

DATS 1001: Data Science for All

Syllabus for Spring 2026

Class Info

Time: Tues Thurs 11:10 - 12:15

Office Hours: Tuesdays 1-3

Additional office hours available by appointment

Instructor Info

Instructor: Angelica M. Walker, Ph.D.

Office: Samson Hall Room 307

Email: angelica.walker@gwu.edu

Course Overview

This course introduces undergraduate students basic techniques and applications of data science, aimed for students of any background at GW. This includes the basics of data manipulation and data visualization, where students will learn to organize, clean, and transform datasets to prepare them for analysis and the best practices for visual representations of data. Students will gain a comprehensive understanding of programming in R, including basic syntax, the use of R packages, and implementation of Quarto. Key topics include linear, multiple, and logistic regression, as well as statistical topics such as hypothesis testing, uncertainty, and sampling. Students will apply these models and methods to real-world data and learn how to make informed decisions. At the end of the course, students will have a base understanding of data science methods and be capable of advancing their understanding through additional courses in the GW Data Science Program.

Learning Outcomes

Successful students will:

- develop proficiency in R Programming
- master data visualization techniques
- apply data wrangling techniques
- understand and implement statistical models
- conduct hypothesis testing and interpret results

Schedule

Class Date	Lecture Topic	Quiz	Assignments
T January 13	Foundations of Data Science		
Th January 15			
T January 20			
Th January 22			Lab 1 Due Jan 23
T January 27	Data Visualization	Quiz 1	
Th January 29			Coding Assignment 1 Due
T February 3			Lab 2 Due Feb 4
Th February 5	Data Wrangling	Quiz 2	
T February 10			
Th February 12			
T February 17			
Th February 19			Lab 3 Due Feb 20
T February 24	Exploratory Data Analysis	Quiz 3	
Th February 26			Coding Assignment 2 Due
T March 3			
Th March 5			
March 10,12	Spring Break Break, No Class		
T March 17	Exploratory Data Analysis		Lab 4 Due March 18
Th March 19	Statistical Inference	Quiz 4	
T March 24			Coding Assignment 3 Due
Th March 26			Lab 5 Due March 27
T March 31	Modeling Data	Quiz 5	
Th April 2			
T April 7			
Th April 9			
T April 14			
Th April 16			
T April 21			Lab 6 Due April 22
Th April 23		Quiz 6	Coding Assignment 4 Due
TBD	Final Exam Day, No Class		Final Project Due

**This schedule is subject to change.*

Evaluation

Category	Percentage
Quizzes (Best 4 Scores)	15%
Labs (6) (Submission) (Lab Attendance)	25% (15%) (10%)
Coding Assignments (3)	30%
Final Project (1)	30%

Students will be evaluated by quizzes at the end of each subject of instruction. There will be six quizzes in total, but only the top four scores will be used for grading. Two of the lowest quiz grades will be dropped at the end of the semester. These quizzes account for 15% of the final grade and are designed to be simple and completed within five to ten minutes. The six in-class labs may be completed in small groups no larger than three students within the same section and accounts for 25% of the final grade. The lab grade contains two components, the lab file submitted on Blackboard and the attendance during class when we are working on the lab. 15% of the final grade is based on the submitted assignment and is graded for accuracy, 10% of the final grade is based on attendance. These labs are due at 11:59 pm on the dates given above. There are four coding assignments, but only the top three scores will account for 30% of the final grade and must be completed alone. These are due at 11:59 pm on the dates given above. There is no final exam, a final project worth 25% of the final grade will be due on the final exam day. This final project must be completed alone.

Course Policies

Work Load

This 3-credit course includes 2.5 hours of instructional time and 5-10 hours of independent learning per week. **No textbook is required for this course**, however short readings may be made available via Blackboard.

Attendance

Attendance is required, make-up quizzes will not be available if missed, and lab attendance is a component of the final grade. I strongly recommend coming to class every day.

Late Assignments

Assignments will be penalized by 20% each day it is late, up to 5 days. No partial credit is given for assignments submitted 5 days after the deadline. Extensions may be granted under extenuating circumstances if requested in advance.

Generative Artificial Intelligence

By submitting work for evaluation in this course, you represent it as your own intellectual product. You may not submit for evaluation any content (e.g., ideas, text, code, images) that was generated, in whole or in part, by Generative Artificial Intelligence tools (including, but not limited to, ChatGPT and other large language models). Doing so in this course constitutes cheating under the [George Washington University Code of Academic Integrity](#). Additionally, the instructor does not consent for any course materials to be used as input or training data for Generative Artificial Intelligence tools unless explicitly specified.

Data Science Help Desk

Visit the Data Science Helpdesk for technical assistance, available to undergraduate and graduate students in the program, or taking our DATS classes. Technical support is available throughout the semester in Room 304, Samson Hall. For current schedule, please visit the <https://dats.columbian.gwu.edu/>. You can also schedule a remote support session by sending an email to ds-helpdesk@gwu.edu.

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 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 Conflict Education and Student Accountability (CESA), formerly known as 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, refer to the CESA website at students.gwu.edu/code-academic-integrity or contact CESA by email cesa@gwu.edu or phone 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 provost.gwu.edu/policies-procedures-and-guidelines.

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. Contact the instructor if you have questions regarding what constitutes permissible or impermissible use of electronic course materials and/or recorded class sessions. Contact Disability Support Services at disabilitysupport.gwu.edu if you have questions or need assistance in accessing electronic course materials.

Academic Commons

Academic Commons is the central location for academic support resources for GW students. To schedule a peer tutoring session for a variety of courses visit go.gwu.edu/tutoring. Visit academiccommons.gwu.edu for study skills tips, finding help with research, and connecting with other campus resources. For questions email academiccommons@gwu.edu.

GW Writing Center

GW 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 writingcenter.gwu.edu/appointments.

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.

Student Health Center (202-994-5300, 24/7)

The Student Health Center (SHC) offers medical, counseling/psychological, and psychiatric services to GW students. More information about the SHC is available at healthcenter.gwu.edu. Students experiencing a medical or mental health emergency on campus should contact GW Emergency Services at 202-994-6111, or off campus at 911.

GW Campus Emergency Information

GW Emergency Services: 202-994-6111

For situation-specific instructions, refer to GW's Emergency Procedures guide.

GW Alert

GW Alert is an emergency notification system that sends alerts to the GW community. GW requests students, faculty, and staff maintain current contact information by logging on to alert.gwu.edu. Alerts are sent via email, text, social media, and other means, including the Guardian app. The Guardian app is a safety app that allows you to communicate quickly with GW Emergency Services, 911, and other resources. Learn more at safety.gwu.edu.

Protective Actions

GW prescribes four protective actions that can be issued by university officials depending on the type of emergency. All GW community members are expected to follow directions according to the specified protective action. The protective actions are Shelter, Evacuate, Secure, and Lockdown. Learn more at safety.gwu.edu/gw-standard-emergency-statuses.