credit for that day's exercise.
- Field labs are 3 hours in length, it is strongly recommended that after efficiently gearing up, upon reaching and preparing the survey site (set hubs, flagging, control mons), the remaining time be allocated equally among all group members to perform their individual traverse. Upon exhausting that time allocation, each student shall stop and yield the instrument to the next student **WHETHER THEY HAVE COMPLETED THEIR FIELD WORK OR NOT**.
- Land surveying equipment is expensive and delicate. It is for the use of all SRJC land surveying and engineering students and therefore should be treated respectfully. Students will be instructed in the proper handling and use of the equipment. Please take notes. Students failing to follow procedure or seen mishandling the equipment will be given **ONLY** one (1) warning. A second observed occurrence will result in a student or students being excused from the lab with no opportunity to make it up. Repeat occurrences could result in a student or students being suspended or dropped from the course.
- Please show your lab group members the courtesy of letting them know when you will be absent or tardy for lab activities.

Course File Distribution/Exchange:

All online file exchange will be conducted via Zoom sessions and/or via the SRJC File Depot. Canvas will NOT be used.

Certain course files for distribution will be available on the SRJC File Depot (links to be provided during class or on assignment sheets) and will remain available for a limited time (generally 1-2-weeks) after posting before deletion to conserve space. Be certain to download files right away.

Electronic Assignment Submittal and Format:

Assignment submittals will be uploaded, via provided links, to the SRJC File Depot per written assignment instructions or verbal instructions provided in class. Please pay attention.

Electronic assignments are due in PDF format in the SRJC File Depot folder at the beginning of class on the due date and time for that assignment. Written assignments are to be neatly word processed.

A FILENAMING HANDOUT or CONVENTION WILL BE ASSIGNED BY THE INSTRUCTOR. IT SHOULD BE FOLLOWED TO THE LETTER.

No handwritten assignments will be accepted. Exception -- textbook chapter problem sets may be submitted as ordered, LEGIBLE PDF scans (ONE PHONE SCANNED FILE, NOT PHOTOS) of NEATLY handwritten 8.5" x 11" sheets of ruled graph paper. They must also be numbered, with all work shown and with interim and final answers boxed for clarity. Ruled graph paper must be used for assignments that include graphing problems, where a graph or diagram is an answer.

Format, organization and legibility counts. If the instructor cannot follow, read or understand an assignment, it cannot be graded and will be returned with no score. Assignments submitted on time will be given priority for timely grading returns.

Examinations:

- **TYPICALLY, NO MAKE-UP EXAMS WILL BE GIVEN!**
- *On rare occasion **prior*** instructor approval is necessary to reschedule an exam date.
- Exams will be given on specific areas covered throughout the semester. Sufficient notice will be given prior to the scheduled exam. Whenever possible, a brief review for an exam will be conducted or review materials provided.
- The final exam is required. Failure to take this exam will result in a grade of **F** for the course per SRJC policy.

Scientific Calculators:

Students should have a scientific calculator and know how to use it (the range of required/recommended models will be discussed). For CESGT certificate students, your instructor requires the HP33s, the HP 35s backed up by either the TI-30XIIs or the TI36 Pro 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. Some of this may be covered in APTECH 191 or in special on-campus programming clinics.

Possession and working knowledge of an HP33s or HP35s is a REQUIREMENT for this class and will be necessary for all examinations and quizzes. Incorrect results secondary to miss-keyed or incorrectly used calculators are INCORRECT. Again, in order to receive the most credit for work performed, please attempt, at all times, to clearly SHOW YOUR WORK. Consider using spreadsheets to check one's work.

Grading Policy:

VIP!!! In order to receive full-credit for all SURV 60 work performed, please attempt, at all times, to fully SHOW ALL YOUR WORK.

- Your grade will be based on the total number of weighted points you accumulate with respect to the total number of possible "top score" weighted points. Homework, lab/assignments and exams are weighted accordingly:

Work Distribution	Point Weighting	Percentage	Grade
Homework	~20%	90 - 100%	A
Quizzes & Exams	~40%	80 - 89%	B
Lab Exercises	~31%	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.

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. *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)

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, and 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 actively listening to the lectures and presentations. Note taking is strongly encouraged. Per SRJC district policy, absolutely no recording of lectures is permitted without express permission of the instructor. Students shall please refrain from having conversations, checking your email or web-browsing on either computers or smart phones. These behaviors are distracting to

other students and to the instructor. **No student is allowed to print or plot when in Lindley 196 or 186 without permission.**

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.

During Open Laboratory / In-class Laboratory (in L196): In addition to field lab times, there will be in-person and virtual open lab time supervised by Mr. Todd Amos, SRJC Micro Computer Lab Specialist. While on campus in-person or virtually, Survey 60 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. NO calls during class/lab time. If you must receive an emergency call please mute your microphone.

ABSOLUTELY NO FOOD, DRINKS, OR EATING ALLOWED DURING CLASS or in L196 LAB!!!
(sealed water bottles may be kept under your desk)
and once again for the cheap seats.....

