MATH 105 : Elementary Probability and Statistics
Spring 2023 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: 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 105-014	Professor L. Firriolo

Office Hours for All Math Instructors: Spring 2023 Office Hours and Emails

Required Textbook with access code for Webassign:

Title	*Understanding Basic Statistics*
Author	Brase and Brase
Edition	8th
Publisher	Cengage
ISBN #	978-1337888981

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Monday, April 3, 2023**. 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, four in-class homework quizzes, Cengage/Webassign online 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:

Cengage/Webassign Online Quizzes	10%
In-Class Homework Quizzes	10%
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.

Homework and Quiz Policy: The reading assignment, for the entire semester, is to read/study the applicable chapter of the text, preferably before and after the lecture. Homework is assigned every week, at the completion of each topic, as pdf's posted in the Canvas Chapter Modules. Even though the homework is not collected, it is expected that you complete each homework assignment. The homework is reviewed during class to demonstrate the solution and answer any questions. Four (In-Class HW) quizzes are given during the class meeting time with questions similar to the assigned homework. You have 20 minutes to complete the homework quiz. **There are NO make-up In-Class HW Quizzes.** In addition, online, asynchronous quizzes via Cengage/Webassign are also assigned to make sure you are keeping up with the class.

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

Webassign Quizzes	Online. See due dates in Webassign.
In-Class HW Quizzes	Schedule on Course Outline below.
Midterm Exam I	February 28, 2023
Midterm Exam II	April 11, 2023
Final Exam Period	May 5 - May 11, 2023

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 Information: A separate page titled Additional Syllabus information and Course Format, posted in Canvas, provides further details about the course format and additional syllabus information. This Canvas page is considered as part of the syllabus.

ADDITIONAL RESOURCES

Math Tutoring Center: Located in the Central King Building, Lower Level, Rm. G11 (See: Spring 2023 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/accessibility/

Important Dates (See: Spring 2023 Academic Calendar, Registrar)

Date	Day	Event
January 17, 2023	Tuesday	First Day of Classes
January 23, 2023	Monday	Last Day to Add/Drop Classes
March 13, 2023	Monday	Spring Recess Begins
March 18, 2023	Saturday	Spring Recess Ends
April 3, 2023	Monday	Last Day to Withdraw
April 7, 2023	Friday	Good Friday - No Classes
May 2, 2023	Tuesday	Friday Classes Meet
May 2, 2023	Tuesday	Last Day of Classes
May 3 - May 4, 2023	Wednesday and Thursday	Reading Days
May 5 - May 11, 2023	Friday to Thursday	Final Exam Period

Course Outline

Week #	Lecture #	Sections	Topics
1	1 (1/17)	1.1-1.3	Statistics and Sampling
	2 (1/20)	1.1-1.3	Statistics and Sampling cont'd
2	3 (1/24)	2.1-2.3	Organizing Data
	4 (1/27)	2.1-2.3	Organizing Data cont'd
3	5 (1/31)	3.1-3.3	Averages and Variation / **Go over Chapter 2 HW**
	6 (2/3)	3.1-3.3	Averages and Variation cont'd
4	7 (2/7)	4.1-4.2	Correlation and Regression / **Chapter 2 HW QUIZ in class**
	8 (2/10)	4.1-4.2	Correlation and Regression cont'd / **Go over Chapter 3 HW**

5	9 (2/14)	5.1-5.3	Probability Theory
	10 (2/17)	5.1-5.3	Probability Theory cont'd / Chapter 3 HW QUIZ in class
6	11 (2/21)	5.1-5.3	Probability Theory cont'd / **Go over Chapter 4 HW** / ***MIDTERM 1 REVIEW Chapters 1, 2, 3***
	12 (2/24)		**Go over Chapter 5 HW** / ***MIDTERM 1 REVIEW Chapters 4, 5***
7	--- (2/28)		MIDTERM #1
	13 (3/3)	6.1-6.3	Binomial Distribution
8	14 (3/7)	6.1-6.3	Binomial Distribution cont'd
	15 (3/10)	7.1	Normal Curves
9	-- (3/14)		**SPRING RECESS — NO CLASS**
	-- (3/17)		**SPRING RECESS — NO CLASS**
10	16 (3/21)	7.2	Normal Curves cont'd / **Go over Chapter 6 HW**
	17 (3/24)	7.3	Normal Curves cont'd
11	18 (3/28)	7.4, 7.6	Sampling Distributions / Sampling Distribution for Proportions / Chapter 6 HW QUIZ in class
	19 (3/31)	7.5	Central Limit Theorem / **Go over Chapter 7 HW Part 1**
12	20 (4/4)		**Go over Chapter 7 HW Part 2 / *MIDTERM 2 REVIEW***
	--- (4/7)		**GOOD FRIDAY — NO CLASS**
13	--- (4/11)		MIDTERM #2
	21 (4/14)	8.1	Estimating the Mean
14	22 (4/18)	8.2, 8.3	Estimating the Mean/Proportions
	23 (4/21)	9.1-9.3	Hypothesis Testing Part 1 / **Go over Chapter 8 HW**
15	24 (4/25)	9.1-9.3	Hypothesis Testing Part 2
	25 (4/28)	9.1-9.3	Hypothesis Testing Part 3 / Chapter 8 HW QUIZ in class
16	26 (5/2)	9.1-9.3	**Go over Chapter 9 HW** / ***FINAL EXAM REVIEW***
EXAM WEEK 5/5 to 5/11	---	1.1-9.3	FINAL EXAM (CUMULATIVE)