MATH 279: Statistics and Probability for Engineers
Fall 2025 Course Syllabus

NJIT Academic Integrity Code: Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: NJIT Academic Integrity Code.

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu

COURSE INFORMATION

Course Description: This course introduces methods of summarizing and analyzing engineering data and the importance of observing processes over time such as control charts. Descriptive statistics, plots and diagrams are then used to summarize the data. Elements of probability and random variables with their distributions along with mean and variance are taught. All this knowledge is then used as a platform towards covering how to do basic estimation and inference, including confidence intervals and hypothesis testing based on a single sample. Students taking this course cannot receive degree credit for MATH 225, MATH 244, or MATH 333.

Number of Credits: 2

Prerequisites: MATH 112 with a grade of C or better or MATH 133 with a grade of C or better.

Course-Section and Instructors:

Course-Section	Instructor
Math 279-001	Professor A. Pole
Math 279-003	Professor A. Pole

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

Required Textbook:

Title	*Engineering Statistics 5th edition*
Author	Montgomery, et al.

Edition	5th
Publisher	John Wiley & Sons, Inc.
ISBN #	978-0470631478

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Monday, November 10, 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:

Homework & Quizzes	20%
Group Project	20%
Midterm Exam	30%
Final Exam	30%

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

A	90 - 100	**C**	65 - 74
B+	85 - 89	**D**	55 - 64
B	80 - 84	**F**	0 - 54
C+	75 - 79		

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.

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.

Homework: Homework will be assigned through Canvas. It is essential to submit homework on time, and late submissions will not be accepted, but the lowest homework grade will be dropped.

Quiz Policy: A short quiz based on homework and lectures will be given frequently. There are no makeup quizzes, but the lowest quiz grade will be dropped.

Exams: There will be one midterm exam held in class during the semester and one comprehensive final exam.

Exams will be held during the following weeks:

Midterm Exam I	Week # 8
Final Exam Period	December 14 - December 20, 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: Fall 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 need an accommodation due to a disability, please contact the Office of Accessibility Resources and Services at oars@njit.edu, or visit Kupfrian Hall 201 to discuss your specific needs. A Letter of Accommodation Eligibility from the office authorizing student accommodations is 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: Fall 2025 Academic Calendar, Registrar)

Date	Day	Event
September 1, 2025	Monday	Labor Day
September 2, 2025	Tuesday	First Day of Classes
September 8, 2025	Monday	Last Day to Add/Drop Classes
November 10, 2025	Monday	Last Day to Withdraw

November 25, 2025	Tuesday	Thursday Classes Meet
November 26, 2025	Wednesday	Friday Classes Meet
November 27 to November 30, 2025	Thursday to Sunday	Thanksgiving Recess - Closed
December 11, 2025	Thursday	Last Day of Classes
December 12, 2025	Friday	Reading Day 1
December 13, 2025	Saturday	Saturday Classes Meet
December 14 to December 20, 2025	Sunday to Saturday	Final Exam Period

Course Outline

Week	Section	Topic	Homework Problems Guide
1	2.1 - 2.4	Data summary, Stem-and-Leaf Diagram, Histograms, Box Plot	2.1, 2.3, 2.4 (no dot plots), 2.14, 2.20, 2.25
2	3.1 - 3.3	Random Variables, Probability	3.1-3.7, 3.11, 3.13, 3.16, 3.17
3	3.7	Discrete Random Variables	3.91, 3.93, 3.100 (no graphs)
4	3.8	Binomial Distribution	3.103, 3.106, 3.113
5	3.9.1	Poisson Distribution	3.121, 3.123, 3.130
6	3.4	Continuous Random Variables	3.23, 3.24
7	3.9.2	Exponential Distribution, Review	3.136, 3.137
8		**Midterm Exam**	
9	3.5.,3.1 3.13	Normal Distribution, Random Samples, Statistics, and the Central Limit Theorem	3.50, 3.200, 3.204
10	4.4.5, 4.5.3	Estimation: Confidence Intervals, Choice of Sample Size	4.35, 4.36, 4.43cd, 4.63d
11	4.3	Hypothesis Testing: Type I and Type II Error	4.25a, 4.26, 4.27, 4.17a
12	4.3 - 4.5	Inference on the Mean of a Population - Variance Known & Variance Unknown	4.32, 4.40ade, 4.52

13	4.7	Inference on a Population Proportion	4.75abde
14		REVIEW FOR FINAL EXAM	
15		**Final Exam**	

Updated by Professor A. Pole- 8/14/2025
Department of Mathematical Sciences Course Syllabus, Fall 2025