ABSOLUTELY NO FOOD, DRINKS, OR EATING ALLOWED DURING CLASS or in L196 LAB!!!
(sealed water bottles may be kept under your desk)

Passwords, Accounts and Access Codes: In certain CESGT courses, students will be provided with SRJC workstation user accounts and will be required to establish user accounts at other websites as well. 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 missed or incomplete assignments.

Computer Labs. Computers, Equipment and Equipment Handling: (for CESGT equipment)
 SURVEY 60 students may be assigned computer accounts in Lindley 196. If so, they will receive a presentation familiarizing them with the in-class computing, printing and plotting equipment as part of course content. Account passwords and authorization codes will be issued at that time. These presentations will not be repeated.

In comparison to many other campuses, SRJC has a brand new building and recently updated, cutting edge computer hardware, software and output facilities. In order to provide optimum laboratory access and usage experience; if applicable, all students are expected to be familiar with and follow the posted rules for the computer labs (Lindley 196, 186). Any student observed violating the rules may be excused from class (first offense). Repeat offenses will result in a student being suspended or dropped from the class. In some classes your personal computer profile will NOT follow you to another class or classroom. Students will be assigned a workstation which will be their workstation for the entire semester. You may not sit at another workstation during class without permission from the instructor. Students will be provided with computer access account numbers on the first day of class or lab.

All students are expected to treat all SRJC laboratory equipment with proper care. Damaged or malfunctioning equipment shall be promptly reported to the instructor by the operator. Students observed mistreating any CESGT lab equipment will receive a warning. Repeat offenders will be

suspended or dropped. Any loaner equipment shall be returned per the policy and directions of the loaner source. Non-return of said equipment will result in legal and academic penalties.

All CESGT students are to treat the SRJC classroom computer equipment with proper care. Any damaged or malfunctioning computer equipment shall be promptly reported by the operator to the instructor by the operator. Students observed mistreating any computer equipment will receive a warning. Repeat offenders will be suspended or dropped. Students excused from class activities for mistreating equipment will not be allowed to make up that day's work.

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 SRJC File Depot and if operational, student local and network drives. 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.

SURVEY 60 students may receive a presentation familiarizing them with the in-class computing, printing and plotting equipment as part of course content. Account passwords and authorization codes will be issued at that time. These presentations will not be repeated.

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

Lindley STEM Center Computer Lab Network Drives (if operational during room access)

Drive C:	Local hard drive in the computer.
Drive ?:	Private drive unique to each person, ALWAYS copy class materials TO this drive.
Drive N:	Read-only to students. Full-access to faculty and staff. Copy distributed class materials FROM this drive ASAP.
Drive M:	Full-access to everyone) will be deleted periodically. Please don't leave your important files on this drive.
Drive ?:	(TBA, letter varies per class, this is a student submittal/grading drive, more later...)

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.

Network File Distribution:

As previously discussed above, course file exchanges will primarily be conducted via the SRJC File Depot. Occasionally and optionally some file may be distributed via the classroom network drive (N:\ drive) when appropriate. Use of the network requires a student account and will be discussed at the first class meeting.

Syllabus Purpose and Disclaimers:

This syllabus constitutes an agreement. Continued participation (past day 1) in SURV60 means that you, the student, tacitly agree to the policies and procedures outlined in this document and any verbal course directives provided in class. If some aspect or aspects of the syllabus are unclear to a student, it is their responsibility to inquire regarding that matter before the second class meeting.

This syllabus and a corresponding course calendar are intended to provide guidance as to what will be expected during the semester and what will be followed. However, the instructor reserves the right to

modify, supplement or make changes as necessary for general course needs as the semester progresses.

The CESGT workplace is evolving, Technology is evolving. Certification and licensure exams are evolving with them. The CESGT Program is in its 58th year. These programs and courses have proven to be valuable to students before and after entering the industry workforce and when taking examinations. With the ongoing updating and addition of newer materials and methods, there will undoubtedly be some hiccups and improvements that can be made on the fly or integrated into next year's class. It is my desire as your instructor, to address these issues in the best possible way for the benefit of the entire class and CESGT Program. Thank you for your cooperation and patience.

Instructor Commentary:

The stackable CESGT 1-year pathways move along very quickly. The fall courses are introductory, gateway courses to the spring semester courses. The follow-on rigorous spring semester courses offer additional curriculum towards the Land Survey certificate / degree and build the foundation of all professional land surveying.

The CESGT Program has been at SRJC for 58 years and has undergone significant evolution and change. This is because technology is constantly changing. Today's new-tech is next week's antique. This is why the program strives to provide students the core fundamentals and "technical mechanics" of what is happening when a process is applied to a problem. For this reason it is imperative to learn the classical methods first (mostly fall semester) and then follow with the new-tech methods (mostly spring semester). The goal is to produce "thinkers" rather than "button-pushers" who view this program as a pathway to a professional career more than just a job or a pay-check.

CESGT DEFINITIONS:

Button-pusher – one who pushes a button to produce a number they do not fully-understand and cannot fully-explain.

Thinker – one who understands the problem and solution in advance and pushes the correct button to achieve the planned and desired result after which they can explain what happened and why.

