

STAT 1129.10 - Introduction to Computing (2024 Fall)

Course Information

- **Course Name:** Introduction to Computing, STAT 1129
- **Meeting Time:** Monday and Wednesday 6:10 PM – 7:25 PM
- **Location:** PHIL B156
- **Course Prerequisites:** None

Instructor Information

- **Name:** Zhou Yang
- **Email:** zhou_yang@gwu.edu
- **office Hours:** Tuesday 4:00 PM – 5:00 PM
- **Remote Office Hour Link:** Zoom Meeting by appointment

Teaching Assistant Information

- **Name:** Juntao Su
- **Email:** sujuntao@gwu.edu
- **Office:** Rome 753
- **Office Hours:** Wednesday 3:00 PM – 4:00 PM

Course Grading

Course Grading:	Weight	Details
Homework	30%	<ul style="list-style-type: none">• Six individual homework assignments.• Due dates: 1.Sept. 18; 2.Oct. 9; 3.Oct. 23; 4. Oct. 30; 5. Nov. 6; 6. Nov. 20.• You can drop the lowest one.
Pop-up Quiz	50%	<ul style="list-style-type: none">• Three quizzes will be released & collected in the class.• You can drop the lowest one.• There are no make-up opportunities if missed any quiz, unless asked for leave ahead of time.• Tentative quiz schedule: 1.Sept. 30; 2.Oct. 28; 3. Dec. 2;• Please mark these dates in your calendar
Final Project	20%	<ul style="list-style-type: none">• Teamwork, form a 2-member team, will release in the class.• Presentation is scheduled on Dec. 9 (in class)

Note: Average minimum amount of out-of-class or independent learning expected per week: 8 hours.

Grading Scale

[94, 100] A

[90, 94) A-

[87, 90) B+

[83, 87] B

[80, 83) B-
[77, 80) C+
[73, 77] C
[70, 73) C-
[67, 70) D+
[63, 67] D
[60, 63) D-
<60 F

Course Websites and Instructions

- **Blackboard:** Assignments, announcements, and class materials will be posted here. Check **Blackboard** frequently.
- **Class Format:** In-person. Attendance is mandatory.
- **Materials:** Slides and lecture recordings will be available on Blackboard post-class.
- **Course Description:** This course introduces basic programming skills and practical data analysis using Python and R. Students will learn software installation, generic programming concepts, data handling, function writing, debugging, and data visualization.

Learning Outcomes

By the end of this course, students will be able to:

- Explain and use basic programming concepts.
- Construct and execute basic programs in Python and R.
- Design and implement basic algorithms in Python and R.
- Utilize external libraries and packages in Python and R.
- Perform statistical calculations using Python and R.
- Visualize data and statistical results graphically.

Reference Books

- Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython, 2nd Edition, by Wes McKinney. ISBN-13: 978-1491957660; ISBN-10: 1491957662. Electronic version is freely available <https://www.programmer-books.com/wp-content/uploads/2019/04/Python-for-Data-Analysis-2nd-Edition.pdf>
- R in Action: Data Analysis and Graphics with R, 2nd edition by Robert I. Kabacoff, Rob Kabacoff. ISBN: 1617291382; ISBN-13: 9781617291388. Electronic version is freely available: http://www.cs.uni.edu/~jacobson/4772/week11/R_in_Action.pdf

Course Topic Schedule (Tentative)

Part I – Introduction to Python:

- Simple input and output
- Main program structure

- Conditional statements (if-statement)
- Logical operators
- Loops
- Functions, parameters, and return values
- Data structures: Lists, Strings, Dictionaries
- NumPy basics: arrays, operations, indexing
- Mathematical and statistical methods
- Sorting algorithms
- Data loading and storage
- Basics of program design
- Exception handling
- Classes and objects
- Visualization

Part II- Introduction to R (Tentative):

- The RStudio editor, installation, and configuration
- Basic language elements and data structures
- Data input/output and storage formats
- Introduction to plotting
- Data manipulation
- Control structures
- Statistical simulation
- R as a statistical platform

University Policies

- **Academic Integrity Code:** Academic integrity is an essential part of the educational process, and all members of the GW community take these matters very seriously. As the instructor of record for this course, my role is to provide clear expectations and uphold them in all assessments. Violations of academic integrity occur when students fail to cite research sources properly, engage in unauthorized collaboration, falsify data, and otherwise violate the [Code of Academic Integrity](#). If you have any questions about whether or not particular academic practices or resources are permitted, you should ask me for clarification. If you are reported for an academic integrity violation, you should contact the Office of Student Rights and Responsibilities (SRR) to learn more about your rights and options in the process. Consequences can range from failure of assignment to expulsion from the university and may include a transcript notation. For more information, please refer to the SRR website (<https://studentconduct.gwu.edu/academic-integrity>), email rights@gwu.edu, or call 202-994-6757.
- **University policy on observance of religious holidays:** Students must notify faculty during the first week of the semester in which they are enrolled in the course, or as early as possible, but no later than three weeks prior to the absence, of their intention to be absent from class on their day(s) of religious observance. If the holiday falls within the first three weeks of class, the student must inform faculty in the first week of the semester. For details and policy, see “Religious Holidays” at provost.gwu.edu/policies-procedures-and-guidelines.
- **Use of Electronic Course Materials and Class Recordings:** Use of Electronic Course Materials and Class Recordings Students are encouraged to use electronic course materials, including recorded class sessions, for private personal use in connection with their academic program of

study. Electronic course materials and recorded class sessions should not be shared or used for non-course related purposes unless express permission has been granted by the instructor. Students who impermissibly share any electronic course materials are subject to discipline under the Student Code of Conduct. Please contact the instructor if you have questions regarding what constitutes permissible or impermissible use of electronic course materials and/or recorded class sessions. Please contact Disability Support Services at disabilitysupport.gwu.edu if you have questions or need assistance in accessing electronic course materials.

Academic Support

- **Academic support Writing Center:** GW's Writing Center cultivates confident writers in the University community by facilitating collaborative, critical, and inclusive conversations at all stages of the writing process. Working alongside peer mentors, writers develop strategies to write independently in academic and public settings. Appointments can be booked online at gwu.mywconline.
- **Academic Commons:** Academic Commons provides tutoring and other academic support resources to students in many courses. Students can schedule virtual one-on-one appointments or attend virtual drop-in sessions. Students may schedule an appointment, review the tutoring schedule, access other academic support resources, or obtain assistance at academiccommons.gwu.edu.Support for Students Outside the Classroom
- **Disability Support Services (202-994-8250):** Any student who may need an accommodation based on the potential impact of a disability should contact Disability Support Services at disabilitysupport.gwu.edu to establish eligibility and to coordinate reasonable accommodations.
- **Counseling and Psychological Services (202-994-5300):** GW's Colonial Health Center offers counseling and psychological services, supporting mental health and personal development by collaborating directly with students to overcome challenges and difficulties that may interfere with academic, emotional, and personal success. healthcenter.gwu.edu/counseling-and-psychological-services.

Safety and Security

- In an emergency: call GWPD 202-994-6111 or 911
- For situation-specific actions: review the Emergency Response Handbook at: safety.gwu.edu/emergency-response-handbook
- In an active violence situation: Get Out, Hide Out, or Take Out. See go.gwu.edu/shooterpret
- **Stay informed:** safety.gwu.edu/stay-informed