

Python for Everyone CS 22A

Fall 2026 Section 02 In Person 3 Unit(s) 08/19/2026 to 12/07/2026 Modified 08/17/2026

Contact Information

Instructor's Contact and Office Hours

- **Instructor:** Dr. Wendy Lee (wendy.lee@sjsu.edu) (<mailto:wendy.lee@sjsu.edu>)
- **Office Hours:** Monday/Wednesday 1:30 - 2:30 PM (MH 413)

Class Schedule

- M/W 9 am -10:15 am in MH 422

TA Tutoring Sessions

- Schedule an appointment through [Spartan Connect Student Home page](https://sjsu.campus.eab.com/) (<https://sjsu.campus.eab.com/>) (<https://sjsu.campus.eab.com/>) (<https://sjsu.campus.eab.com/>)

Course Description and Requisites

Introduction to Python programming in interesting, relevant, and practical contexts. Programming skills are developed to solve problems in such fields as life sciences, mathematics, and business. Fundamental programming constructs: data structures and algorithms, iterations, and functions. Course is intended for students who have no prior programming experience.

Satisfies 2. Mathematical Concepts and Quantitative Reasoning (Formerly Area B4).

Corequisite(s): CS 1022AS is required for Math Enrollment Category M-III and M-IV.

Grading: Letter Graded

Program Information

Welcome to this General Education course.

SJSU's General Education Program establishes a strong foundation of versatile skills, fosters curiosity about the world, promotes ethical judgment, and prepares students to engage and contribute responsibly and cooperatively in a multicultural, information-rich society. General education classes integrate areas of study and encourage progressively more complex and creative analysis, expression, and problem solving.

The General Education Program has three goals:

Goal 1: To develop students' core competencies for academic, personal, creative, and professional pursuits.

Goal 2: To enact the university's commitment to diversity, inclusion, and justice by ensuring that students have the knowledge and skills to serve and contribute to the well-being of local and global communities and the environment.

Goal 3: To offer students integrated, multidisciplinary, and innovative study in which they pose challenging questions, address complex issues, and develop cooperative and creative responses.

More information about the General Education Program Learning Outcomes (PLOs) can be found on the [GE website \(https://sjsu.edu/general-education/ge-requirements/overview/learning-outcomes.php\)](https://sjsu.edu/general-education/ge-requirements/overview/learning-outcomes.php).

Course Learning Outcomes (CLOs)

GE Area 2: Mathematical Concepts and Quantitative Reasoning

Mathematical Concepts and Quantitative Reasoning courses enable students to use numerical and graphical data in personal and professional judgments and in understanding and evaluating public issues. Completion of Area 2 with a grade of C- or better is a CSU graduation requirement.

Area 2 courses help students understand information requiring quantitative analysis and how to use and analyze quantitative arguments. Completion of Area 2 with a minimum grade of C- is a CSU graduation requirement.

GE Area 2 Learning Outcomes

Upon successful completion of an Area 2 course, students should be able to:

1. Use mathematical methods to solve quantitative problems, including those presented in verbal form;
2. Interpret and communicate quantitative information using language appropriate to the context and intended audience;
3. Reason, model, draw conclusions, and make decisions based on numerical and graphical data; and
4. Apply mathematical or quantitative reasoning concepts to solve real life problems.

Writing requirement

The minimum writing requirement for Area 2 courses is 500 words in a language and style appropriate to the discipline.

Program Learning Outcomes (PLO) for BS Data Science

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

- **PLO 1.** Analyze a complex problem involving large datasets and apply principles of computing and other relevant disciplines to identify solutions.

Course Learning Outcomes (CLO)

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

- **CLO 1.** Explain fundamental programming constructs such as assignments, sequential operations, iterations, conditionals, and defining functions in Python.
- **CLO 2.** Use basic mathematical techniques for solving quantitative problems.
- **CLO 3.** Apply fundamental programming construct and mathematical concepts in solving real-world problems.
- **CLO 4.** Use Python libraries to explore and analyze data.
- **CLO 5.** Interpret data visualization and summary statistics in the context of a particular problem.

Course Materials

Required Textbooks:

- **Practical Statistics for Data Scientists (PSDS): 50+ Essential Concepts Using R and Python** by Peter Bruce, Andrew Bruce, and Peter Gedeck. ISBN-13: 978-1492072942 / ISBN-10: 149207294X (a copy is provided in the Canvas course shell for your personal use).
- **Zybook** (**DO NOT go to the zyBook website to create a new account**). Follow the steps below to obtain the book:
 1. Click on the Zybook HW 1 assignment link under Python Programming Exercises in Canvas
 2. Subscribe.

Pre-class Video Lessons:

They can be accessed directly through Canvas. These are short videos (usually 1 to 3 minutes long) that present 1 to 2 ideas followed by a few questions. These videos cover all the class topics.

Other technology requirements / equipment / material:

Students will need a personal laptop with a Wi-Fi connection. For the programming environment, we will be using Google Colab with Chrome or any supported web browser.