As indicated above, the bulk of land surveying is initially formed mentally and subsequently implemented with technology as basic as a pencil and paper or as fancy as a calculator or computer. It cannot be emphasized how important it is to fully-apply yourselves at every lesson opportunity. The lectures, labs and examinations in these courses 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.

Respectfully,

Reg Parks

SRJC E&AT CESGT Program

Please report any typos, broken links or inconsistencies....thx, rp

TENTATIVE BRIEF TOPIC OUTLINE for FALL 2025

(based on [Ghilani, 16th Edition, 2022](#))

The objective of this outline and the accompanying course calendar is to assist you in planning your schedule. Every effort will be made to stay on schedule. However, the instructor may find it necessary to make appropriate changes to meet the learning objectives for the entire class.

Students should be familiar with the weekly topic **prior** to the class lecture by reading the assigned chapter pages. **Please stay current in your reading.**

Instructor will assign homework problems for each topic listed below.

Section	Topic	Ch.	Description	Pages
1	1	1	Introduction	1-21
	2	2	Units, Significant Figures and Field Notes	22-43
	3	3	Theory of Errors in Observations	44-69
	4	6	Distance Measurement	129-163
2	5	4 5	Leveling – Theory, Methods and Equipment Leveling – Field Procedures and Computations	70-101 102-128
3	6	7	Angles, Azimuths and Bearings	164-184
	7	8	Total Station Instruments; Angle Observations	185-225
4	8	9 10	Traversing, Traverse Computations	226-238 239-269
	9	11 12	Coordinate Geometry in Surveying Calc'ns (partial) Area	270-300 301-322
5	10	24 25	Horizontal Curves, Vertical Curves	738-777 778-796

Students will be provided with a more detailed dynamic course calendar during/immediately after the first week of instruction. It may be updated verbally in class or reissued during the semester as the needs arise.

SURV60 Field Vest and Tape Measure Detail Sheet (Fall 2025)

Field vests are required personal equipment for land surveying and some GIS courses.

(Also required for SURV53, 56, & 58 offered in the Spring Semester, and for GIS54.)

All,

So students MUST purchase **ANSI/ISEA Class 2** safety vests by 8/15 to participate in CESGT field labs.

For this reason, I am providing a list of recommended products at various price levels. Selection and purchasing arrangements are ultimately left up to the student. ***Please pay attention to safety class, sizing and shipping details at the site of purchase. Use the sizing links!!!***



TopTier (~\$90-125) ONLY IF you are definite about a land surveying career

[SECO CATALOG](#); series 8063, 8068-8069 and 8265 series vests (fluorescent yellow recommended)

<p>Seco 8063,68,69 Series Vest</p> 		 <p>The 8063 has a rear pouch, carries more</p>	<p>Seco Sizing Guide webpage</p>
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Middle Tier (\$35-60) if not sure about your career plans but plan to finish the cert.

[Site Pro](#), or [Radians](#) Brands

<p>Site Pro Premium Class Two Vest has rear pouch (no sizing link found)</p>		<p>Radians SV55-2ZGD Type R Class Two Engineer safety Vest (use their sizing link, gets good reviews, light weigh mesh, use the magnifier)</p>	
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Lowest Tier (\$10-25) if you are uncertain about land surveying and the certificate program, cheap, offshore, all over the internet might be good, HAS to be Class 2 and has to be yellow on orange or orange on yellow – no fussy red or show-offy Tool Brand stuff....

Tip: use the magnifier, look for reinforcing stitching at the tops and bottom of the zipper stitching – those are stress points over time and tend to separate. Look for sizing charts.

Instructor recommends fluorescent yellow over fluorescent orange but either is acceptable. In fall and spring surveying courses we WILL be surveying in and crossing streets on campus.

25' TAPE Measure w/ Engineering Scale (tenths and hundredths of a foot)



NOTE: the # of rivets

This is our required measuring standard.

Sources (on Amazon, Zoro and others, watch out for scalping pricing):



[Lufkin PHV1425DN](#): 25' Engineering scaled tape measure (tenths and hundredths of a foot, has **4 rivets** on end plate (good))
\$11.99 Amazon Prime (also at Home Depot for ~\$18)



[Keeson 33' PG181033WIDEV](#): 33' Engineering Scale **5 rivets** (best) on endplate and 33' is precisely $\frac{1}{2}$ of a Gunter's chain.....only a bargain at 20 bucks don't pay 30 or 40



[Komelon 52425IE](#): 25' Engineering scaled tape measure (tenths and hundredths of a foot, has **3 rivets** (fair) on end plate (ok))
\$11.99 Amazon Prime



There is a KOMELON 7125IE model that is sexy & cool looking rubber grip Engineering scaled tape measure however IT ONLY HAS **2 RIVETS** ON THE END PLATE – (bad), will eventually loosen up and move and give sloppy/incorrect readings, looks cool but buy at your own risk) \$13.10 AVOID!!!!

ALSO look at HOME DEPOT and Lowe's (check first)

Lufkin, Milwaukee, Crescent and others: 25' Engineering Scale for 14-18 bucks.....

