

CSA 1309: Computer Science I

Department of Natural and Behavioral Sciences, Computer Science Program

Fall 2026 (16-week term)

Meeting Days / Time: Monday and Wednesday, 9:30 AM - 10:45 AM Location: Room 116 CRN: 12128

Modality: Face-to-face

Faculty Information

Dr. Mainuddin Shaik

Email: mainuddin.shaik@sulross.edu

Office Hours: Email to schedule an appointment (in person or via Teams)

Response time: I reply to email within one business day. Please use your Sul Ross email and put "CSA 1309" in the subject line.

Course Description

This course provides a broad and accessible introduction to the field of computer science using Python programming as a foundation. Students learn how computers solve problems, how algorithms work, and how data is represented, while writing programs every week. The course balances computing concepts (abstraction, algorithms, data, ethics) with hands-on Python, and connects each topic to current applications in artificial intelligence (AI), machine learning (ML), and natural language processing (NLP) so that students see, from the first semester, how the fundamentals power modern computing. By the end of the semester, students will:

- Write Python programs for solving basic problems.
- Understand key computer science principles such as recursion, data structures, and algorithms.
- Explore modern themes including data representation, artificial intelligence, and computing's impact on society.
- Demonstrate problem-solving skills through weekly assignments and closed-book, in-class quizzes, a midterm exam, and a final programming practicum.

Prerequisite: None. This course assumes no prior programming experience.

Programming Language: Python 3 (primary).

Course Materials

Textbook (Recommended):

- John S. Conery, Explorations in Computing: An Introduction to Computer Science and Python Programming (Chapman and Hall/CRC, 2014), ISBN 978-1466572447. We draw on Chapters 1 through 6, 8, 10, and 12. Digital copies of the assigned chapters will be provided by the instructor on Blackboard; you do not need to purchase the book. If you do buy or borrow a copy, make sure it is the Python edition, not the earlier Ruby edition.

Software and tools:

- Google Colab (free, browser-based). Nothing needs to be installed, and Colab works on any laptop, Chromebook, or tablet with a browser. Setup will be walked through in Week 1. Colab runs on a personal Google account; Sul Ross does not issue Google accounts, so use a personal Gmail address. To submit an assignment, download your notebook (File > Download > Download .ipynb) and upload that file to Blackboard.
- Colab includes a built-in AI assistant. It must be turned off for assignments marked no-AI and during any in-class work; on other assignments its use must be disclosed under the course AI policy.
- Optional: Python 3.12 or later (free, python.org) with VS Code or IDLE for students who prefer to work locally. Any code submitted from a local setup must also be pasted into a Colab notebook for grading.
- Blackboard for announcements, assignment submission, quizzes, and grades. Quizzes are taken in class, closed-book, on paper or on classroom machines.
- Additional readings, handouts, and case studies will be posted on Blackboard.

Important Dates (Fall 2026)

- Mon Aug 24: First day of classes
- Mon Sep 7: Labor Day, no classes
- Wed Sep 9: Twelfth class day (census); last day to drop without an academic record
- Mon Oct 19: Midterm exam (in class, closed-book)
- Fri Nov 6: Last day to withdraw with a grade of W (4:00 PM, Registrar's Office)
- Wed Nov 25 to Fri Nov 27: Thanksgiving holiday, no classes
- Wed Dec 2: Last class day; final review
- Thu Dec 3: Dead day
- Fri Dec 4: Final practicum, in person, closed-book (Room 116)
- Mon Dec 7 to Wed Dec 9: Final examination period; grades finalized

Program Student Learning Outcomes

Upon completion, students will be able to:

- Define and explain fundamental concepts of computer science, including algorithms, data, and abstraction.
- Identify and evaluate strategies for solving problems computationally.
- Recognize the role of ethics, privacy, and bias in computing.
- Demonstrate awareness of modern applications of computer science in AI, data science, and future technologies.
- Apply critical thinking to simple computational problems and case studies.

Course Student Learning Outcomes

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

- Write and run Python programs using variables, conditionals, loops, functions, strings, files, lists, dictionaries, and tuples.

- Explain the basics of recursion, searching, and algorithm design, including divide and conquer.
- Describe how computers represent data (binary, encoding, compression).
- Analyze a simple text or numeric dataset with Python and build a basic classifier.
- Discuss ethical and societal issues related to computing and AI.
- Demonstrate integrated programming skill by writing and explaining working Python code independently under exam conditions.

Marketable Skills

Students will develop:

- **Problem-Solving and Critical Thinking:** breaking problems into steps, designing algorithms, debugging.
- **Technical Literacy:** Python programming, algorithmic thinking, and data representation.
- **Ethical Awareness:** understanding privacy, bias, and societal impacts of technology.
- **Communication Skills:** explaining computing concepts in simple terms, in writing and in code comments.
- **Adaptability with Emerging Tech:** awareness of AI, data science, and evolving applications.

