THE GEORGE WASHINGTON UNIVERSITY

Department of Statistics

STAT 2118: Regression Analysis

SYLLABUS

Course and Contact Information

Course: STAT 2118-10 Regression Analysis (CRN: 52754)
Semester: Fall 2026
Meeting time: Tuesday and Thursday, 12:45 – 2:00pm
Location: 1957 E St, Room 113
Recitation: Register for one recitation section

Instructor

Name: Joshua Landon
Campus Address: Rome Hall, Room 756
Phone: 202-994-7851
E-mail: jlandon@gwu.edu
Office hours: 11:30am – 12:30pm, and 2:30 – 3:30pm on Tuesday and Thursday, and by appointment, either in person or remotely at https://gwu-edu.zoom.us/j/3217834899

Teaching Assistants

Xingyi Dai (30) xingyu.dai@gwu.edu
Yi Liu (31, 32) yil@gwu.edu

Bulletin Course Description

Simple and multiple linear regression, partial correlation, residual analysis, stepwise model building, multicollinearity and diagnostic methods, indicator variables.

Course prerequisites

An introductory statistics course: Stat 1051, Stat 1053, Stat 1111, or equivalent.

Learning Outcomes:

As a result of completing this course, students will be able to:

1. Understand basic concepts of correlation, regression, model diagnostics and model building.
2. Fit and interpret regression models and apply them in various fields (e.g. Finance, Economics).
3. Analyze and interpret regression data using R.
4. Compare different competing regression models and select the best one among them.

Required textbook

Author	Title	Edition
Kutner et al.	Applied Linear Regression Models	4th

The course will cover the material in chapters 1–10, and parts of chapters 11 and 12.

Software
R: To download it, go to: https://www.r-project.org/
It is also recommended to download R-Studio: https://www.rstudio.com/products/rstudio/download/

Average minimum amount of independent, out-of-class, learning expected per week:
Over 15 weeks, students will spend 2.5 hours (150 minutes) per week in lecture, and 50 minutes per week in discussion section (50 hours for the semester). Homework and other out-of-class work is estimated at around 250 minutes per week (62.5 hours for the semester) and includes a 2-hour final exam for which approximately 10 hours of review is assumed.

Grading Policy

- Midterm Exams (40%)
- Homeworks (30%)
- Final Exam (30%)

Homeworks: Homeworks will be assigned every week, and will typically be due in Wednesday's recitation.

Exams: All exams will be closed book and notes, but a one-page hand-written "cheat sheet" will be allowed.

Makeup Exam Policy: No makeup exams will be given under any circumstances. If a student cannot take a midterm exam due to a medical emergency (with proper documentation) then the total score will be reweighted to give extra weight to the final exam. If a student cannot take the final exam then they will get an incomplete grade, in accordance with university policy, and can take the final exam the following semester.

Tentative Exam Schedule

Date	Exam	Chapters Covered
Thursday, Sep 24	Midterm I	Chapters 1-3
Thursday, Nov 5	Midterm II	Chapters 5-8
NOTE: In accordance with university policy, the final exam will be given during the final exam period and not the last week of the semester		

Note that the above dates are tentative and the actual date will be confirmed at least one week prior

to the exam.

Tentative Class Schedule

Date	Topic(s) covered	Book Sections
Week 1	Review of Confidence Intervals and Hypothecs testing	Appendix A
Week 2	Simple Linear Regression	Chapter 1
Week 3	Inferences in Simple Linear Regression	Chapter 2
Week 4	Regression Diagnostics	Chapter 3
Week 5	Midterm I	
Week 6	Matrix Approach to Regression	Chapter 5
Week 7	Multiple Regression	Chapter 6
Week 8	Second Order Models	Sections 8.1, 8.2
Week 9	Extra Sum of Squares and Nested Models	Chapter 7
Week 10	Qualitative Predictors	Sections 8.3-8.7
Week 11	Midterm II	
Week 12	Model Selection	Chapter 9
Week 13	Diagnostics	Chapter 10
Week 14	Miscellaneous	Chapters 11-12
Week 15	Review	
NOTE: In accordance with university policy, the final exam will be given during the final exam period and not the last week of the semester		

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) 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 support

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 gwu.mywconline.

Support for students in and outside the classroom

Disability Support Services (DSS) 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 (details below). Learn more at safety.gwu.edu/gw-standard-emergency-statuses.

Shelter

- Protection from a specific hazard
- The hazard could be a tornado, earthquake, hazardous material spill, or other environmental emergency.
- Specific safety guidance will be shared on a case-by-case basis.

Action:

- Follow safety guidance for the hazard.

Evacuate

- Need to move people from one location to another.
- Students and staff should be prepared to follow specific instructions given by first responders and University officials.

Action:

- Evacuate to a designated location.
- Leave belongings behind.
- Follow additional instructions from first responders.

Secure

- Threat or hazard outside of buildings or around campus.
- Increased security, secured building perimeter, increased situational awareness, and restricted access to entry doors.

Action:

- Go inside and stay inside.
- Activities inside may continue.

Lockdown

- Threat or hazard with the potential to impact individuals inside buildings.
- Room-based protocol that requires locking interior doors, turning off lights, and staying out of sight of corridor window.

Action:

- Locks, lights, out of sight
- Consider Run, Hide, Fight

- **Classroom emergency lockdown buttons**
  All classrooms have been equipped with classroom emergency lockdown buttons. If the button is pushed, GWorld Card access to the room will be disabled, and GW Dispatch will be alerted. The door must be manually closed if it is not closed when the button is pushed. Anyone in the classroom will be able to exit, but no one will be able to get in.