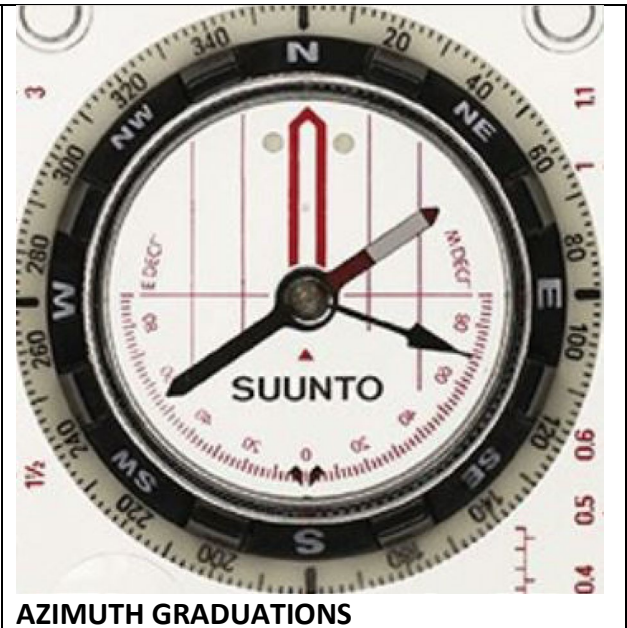
Surveyor's Compass

Students will provide their own magnetic compass suitable for land surveying. *The compass must have a hinged cover, mirror, sighting notch, adjustable bezel for magnetic declination, adjusting tool and preferably a neck lanyard or cord for fastening to vest.*

Recommended models as of 2023. Strong recommendation: purchase a compass with dual bezel (bearing and azimuth graduations) or prioritize for a BEARING QUADRANT graduated bezel. If you purchase an azimuth graduated bezel you will need to be handy at accurately converting from azimuths to bearings in your head or on your calculator. Your choice...



BEARING QUADRANT GRADUATIONS



AZIMUTH GRADUATIONS

Recommendations:

- a.) Suunto Compass Model MC-2 Pro Compass (most user friendly, best value IMHO)

https://www.google.com/search?q=Suunto+MC-2+Pro+Compass+best+pricing&rlz=1C1GCEA_enUS920US920&oq=Suunto+MC-2+Pro+Compass+best+pricing&aqs=chrome..69i57j33i160.4638j0j15&sourceid=chrome&ie=UTF-8

- b.) Brunton Compass Model Tru Arc 15 (less user friendly, less easy to read)

https://www.google.com/search?q=Brunton+-+TruArc+15+-+Compass+best+price&rlz=1C1GCEA_enUS920US920&oq=Brunton+-+TruArc+15+-+Compass+best+price&aqs=chrome..69i57.3917j0j15&sourceid=chrome&ie=UTF-8

- c.) Advantage Compass Model ADV8002 (on your own)

I conducted a brief search online for two well-known types and during the search, I found a questionable third type (very, very, inexpensive). It may serve the purpose for a student who is just taking SURV60 but I am not endorsing it for any reason as I have not used it and cannot vouch for the manufacturer. Buyer beware. Also, I noticed that the declination adjustment tool on the ADVANTAGE is CLIPPED to the compass not attached to the heavy-duty lanyard string like with the other two compasses.

SURV60 Field Book & Calculator Detail Sheet (Fall 2025)

(originally prepared for APTECH191, GIS40 & SURV60)

FIELD BOOKS:

SURV60 students are required to purchase a hard bound field book for field exercises. This is a tool that ALL field surveyors will use daily. Field notes are documentation that ALL field and office surveyors need to be familiar with and know how to read and interpret. For SURVEY 60, there is ONLY one acceptable type of book of which there are TWO BRANDS. **No other field book will be graded.**

Elan Field Book E64-4x4

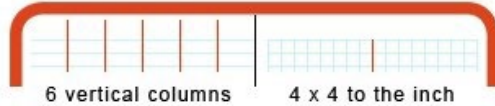
Product Code: ES1636

Condition: New

Binding Top-->



Binding Bottom →

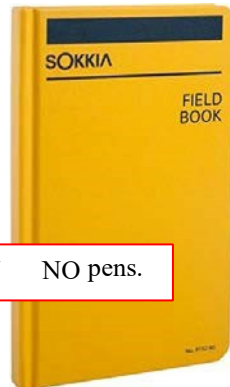


Pencil data entry ONLY NO pens.

Sokkia Field Book

Product Code: 815260

Condition: New



Do NOT purchase field books with "Rite in the Rain" paper.



6 vertical columns -- 4 x 4 to the inch

Starting at the TOP of the binding and printing downwards, SURV 60 students will use a black sharpie marker or thick black ballpoint to neatly print their "LAST NAME, FIRST INITIAL" as shown below. **No name on binding or incorrectly printed or placed – field books will not be accepted!!!!**

Binding Top (front cover face up) Binding Bottom



Tape

<-- side view of field book binding,

Once the ink has dried, students will place a piece of transparent scotch tape evenly spaced along the binding centerline covering the printing.



Tape

HAND CALCULATORS:

All CESGT students are required to have a hand calculator. Two makes and four models constitute the required choices for Civil and Survey Tech students. [All US survey and civil engineering licensure exams restrict calculator use to these and a two other Casio models.](#) ONLY the two HP models are programmable. Please refer to your syllabus for additional information.