Course Requirements and Assignments

The course will consist of pre-class video lectures, in-class lectures, programming assignments, hands-on exercises, in-class quizzes, a term project, two midterm exams, and a final exam. **All midterm and final exams are conducted in person.**

- **Pre-class video lectures:** Students should watch the assigned pre-class video lectures and complete the questions in Canvas.
- **Hands-on exercises:** After each lecture, students will be assigned a group partner to complete an in-class hands-on exercise during class, and it must be turned in before the end of class through Canvas unless the instructor grants an exception.
- **Python Programming Practice (Zybook Assignments):** Programming assignments will be assigned within the Zybook platform. Students must complete the assigned questions and submit them by the due date. Students are welcome to work on unassigned questions, but those will not count toward the final grade.
- **Quizzes:** Quizzes will be given during class to assess the level of understanding of the course materials.

- **Term Project:** There will be a programming group project. Each group consists of two students. Information on the term project, including topics and deadlines, will be given later in the semester.
- **Midterm Exams:** There will be two in-class midterm exams. Success on the midterm exams will indicate mastery of the associated materials. No make-up exams will be given unless proper documentation of an emergency is provided.
- **Final Exam:** There will be a comprehensive final exam.

Course Policies

Incomplete Work: Points will be deducted for incomplete question responses and solutions that are partially functional. Consult individual assignments for details of point allocation for each problem.

Late Assignments: No late assignment will be accepted. However, under exceptional circumstances, one assignment per student might be accepted late. It will need to be handed in before the following class meeting and will be graded with 30% off. Students should request such an extension from the instructor.

Makeup Exams: Makeup exams will only be given in cases of illness (documented by a doctor) or in cases of documentable, extreme emergencies.

Academic Honesty: Students must only submit their own work for all quizzes, assignments, exams, and projects. Copying and any other form of cheating will not be tolerated and will result in a failing grade for the assignment and the course, as well as disciplinary consequences from the university.

✓ Grading Information

University Credit Hour Requirement

Success in this course is based on the expectation that you will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation, and studying. Plan on spending at least 7 hours per week outside of lecture time engaging with the course material.

Grading Information for GE:

For Fulfillment of Area B4: this course must be passed with a C minus or better as a CSU graduation requirement.

Grading Information:

- Pre-class Video Lessons (5%)
- Python Programming Practice - Zybook Assignments (15%)
- In-class Hands-on Exercises (10%)
- Quizzes (10%)
- Team Project (20%)
- Midterm Exams (20%)
- Final Exam (20%)

Grade Scale:

A plus	100 to 97.0
A	96.9 to 93.0
A minus	92.9 to 90.0
B plus	89.9 to 87.0
B	86.9 to 82.0
B minus	81.9 to 80.0
C plus	79.9 to 77.0
C	76.9 to 72.0
C minus	71.9 to 70.0
D plus	69.9 to 67.0
D	66.9 to 62.0
D minus	61.9 to 60.0
F	59.9 or lower

University Policies

Per [University Policy S16-9 \(PDF\)](http://www.sjsu.edu/senate/docs/S16-9.pdf) (<http://www.sjsu.edu/senate/docs/S16-9.pdf>), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on the [Syllabus Information](https://www.sjsu.edu/curriculum/courses/syllabus-info.php) (<https://www.sjsu.edu/curriculum/courses/syllabus-info.php>) web page. Make sure to visit this page to review and be aware of these university policies and resources.

Course Schedule

The course schedule is subject to change with fair notice. Changes will be announced on Canvas.

PSDS - Textbook: Practical Statistics for Data Scientists, **VA** - Pre-class Video Assignment

Date	Reading/Video Assignment	Topics
8/19	Syllabus	Syllabus, Course Expectations, Introduction to Google Colab
8/24 8/26		Introduction to Python Programming
8/31 9/2	VA : Intro to Statistical Research Methods PSDS : Ch.1, p.7-13,29 VA : Central Tendency	String, Lists, Sets, Tuple, and Dictionaries, Pandas Dataframe and Series

9/7(no class) 9/9	PSDS: Ch.2, p.13-19 VA: Variability & Standardizing	Introduction to Statistical Research Process Central Tendency
9/14 9/16	PSDS: Ch.2, p.69-71 VA: Normal Distribution	Measures of Variability Normal Distribution and Standardized Scores
9/21 9/23	PSDS: Ch.2, p.57-61 VA: Sampling Distribution	Midterm Exam 1 (9/21) Loops and Conditional Statement Visualizing Data with Graphs
9/28 9/30		Sampling Distribution and Standard Error
10/5 10/7	PSDS: Ch.2, p.65-68 VA: Estimation	Writing User-Defined Functions
10/12 10/14		Estimation (Confidence Intervals) Margin of Error
10/19 10/21	PSDS: Ch.3, p.93-96 VA: Hypothesis Testing	Midterm Exam 2 (10/21)
10/26 10/28		Hypothesis Testing
11/2 11/4	PSDS: Ch.3, p.110-112 VA: t-Tests	t-Tests to Compare Means
11/9 11/11(no class)	PSDS: Ch.1, p.30-36 Ch.4, p.141-150 VA: Correlation. Regression	t-Tests to Compare Means
11/16 11/18		Correlation
11/23 11/25(no class)		Regression
11/30 12/2		Project Presentations
12/7		Review
12/14	Final Exam – Monday, 12/14, 8:30 AM - 10:30 AM in MH 422.	Final Exam