Course Assignments and Grading

Assignment Type	% of Final Grade	Description
Weekly Assignments (12)	60%	Applied coding and reflection exercises that build each week (5% each). Each week combines a short program with a brief written response, submitted on Blackboard. These are practice; the in-class assessments below are where you show what you can do on your own.
Quizzes (2)	10%	Short in-class quizzes in Weeks 4 and 12 (5% each). Closed-book, no devices.
Midterm Exam	10%	In class, Mon Oct 19 (Week 9). Closed-book, no devices. Covers Weeks 1 to 8: reading, tracing, and writing short Python programs, plus core computer science concepts.
Final Practicum	20%	A closed-book, in-person programming exercise on Fri Dec 4 in Room 116, on paper or on classroom machines. No devices, notes, or AI tools. You will write and explain working Python code that integrates the semester: functions, loops, strings, files, lists, dictionaries, and a short concept section on algorithms and data representation.
Total	100%	

Grading Scale:

A: 90 to 100 B: 80 to 89 C: 70 to 79 D: 60 to 69 F: below 60

Late Assignment Statement:

Assignments are due by 11:59 PM on the posted due date. Late submissions are accepted up to 48 hours past the deadline with a 10% deduction per day. Work submitted more than 48 hours after the due date will not be accepted unless prior arrangements have been made with the instructor for extenuating circumstances. Quizzes, the midterm exam, and the final practicum are given in class and cannot be made up without prior arrangement.

Attendance and Participation:

Programming is learned by doing, and much of that doing happens in class. Please attend, bring a laptop if you have one, and let me know in advance if you must miss a session. Repeated unexcused absences will affect your ability to complete the in-class quizzes, midterm exam, and final practicum.

Grading Rubrics**Weekly Assignments (60% of grade), rubric for each assignment:**

- Understanding of Concept (clear, correct, thoughtful): 25%
- Application and Examples (program works, meaningful examples): 35%
- Clarity and Organization (code is readable, structured, commented): 20%
- Completion (all requirements met, work is your own, AI use disclosed if any): 20%

Midterm Exam and Final Practicum (30% of grade combined), rubric:

- Correctness (code produces the required result; concept answers are accurate): 50%
- Approach and Reasoning (sensible use of loops, functions, and data structures; partial credit for a correct plan): 25%
- Explanation (comments or short answers show you understand what your code does): 15%
- Clarity (readable code, meaningful names, organized work): 10%

Course Schedule

Conery chapter numbers refer to the Python edition of Explorations in Computing. The schedule may be adjusted; changes will be announced in class and on Blackboard.

Week	Dates	Topic	Notes: content, readings, AI connection, deliverables
1	Aug 24 - 30	Course Introduction: What Is Computer Science?	Why program? Users vs. programmers, what code is, hardware architecture and the fetch-execute cycle, Python as a translator, first conversation with the interpreter, and a preview of sequential, conditional, and repeated steps. Syllabus, tools, and the course AI policy in plain terms. AI connection: where artificial intelligence sits inside computer science and how it will thread through the semester. Deliverable: setup check, run a first program and upload your notebook. Due Sunday, August 30, 11:59 PM. Credit / no credit, outside the 12 numbered assignments.
2	Aug 31 - Sep 6	Variables, Expressions, and Statements	Values, types, variables, operators, expressions, input and output. AI connection: programs are the recipes

Week	Dates	Topic	Notes: content, readings, AI connection, deliverables
			behind chatbots; ask a chatbot for a Python expression and verify the result by hand. (Conery Ch. 2) Assignment 1.
3	Sep 7 - 13	Conditional Execution	Boolean expressions, if / elif / else, nested and chained conditionals, try / except. AI connection: rule-based decision making; build a tiny decision-tree classifier with conditionals. Assignment 2. Note: Labor Day, Mon Sep 7, no classes.
4	Sep 14 - 20	Functions	Built-in functions, defining functions, parameters and arguments, return values, why functions matter. AI connection: abstraction, how a predict() function hides an entire model. Assignment 3. Quiz 1 (in class, Weeks 2 to 4).
5	Sep 21 - 27	Loops and Iteration; the Sieve of Eratosthenes	while and for loops, loop patterns (counting, summing, max/min), the Sieve as a first real algorithm. AI connection: iteration is how models train, repeat, measure, adjust. (Conery Ch. 3) Assignment 4: Prime Finder.
6	Sep 28 - Oct 4	Strings; Iteration as a Problem-Solving Strategy	Indexing, slicing, string methods, parsing text; stepwise refinement of an iterative solution. AI connection: tokenization, splitting text into words the way an NLP pipeline does. (Conery Ch. 4) Assignment 5: Prime Search Tool and word counter.
7	Oct 5 - 11	Files	Opening, reading, and searching files; processing real data from disk. AI connection: every model starts with a dataset on disk; read a small CSV of text or numbers. Assignment 6.
8	Oct 12 - 18	Lists	Lists as sequences, mutability, list methods, splitting lines into words, lists and files together. AI connection: data as sequences; build a bag-of-words from a text file. Assignment 7. Midterm review.
9	Oct 19 - 25	Midterm Exam; Dictionaries and a Machine Learning Spam Filter	Midterm exam Mon Oct 19 (in class, closed-book, Weeks 1 to 8). Wednesday: key-value lookup, counting with dictionaries, the word-frequency program in full. Conery's naive Bayes spam filter is the first real machine learning program of the course. AI connection: word counts become probabilities, probabilities become predictions. (Conery Ch. 6) Assignment 8: Spam or Ham.