Survey 60 students are required to purchase the HP calculator and programming manual circled below. Civil students are STRONGLY encouraged to have the HP33s or HP35s programmable calculators. Both HPs will hold hand entered programs (see below) for faster execution of survey and engineering exam problems for your in-class AND your state licensing exams. **GIS-only certificate only students may elect to purchase one of the two TI models.**

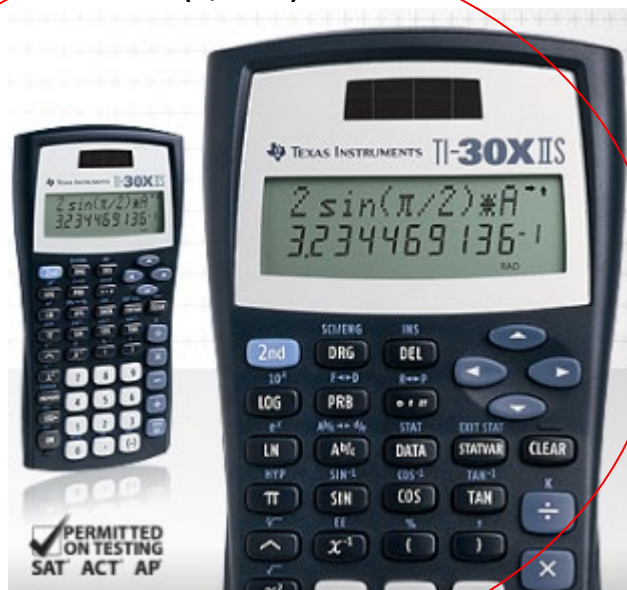
HP 33s (scarce, no longer in production)



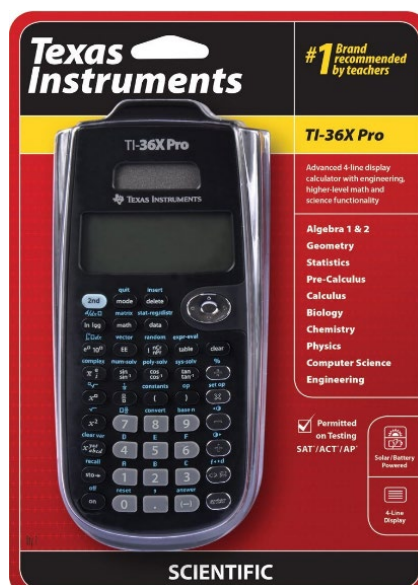
HP 35s (preferred, still available pricing varies)



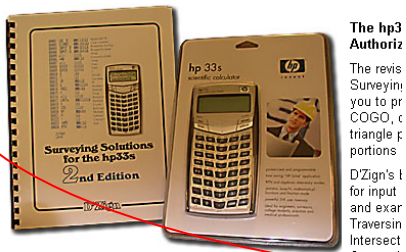
TI-30X IIS (~\$11-12)



TI-36X Pro (~\$17-18)



Software by D'Zign HP 33s Programming Manual continue to Software by D'Zign HP 35s Programming Manual
 Surveying Solutions for the hp33s



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<https://www.calculatorsource.com/dz-33s-survey.html>

<https://www.calculatorsource.com/dz-35s-survey.html>

Ted Kerber Programming Manuals -- pricing varies, be diligent in your searches.

NOTE: SURV60 students are REQUIRED to purchase an HP35s or HP33s AND the corresponding above circled Kerber Programming Manual. Civil Tech and Civil Engineering transfer students are STRONGLY RECOMMENDED to purchase the HP35s AND the Ted Kerber Programming Manual. Please refer to NCEES Exam Calculator Policy

That said, the State Boards and NCEES have NOT disallowed the older discontinued HP33s and the recently discontinued HP35s (preferred) for NCEES and state-specific exams in Civil Engineering and Land Surveying. They remain the **ONLY PROGRAMMABLE CALCULATORS** on the approved list. *For this reason, the CESGT Program will continue to require the HP35s (or the HP33s, if you can find one) for land surveying classes.*

I continue to be aware of the hike in the price of the HP calculators. Evidently, in 2022, HP restructured and sold off its calculator division to the Royal Company. Unfortunately, they are STILL gearing up to manufacture the HP35s. Therefore, the HP35s calculators remain scarce & somewhat expensive.

HERE ARE SOME SITES THAT WERE SELLING THE HP33s and HP35s:

Amazon Prime: sellers offer the HP35s calculator

CalculatorSource: sells the HP33s and HP35s calculators. They also sell the corresponding Ted Kerber D'Zign Surveying Solutions guides.

CAUTION!! There are other programming booklets but the CESGT Program only supports the Ted Kerber programming for the HP33s or 35s calculators. We believe it to be superior.

AceDepot: sells the HP33s but be sure to locate the Ted Kerber HP33s programming manual for that specific calculator BEFORE you purchase.

