MATH 461: Introduction to Statistical Computing with SAS and R
Spring 2025 Course Syllabus

NJIT Academic Integrity Code: All Students should be aware that the Department of Mathematical Sciences takes the University Code on Academic Integrity at NJIT very seriously and enforces it strictly. This means that there must not be any forms of plagiarism, i.e., copying of homework, class projects, or lab assignments, or any form of cheating in quizzes and exams. Under the University Code on Academic Integrity, students are obligated to report any such activities to the Instructor.

COURSE INFORMATION

Course Description: This course will study R programming and emphasize the R data steps including getting data into the R environments, working and combining data using control flows, merge and subsets, etc. as well as learning to export data and to generate high resolution graphics. Several R statistical functions will also be discussed and illustrated.

Number of Credits: 3

Prerequisites: MATH 341 with a grade of C or better or MATH 344 with a grade of C or better or MATH 447 with a grade of C or better.

Course-Section and Instructors:

Course-Section	Instructor
Math 461-102	Professor A. Wang

Office Hours for All Math Instructors: Spring 2025 Office Hours and Emails

Required Textbook:

	Book 1
Title	*R for Data Science: Import, Tidy, Transform, Visualize, and Model Data*
Author	O'Reilly Media
Edition	2nd edition, 2023.
Publisher	O'Reilly Media

ISBN #	9781492097402

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Monday, April 7, 2025**. It will be strictly enforced.

POLICIES

DMS Course Policies: All DMS students must familiarize themselves with, and adhere to, the Department of Mathematical Sciences Course Policies, in addition to official university-wide policies. DMS takes these policies very seriously and enforces them strictly.

Grading Policy: The final grade in this course will be determined as follows:

Labs	75%
Final Exam	25%

Your final letter grade will be based on the following tentative curve.

A	90 - 100	**C+**	70 - 79
B+	85 - 89	**C**	60 - 70
B	80 - 84	**F**	0 - 59

Attendance Policy: Attendance at all classes will be recorded and is **mandatory**. Please make sure you read and fully understand the Math Department's Attendance Policy. This policy will be strictly enforced. Class attendance and participation can contribute up to 5% of the grade at the instructor's discretion.

Religious Observance: NJIT is committed to supporting students observing religious holidays. Students must notify their instructors in writing of any conflicts between course requirements and religious observances, ideally by the end of the second week of classes and no later than two weeks before the anticipated absence.

Exams: There will be one final exam during the semester. The exam is held on the following days:

Final Exam Period	May 10 - May 16, 2025

The final exam will test your knowledge of all the course material taught in the entire course. Make sure you read and fully understand the Math Department's Examination Policy. This policy will be strictly enforced.

Makeup Exam Policy: There will be **NO MAKE-UP QUIZZES OR EXAMS** during the semester. In the event an exam is not taken under rare circumstances where the student has a legitimate reason for missing the exam, the student should contact the Dean of Students office and present written verifiable proof of the reason for missing the exam, e.g., a doctor's note, police report, court notice, etc. clearly stating the date AND time of the mitigating problem. The student must also notify the Math Department Office/Instructor that the exam will be missed.

Cellular Phones: All cellular phones and other electronic devices must be switched off during all class times.

ADDITIONAL RESOURCES

Math Tutoring Center: Located in the Central King Building, Lower Level, Rm. G11 (See: Spring 2025 Hours)

Further Assistance: For further questions, students should contact their instructor. All instructors have regular office hours during the week. These office hours are listed on the Math Department's webpage for Instructor Office Hours and Emails.

Accommodation of Disabilities: The Office of Accessibility Resources and Services (OARS) offers long term and temporary accommodations for undergraduate, graduate and visiting students at NJIT.

If you are in need of accommodations due to a disability please If you need an accommodation due to a disability please contact the Office of Accessibility Resources and Services at oars@njit.edu. The office is located in Kupfrian Hall, Room 201. A Letter of Accommodation Eligibility from the Office of Accessibility Resources and Services office authorizing your accommodations will be required.

For further information regarding self identification, the submission of medical documentation and additional support services provided please visit the Office of Accessibility Resources and Services (OARS) website at:

https://www.njit.edu/accessibility/

Important Dates (See: Spring 2025 Academic Calendar, Registrar)

Date	Day	Event
January 21, 2025	Tuesday	First Day of Classes
January 27, 2025	Monday	Last Day to Add/Drop Classes
March 16, 2025	Sunday	Spring Recess Begins
March 22, 2025	Saturday	Spring Recess Ends
April 3, 2025	Thursday	Wellness day
April 7, 2025	Monday	Last Day to Withdraw
April 18, 2025	Friday	Good Friday - No Classes
April 20, 2025	Sunday	Easter Sunday - No Classes Scheduled
May 6, 2025	Tuesday	Thursday Classes Meet
May 7, 2025	Wednesday	Friday Classes Meet
May 7, 2025	Wednesday	Last Day of Classes
May 8, 2025	Thursday	Reading Day 1

May 9, 2025	Friday	Reading Day 2
May 10 - May 16, 2025	Friday to Thursday	Final Exam Period

Course Outline

Weeks	Chapters	Topics	Assignments
Week 1 (1/22)	Chapter 4, 6	Introduction to R	Lab 1
Week 2 (1/27)	Chapter 20	Basic R objects	Lab 2
Week 3 (2/3)	Chapter 3	Data visualization with `ggplot2`	Lab 3
Week 4 (2/10)	Chapter 28	Data visualization with `ggplot2` (continued)	Lab 4
Week 5 (2/17)	Chapter 5, 18	Data transformation with `dplyr`	Lab 5
Week 6 (2/24)	Chapter 6, 12	Functions and more data transformation	Lab 6
Week 7 (3/3)	Chapter 8, 11, 15	Importing your own data and factors	Lab 7
Week 8 (3/10)	Chapter 27, 30	Publishing in R Markdown	Lab 8
Week 9 (3/24)	Chapter 13	Data joining and maps	Lab 9
Week 10 (3/31)	Chapter 14	Text manipulation	Lab 10
Week 11 (4/2)	Chapter 10	Data frames and apply	Lab 11
Week 12 (4/7)	Lecture notes	Simulations	Lab 12
Week 13 (4/14)	Chapter 22, 23	Fitting models to data	Lab 13
Week 14 (4/21)	Chapter 13	Relational databases	Lab 14
Week 15 (4/28)	Lecture notes	Statistical prediction	Lab 15
Week 16 (5/5)		**FINAL EXAM REVIEW**	