MATH 105: Elementary Probability and Statistics
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: Consider notions of probability. Topics include the binomial and normal distributions, expected value, and variance. The notions of sampling, hypothesis testing, and confidence intervals are applied to elementary situations.

Number of Credits: 3

Prerequisites: None.

Course-Section and Instructors:

Course-Section	Instructor
Math 105-007	Professor S. Gupta

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

Required Textbook with access code for Webassign:

Title	*Understanding Basic Statistics*
Author	Brase and Brase
Edition	8th
Publisher	Cengage

ISBN #	MyMathLab with E-text: 978-1337888981

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Monday, November 10, 2025.** It will be strictly enforced.

COURSE GOALS

Course Objectives

The objective of this course is to acquaint students with basic concepts and methods in statistics and probability and demonstrate real world applications using examples drawn from various fields. Topics to be covered include sampling, descriptive statistics, correlation and regression, notions of probability, binomial and normal distributions, estimation and hypothesis testing.

Course Outcomes: *Upon successful completion of this course, the student will be able to -*

- Demonstrate their understanding of various statistical terms, types of data, and data collection methods
- Efficiently summarize, organize, and present data
- Effectively compute measures of central tendency, position, and variation and interpret the results
- Demonstrate their understanding of notions of probability and distributions
- Perform statistical analysis, such as estimation, hypothesis testing, correlation and regression and draw conclusions
- Apply statistical reasoning to real world problems and make informed decisions

Course Assessment: The assessment tools used will include class participation, homework assignments, quizzes, two midterm exams, and a cumulative/comprehensive final exam.

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	15%
Quizzes	15%
Midterm Exam I	20%
Midterm Exam II	20%
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 Policy: Homework is a requirement for this class and is assigned every week. All homework assignments are online through WebAssign, which is linked directly from Canvas. Therefore, you don't need a class key to enroll on WebAssign, but you need to buy a student access code. Access codes are included with a new book that is bundled with WebAssign; codes can be purchased separately from the bookstore or online. WebAssign gives you free access for two weeks after the start of class.

Quiz Policy: There will be 6-8 quizzes given throughout the semester. They will be based on the lecture, homework, and the in-class discussions. Quizzes will sometimes be assigned through WebAssign or Canvas, and students will be expected to complete the quiz online. There are no make-up quizzes; the average will be calculated after dropping the lowest score.

Exams: There will be two midterm exams, given during the class meeting time, in the semester and one comprehensive final exam. Exams will be tentatively held on the following days:

Exam 1	Thursday, October 2
Exam 2	Thursday, November 13
Final Exam Period	12/14/25 - 12/20/25

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 #	Lecture #	Sections	Topics
1	1	1.1-1.3	Statistics and Sampling
	2	1.1-1.3 2.1	Statistics and Sampling Organizing data
2	3	2.1-2.3	Organizing Data
	4	3.1-3.3	Averages and Variation
3	5	3.1-3.3	Averages and Variation
	6	4.1-4.2	Correlation and Regression
4	7	4.1-4.2	Correlation and Regression
	8	5.1-5.3	Probability Theory
5	9		Catch up and Review
	10		**Exam 1 (October 2)**
6	11	5.1-5.3	Probability Theory
	12	5.1-5.3	Probability Theory
7	13	6.1	Discrete Random Variables
	14	6.2-6.3	Binomial Distribution
8	15	7.1	Normal Curves
	16	7.2	Normal Curves
9	17	7.3	Normal Curves
	18	7.4, 7.5	Sampling Distributions
10	19	7.5	Central Limit Theorem
	20	8.1-8.2	Estimating the Mean, Sample Size Determination
11	21		Catchup and Review
	22		**Exam 2 (November 13)**

12	23	8.1-8.2	Estimating the Mean
	24	8.2, 8.3	Estimating Proportions, Sample size Determination
13	25	9.1 - 9.3	Testing the Mean
			THANKSGIVING RECESS — NO CLASS
14	26	9.1-9.3	Testing the Mean
	27	9.1-9.3	Testing a Proportion
15	28	1.1-9.3	Catch up and Review
	29	1.1-9.3	Final Exam Review
Exam Week 12/14 to 12/20			**FINAL EXAM (CUMULATIVE)**

Updated by Professor S. Gupta - 2025
Department of Mathematical Sciences Course Syllabus, Fall 2025