Various EBay sites are selling the HP33s and HP35s new or used. ***Students are encouraged to search for other sites and find their own best calculator deals.....***

Semester: Fall 2025

Section: 1305 Course: SURV 60

The following deadline dates have been established for this section:

Day Class Begins	Tuesday, August 19, 2025
Day Class Ends	Tuesday, December 9, 2025
Day/Time of Final Exam (IN CLASS)	Tuesday, December 16, 2025 7:00 AM - 9:45 AM
Last Day to Add	Sunday, August 24, 2025
Last Day to Add with instructor's approval	Sunday, September 7, 2025
Last Day to Drop and be eligible for enrollment/course fee refund	Sunday, August 31, 2025
Last Day to Drop without a 'W' symbol	Sunday, September 7, 2025
Last Day to Drop with a 'W' symbol	Sunday, November 16, 2025
Last Day to Opt for Pass/No Pass	
First Census Date	Monday, September 8, 2025
Mid-Term Dates	10/20/2025 - 11/16/2025

SRJC 2025-2026 ACADEMIC CALENDAR

Fall Semester 2025

Fall class schedule available (www.santarosa.edu)*

Wednesday, August 13, 2025	Professional Development Flex Day (No classes or activities)
Thursday, August 14, 2025	District-designated activities (No classes)
Friday, August 15, 2025	Mandatory Professional Development Activities Institutional Day (No classes, Minimal Services)
Monday, August 18, 2025	CLASSES BEGIN
Sunday, August 24, 2025	Last day to register/add semester length class <u>without</u> instructor's signature or add code
Sunday, August 31, 2025	Last day to drop semester length class and be eligible for a refund
Monday, September 1, 2025	Labor Day Holiday (No classes, District closed)
Sunday, September 7, 2025	Last day to register/add semester length class <u>with</u> the instructor's signature or add code
Sunday, September 7, 2025	Last day to drop a semester length class <u>without</u> "W" symbol
Monday, September 8, 2025	First Census Day
Wednesday, September 17, 2025	Constitution Day and Citizenship Day (Classes will meet)
Friday, September 26, 2025	Native American Day (No classes, District closed)
Monday, October 20 - Sunday, November 16, 2025	Midterm progress indicators posted in student portal
Tuesday, November 11, 2025	Veterans Day Holiday (No classes, District closed)
Sunday, November 16, 2025	Last day to drop a semester length class <u>with</u> "W" symbol
Thursday, November 27 - Sunday, November 30, 2025	Fall Break (No classes, District closed)

Friday, November 28, 2025	Professional Development 1/2 Flex Day (No classes or activities, District closed)
Friday, December 12, 2025	Last day to opt for P/NP for a semester length class
Saturday, December 13 - Friday, December 19, 2025	Final Examinations
Saturday, December 20, 2025 - Sunday, January 11, 2026	Semester Break (No classes)
Friday, January 2, 2026	Final grade rosters due
Saturday, January 3, 2026	Fall semester processing finalized

