

MATH 105: Elementary Probability and Statistics

Spring 2022 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 introduces methods of summarizing and analyzing data. Descriptive statistics, graphs, plots and diagrams are used to summarize the data. Elements of probability and discrete random variable with its distributions along with mean and variance of a given data set 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 (univariate) data. Students will be taught basic simple regression technique involving two variables for a given data set.

Number of Credits: 3

Prerequisites: None.

Course-Section and Instructors:

Course-Section	Instructor
Math 105-002	Professor W. Ashraf
Math 105-104	Professor W. Ashraf

Office Hours for All Math Instructors: [Spring 2022 Office Hours and Emails](#)

Required Textbook:

Title	<i>Understanding Basic Statistics</i>
Author	Brase and Brase
Edition	8th
Publisher	Cengage
ISBN #	9781337888981

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Monday, January, 24, 2022**. 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:

Quizzes	12%
Homework	8%
Midterm Exam I	25%
Midterm Exam II	25%
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.

Quizzes: Every Friday, unless specified.

Homework: I will provide weekly questions for you to practice. Except for one HW assignment, all of them will be optional. You will know in advance which one is to be turned in. Additionally, every HW assignment is **HIGHLY** recommended as it generates practice and understanding for weekly quizzes.

Exams: There will be two midterm exams held during the semester and one comprehensive common final exam. Exams are held on the following days:

Midterm Exam I	March 11, 2022; 4 PM
Midterm Exam II	April 8, 2022 ; 4PM
Final Exam Period	May 6 - 12, 2022

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 2022 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 contact Scott Janz, Associate Director of Disability Support Services at **973-596-5417** or via email at **scott.p.janz@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/studentsuccess/accessibility/>

Important Dates (See: **Spring 2022 Academic Calendar, Registrar**)

Date	Day	Event
January 18, 2022	Tuesday	First Day of Classes
January 22, 2022	Saturday	Saturday Classes Begin
January 24, 2022	Monday	Last Day to Add/Drop Classes
March 14, 2022	Monday	Spring Recess Begins
March 19, 2022	Saturday	Spring Recess Ends
April 4, 2022	Monday	Last Day to Withdraw
April 15, 2022	Friday	Good Friday - No Classes
April 17, 2022	Sunday	Easter Sunday - No Classes
May 3, 2022	Tuesday	Friday Classes Meet
May 3, 2022	Tuesday	Last Day of Classes

May 4 - May 5, 2022	Wednesday and Thursday	Reading Days
May 6 - May 12, 2022	Friday to Thursday	Final Exam Period

Course Outline

Week #	Sections	Topics
1	1.1-1.3	Statistics and Sampling
	1.1-1.3	
2	2.1-2.3	Organizing Data
	2.1-2.3	
3	3.1-3.3	Averages and Variation
	3.1-3.3	
4	4.1-4.2	Correlation and Regression
	4.1-4.2	
5	5.1-5.3	Probability Theory
	5.1-5.3	
6		MIDTERM 1 REVIEW
		MIDTERM #1
7	6.1-6.3	Binomial Distribution
	6.1-6.3	
8	7.1-7.3	Normal Curves
	7.1-7.3	
9	7.4-7.5	Sampling Distribution
	7.4-7.5	
10		MIDTERM 2 REVIEW
		MIDTERM #2
11	7.6	Normal Approximation to the Binomial Distr.
	8.1-8.2	Estimating the Mean
12	8.3	Estimating Proportions
	9.1	Hypothesis Testing
13	9.2	Testing the Mean
	9.3	Testing a Proportion
14		Distorting and Lying with Statistics
		Final Exam Review

EXAM WEEK	1.1-9.3	FINAL EXAM (CUMULATIVE)
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*Updated by Professor W. Ashraf - 1/10/2022
Department of Mathematical Sciences Course Syllabus, Spring 2022*