Week	Dates	Topic	Notes: content, readings, AI connection, deliverables
10	Oct 26 - Nov 1	Tuples; Sorting, Searching, and Divide and Conquer	Tuples, sorting with tuples, comparing lists and tuples; linear vs. binary search and why splitting a problem in half is powerful. AI connection: why algorithm efficiency matters at data-center scale. (Conery Ch. 5) Assignment 9.
11	Nov 2 - 8	Recursion Basics	Base cases, recursive calls, tracing recursion, recursion vs. iteration. AI connection: recursion in tree search and game playing; tic-tac-toe minimax demo. (Conery Ch. 5; supplementary handout on Blackboard) Assignment 10. Note: last day to drop with a W, Fri Nov 6.
12	Nov 9 - 15	Data Representation	Bits, bytes, binary and hexadecimal, character encoding, an introduction to compression and error detection. AI connection: how images and text become numbers, and why language models see tokens rather than words. (Conery Ch. 8) Assignment 11. Quiz 2 (in class, Weeks 9 to 12).
13	Nov 16 - 22	Ethics and Society: Bias, Privacy, and Fairness	Does the program understand? Conery's ELIZA compared with today's language models; algorithmic bias case study; privacy and data collection. Reflection draws on the classifier students built in Week 9. (Conery Ch. 10; readings and case studies provided on Blackboard) Assignment 12: short written reflection.
14	Nov 23 - 24	Explorations: Genetic Algorithms, Data Science, and What Comes Next	Evolutionary search demo (Conery Ch. 12); a short data-visualization demo as a preview of data science; how this course connects to CS II, Data Structures, and SRSU's AI courses. No new assignment. Thanksgiving holiday Wed Nov 25 through Fri Nov 27, no classes.
15	Nov 30 - Dec 2	Semester Review and Practicum Preparation	Structured review of the full semester with a practice practicum worked in class under exam conditions. Wed Dec 2 is the last class day. Dead day Thu Dec 3.
Finals	Dec 4, 7 - 9	Final Practicum	Fri Dec 4: closed-book, in-person programming practicum in Room 116. Mon Dec 7 to Wed Dec 9: no further work; grades finalized.

ADA Statement

SRSU Accessibility Services. Sul Ross State University (SRSU) is committed to equal access in compliance with the Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. Students seeking accessibility/accommodations services must contact Mrs. Mary Schwartz Grisham, LPC, SRSU's Accessibility Services Director, or Ronnie Harris, LPC,

Counselor, at 432-837-8203 or email mschwartz@sulross.edu or ronnie.harris@sulross.edu. RGC students can also contact Alejandra Valdez at 830-758-5006 or email alejandra.valdez@sulross.edu. Our office is located on the first floor of Ferguson Hall, room 112, and our mailing address is P.O. Box C122, Sul Ross State University, Alpine, Texas, 79832.

Student Responsibilities Statement

All full-time and part-time students are responsible for familiarizing themselves with the Student Handbook and the Undergraduate & Graduate Catalog and for abiding by the University rules and regulations. Additionally, students are responsible for checking their Sul Ross email as an official form of communication from the university. Every student is expected to obey all federal, state, and local laws and is expected to become familiar with the requirements of such laws.

SRSU Distance Education Statement

Students enrolled in distance education courses have equal access to the university's academic support services, such as library resources, online databases, and instructional technology support. For more information about accessing these resources, visit the SRSU website.

Students should correspond using Sul Ross email accounts and submit online assignments through Blackboard, which requires a secure login. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies pertaining to academic honesty and appropriate student conduct, as described in the student handbook. Students in web-based courses must maintain appropriate equipment and software, according to the needs and requirements of the course, as outlined on the SRSU website. Directions for filing a student complaint are located in the student handbook.