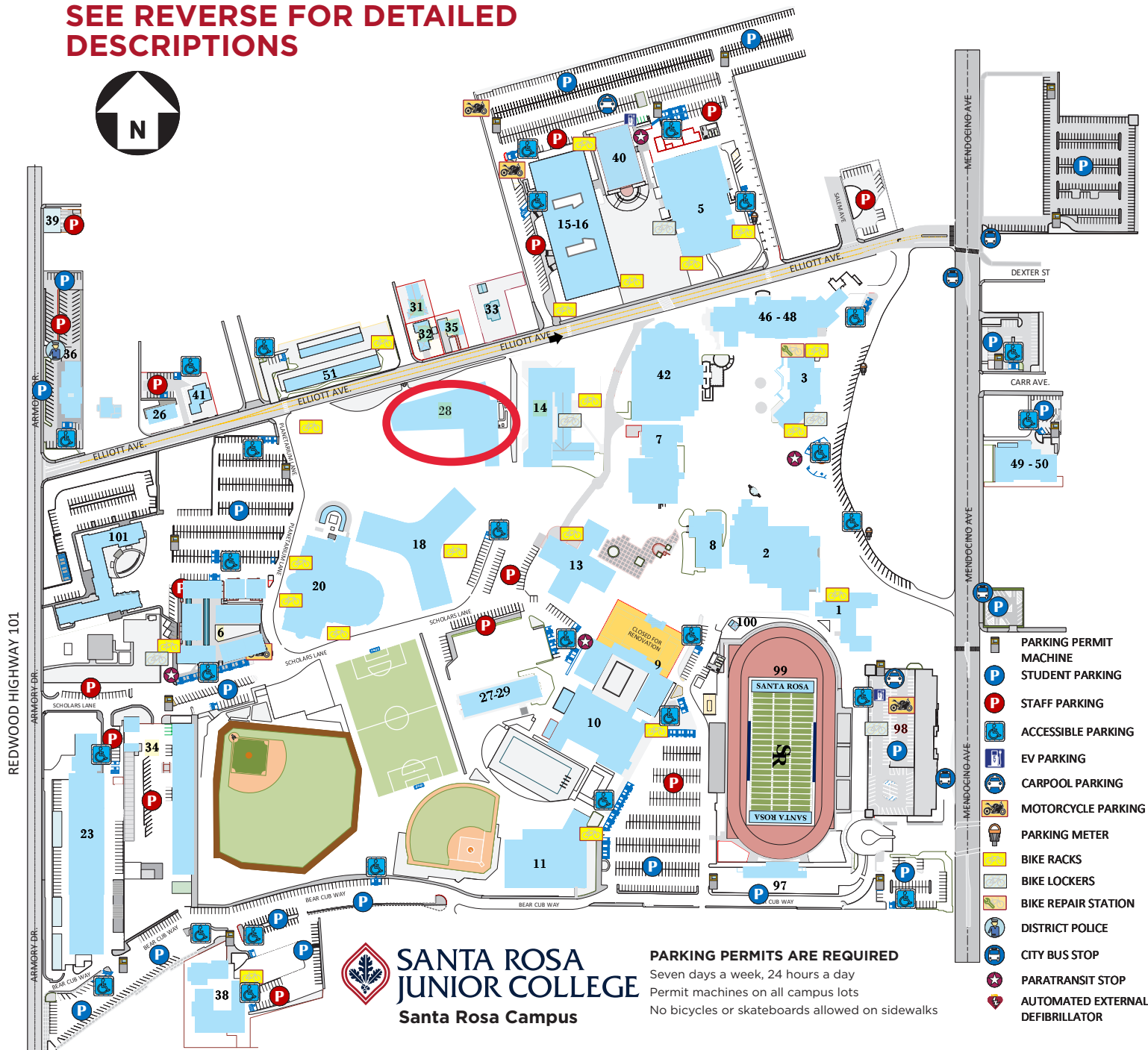
Spring Semester 2026

Spring class schedule available (www.santarosa.edu) *

Monday, January 12, 2026	CLASSES BEGIN
Monday, January 19, 2026	Dr. Martin Luther King Jr. Day Holiday (No classes, District Closed)
Sunday, January 18, 2026	Last day to register/add semester length class <u>without</u> instructor's signature or add code
Sunday, January 25, 2026	Last day to drop semester length class and be eligible for a refund
Sunday, February 1, 2026	Last day to register/add semester length class <u>with</u> the instructor's signature or add code
Sunday, February 1, 2026	Last day to drop a semester length class <u>without</u> "W" symbol
Monday, February 2, 2026	First Census Day
Thursday February 12, 2026	Mandatory Professional Development Activities Institutional Day (No classes, District closed for PDA)
Friday, February 13, 2026	Lincoln's Day Holiday Observance (No classes, District closed)

Saturday, February 14 - Sunday, February 15, 2026	Saturday and Sunday (Classes will meet)
Monday, February 16, 2026	Washington's Day Holiday (No classes, District closed)
Monday, March 16 - Sunday, March 22, 2026	Spring Break (No classes)
Thursday, March 19, 2026	Professional Development Flex Day (No classes)
Friday, March 20, 2026	Professional Development 1/2 Flex Day (No classes)
Monday, March 23 - Sunday, April 19, 2026	Midterm progress indicators posted in student portal
Tuesday, March 31, 2026	Cesar Chavez / Dolores Huerta Day (No classes, District closed)
Sunday, April 19, 2026	Last day to drop a semester length class <u>with</u> "W" symbol
Friday, May 15, 2026	Last day to opt for P/NP for a semester length class
Saturday, May 16 - Friday, May 22, 2026	Final Examinations
Saturday, May 23, 2026	Commencement Exercises
Monday, May 25, 2026	Memorial Day Holiday (No classes, District closed)
Tuesday, May 26, 2026	Asian American & Pacific Islander Day (No classes, District closed)
Friday, May 29, 2026	Final grade rosters due
Saturday, May 30, 2026	Spring semester processing finalized

SEE REVERSE FOR DETAILED DESCRIPTIONS



**SANTA ROSA
JUNIOR COLLEGE**
 Santa Rosa Campus

- | | | |
|----------------------------------|---|--|
| 1 Norton Forsyth Hall | 18 Milo Baker Hall | 40 William B. Race |
| 2 Luther Burbank Auditorium | 20 Warne Lark Hall | 41 Adult Education (705 Elliott) |
| 3 Pioneer Hall | 23 John Lounibos Center | 42 Frank P. Doyle Library |
| 5 Bernard C. Plover Hall | 26 SRJC Foundation (707 Elliott) | 46-48 Lawrence A. Bertolini Student Center |
| 6 Analay Village | 27, 29 Albert Maggini Hall | 49-50 B. Robert Burdo Culinary Arts |
| 7 Analay Hall | 28 Lindley Center for STEM Education | 51 Jeff Kunde Hall |
| 8 A.M. Garcia Hall | 31 Capital Projects (1816 Albany) | 97 Athletics Field House |
| 9 C. J. Tauzer Gym - Closed | 32 Custodial Services (1808 Albany) | 98 Don Zumwalt Parking Pavilion |
| 10 Robert Quinn Swim Center | 33 Capital Projects (425 Elliott) | 99 Floyd P. Bailey Field |
| 11 Walter Haehl Pavilion | 34 Facilities Operations & Warehouse | 100 Food Pantry |
| 13 Floyd P. Bailey Hall | 35 All Faculty Association (437 Elliott) | 101 Polly O'Meara Doyle Hall |
| 14 Peter W. Bussman Hall & Annex | 36 Christine Pedroncelli Center - District Police | |
| 15-16 Emeritus Hall | 38 Robert Call Center | |

