THE GEORGE WASHINGTON UNIVERSITY
Department of Statistics

STAT 2118: Regression Analysis

SYLLABUS

Course and Contact Information
Course: STAT 2118-10 Regression Analysis (CRN: 90899)
Semester: Spring 2024
Meeting time: Tuesday and Thursday, 11:10am – 12:25pm
Location: Corcoran Hall, Room 101A
Recitation: Register for one recitation section

Instructor
Name: Joshua Landon
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Phone: 202-994-7851
E-mail: jlandon@gwu.edu
Office hours: 1 – 3pm on Tuesday and Thursday, and by appointment, either in person or remotely at https://gwu-edu.zoom.us/j/3217834899

Teaching Assistants
Guannan Chen (32, 35) guannanchen@gwu.edu
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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.

Tentative Exam Schedule

Date	Exam	Chapters Covered
Thursday, Feb 15	Midterm I	Chapters 1-3
Thursday, Apr 4	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 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

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

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 (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..

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