Counseling

Sul Ross has partnered with TimelyCare, where all SR students have access to nine free counseling sessions. You can learn more about this 24/7/365 support by visiting [TimelyCare/SRSU](https://www.timelycare.com/srsu). The SR Counseling and Accessibility Services office will continue to offer in-person counseling in Ferguson Hall room 112 (Alpine campus), and telehealth Zoom sessions for remote students and RGC students.

Libraries

The Bryan Wildenthal Memorial Library and Archives of the Big Bend in Alpine offer FREE resources and services to the entire SRSU community. Access and borrow books, articles, and more by visiting the library's website, library.sulross.edu. Off-campus access requires logging in with your LoboID and password. Librarians are a tremendous resource for your coursework and can be reached in person, by email (srsulibrary@sulross.edu), or by phone (432-837-8123).

No matter where you are based, public libraries and many academic and special libraries welcome the general public into their spaces for study. SRSU TexShare Cardholders can access additional services and resources at various libraries across Texas. Learn more about the TexShare program by visiting library.sulross.edu/find-and-borrow/texshare/ or ask a librarian by emailing srsulibrary@sulross.edu.

Mike Fernandez, SRSU Librarian, is based in Eagle Pass (Building D-129) to offer specialized library services to students, faculty, and staff. Utilize free services such as InterLibrary Loan (ILL), ScanIt, and Direct Mail to get materials delivered to you at home or via email.

Academic Integrity

Students in this class are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. Students should submit work that is their own and avoid the temptation to engage in behaviors that violate academic integrity, such as turning in work as original that was used in whole or part for another course and/or professor; turning in another person's work as one's own; copying from professional works or internet sites without citation; or collaborating on a course assignment, examination, or quiz when collaboration is forbidden. Use of generative AI tools is governed by the course AI policy below. Violations of academic integrity can result in failing assignments, failing a class, and/or more serious university consequences. These behaviors also erode the value of college degrees and higher education overall.

Classroom Climate of Respect

Importantly, this class will foster free expression, critical investigation, and the open discussion of ideas. This means that all of us must help create and sustain an atmosphere of tolerance, civility, and respect for the viewpoints of others. Similarly, we must all learn how to probe, oppose, and disagree without resorting to tactics of intimidation, harassment, or personal attack. No one is entitled to harass, belittle, or discriminate against another on the basis of race, religion, ethnicity, age, gender, national origin, or sexual preference. Still, we will not be silenced by the difficulty of fruitfully discussing politically sensitive issues.

Supportive Statement

I aim to create a learning environment for my students that supports various perspectives and experiences. I understand that economic disparity, health concerns, or unexpected life events may impact the conditions necessary for you to succeed. My commitment is to be there for you and help you meet the learning objectives of this course. I do this to demonstrate my commitment to you and to the mission of Sul Ross State University to create a supportive environment and care for the whole student as part of the Sul Ross Familia. If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. I want to be a resource for you.

Use of Generative Artificial Intelligence (AI)

University Statement (required):

The University does not recommend or endorse any specific AI tools or resources. Students should be aware that many generative AI tools (e.g., ChatGPT, Google Gemini, Microsoft Copilot) store user input and may use this data to train future models. For this reason, students should never upload or share personal, confidential, or identifiable information, such as names, ID numbers, health data, or assignment submissions containing such details, into any generative AI platform. When using AI tools, students should verify whether the tool complies with student privacy standards as indicated by the University. Faculty may recommend specific tools that better align with institutional data privacy policies, but ultimate responsibility for data protection rests with users. Students are encouraged to use faculty-recommended platforms when engaging in coursework involving generative AI. The University is not liable for any adverse experience or impact when students interact with these tools.

Course Policy: Generative AI is permitted in specific contexts and with acknowledgment.

Generative AI tools may be useful for brainstorming ideas, exploring possible approaches to problems, and receiving feedback on your own work. In this course, students shall give credit to AI tools whenever they are used, even if only to generate ideas rather than usable text or code. When using AI tools on

assignments, add a brief appendix identifying (a) which AI tools were used, (b) how they were used (e.g., to generate ideas, debug code, clarify a concept), and (c) why they were used. All submitted code and written work must be your own; submitting AI-generated work as your own, or failing to acknowledge the use of generative AI tools, is a violation of university policy and will be treated as academic dishonesty. Students shall not use AI tools during in-class quizzes, the midterm exam, the final practicum, or on specific assignments where their use is expressly prohibited. Because this is a first course, some assignments will ask you to work without AI so that you build the skills yourself; those assignments will be clearly labeled. If you are unsure whether a particular use of AI is acceptable, please ask before submitting.

Some weeks will also use AI tools deliberately as objects of study (for example, comparing a 1960s chatbot with a modern language model, or checking a chatbot's Python by hand). You will be told when and how these tools are used in class.