1 Norton Forsyth Hall	Music Department	100 - 199
2 Luther Burbank Auditorium	Theater Arts	101 - 187
	Main Theater	161
	Studio Theater	175
3 Pioneer Hall	Santa Rosa Book Store	329 - 349
	Sawubona Center	358 - 360
	Intercultural Center (ICC)	370 - 399
5 Bernard C. Plover	Financial Aid	501 - 512
	Veterans Office	513 - 516
	International Students	517 - 519
	Admissions & Records	520 - 526
	Student Outreach	527 - 529
	Welcome Center	531 - 533
	Assessment Services	538
	Dream Center	539
	VIDAS Law Office	540
	DRD Testing	559
6 Analay Village	Sports Medicine	601
	Weight Room	615
	High School Equivalency (HEP)	618 - 624
	Dance	643
	Wrestling	645
	Adaptive P.E.	651 - 655
7 Analay Hall	Fine Arts	701 - 777
	Photography - Digital Media	780 - 799
8 A.M. Garcia Hall	Communication Studies	101 - 125
	Oakleaf Newsroom	106
9 C. J. Tauzer Gym	UNDER CONSTRUCTION	
	Programs Have Moved to Analay Village	
10 Robert Quinn Swim Center	Men's Lockers	1030 - 1049
	Swimming Center	1050 - 1099
11 Walter Haehl Pavilion	Main Gym	1105
13 Floyd P. Bailey Hall	Office of the President	1303 - 1308
	VP Administration	1311
	Purchasing	1312 - 1318
	Copy Center	1320
	Payroll	1351 - 1354
	Accounting	1340 - 1396
	VP Academic Affairs	1370
	Marketing & Communications	1330
	Mail Room	1390 - 1395
14 Peter W. Bussman Hall & Annex	SRJC Museum	1401 - 1427
	Information Technology (IT)	1431 - 1468
	Human Resources (HR)	100 - 116
15 - 16 Emeritus Hall	Liberal Arts	1504 - 1699
	Newman	1564
	HOPE Program	1575 - 1581
18 Milo Baker Hall	Lecture Hall	1801 - 1809
	Anatomy	1820 - 1837
	Life Sciences	1840 - 1869
19 George Bech Hall (CLOSED)	Chemistry Department	1900 - 1999
20 Warne Lark Hall	ESL Department	2069 - 2090
23 John Lounibos Center	Machine Technology	2319 - 2339
	Auto/Diesel Technology	2342 - 2370
	Welding	2380 - 2399
26 SRJC Foundation (707 Elliott)		
27, 29 Albert Maggini Hall	Business Administration	2700 - 2826
	Computer Studies	2901 - 2926
28 Lindley Center for STEM Education	Chemistry & Physics, Mathematics	103 - 396
	Engineering & Applied Technology	
	Avanzando (MESA and HOPE Programs)	
31 Capital Projects (1816 Albany)		
32 Custodial Services (1808 Albany)		
33 Capital Projects (425 Elliott)		
34 Facilities Operations	Facilities Operations	3400 - 3469
	Warehouse	3470 - 3479
35 All Faculty Association (437 Elliott)		
36 Christine Pedroncelli Center	District Police	3600 - 3623
38 Robert Call Center	Child Development Center	3800 - 3870
	Foster & Kinship Care (FKCE)	3854
40 William B. Race	Dental	4024 - 4033
	Health Sciences	4035 - 4044
41 Adult Education (705 Elliott)		
42 Frank P. Doyle Library	Art Gallery	101 - 103
	Media Services	119 - 146
	Tutorial Services	151 - 160
	Library Services	201 - 426
	Center For Exc. in Teaching & Learning	321
46-48 Lawrence A. Bertolini Student Center	Student Activity Center (SAC)	4608
	Dining Hall	4612
	Food Services Bear's Den	4616
	Student Life, Equity & Engage. (SLEE)	4638 - 4665
	Student Resource Center	4657
	CalWORKs/E.O.P.S.*	4703 - 4724
	Transfer Center	4731 - 4733
	Counseling	4735 - 4775
	VP Student Services	4777 - 4780
	Student Health & Psych. Services	3 Floor West
	MESA & Puente Programs	4831 - 4841
	DisAbility Resources	4842 - 4876
	College to Career (C2C)	4869
	Deaf & Hard of Hearing Program	4874
	Career Hub/Career Education/	
	Workforce Development in Bertolini	4874-4891
	Assistive Technology Lab	4876
	Workforce Development	4880 - 4891
	Student Employment	4881
49-50 B. Robert Burdo Culinary Arts	Bakery (Retail)	4931
	Café Rose	4929
	Culinary Arts	4912 - 5023
51 Jeff Kunde Hall	Math Department	101 - 114
	Administration of Justice	201 - 204
	Engineering & Applied Technology	151 - 152
	Math Computer Lab	153
97 Athletics Field House		
98 Don Zumwalt Parking Pavilion		
99 Floyd P. Bailey Field		
100 Food Pantry		
101 Polly O'Meara Doyle Hall	Student Housing	

