NJIT New Jersey's Science & Technology University

THE COLLEGE OF SCIENCE AND LIBERAL ARTS

THE DEPARTMENT OF MATHEMATICAL SCIENCES

MATH 105-102: Elementary Probability and Statistics
Spring 2021 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 105-102	Professor P. Rana Concepcion

Office Hours for All Math Instructors: Spring 2021 Office Hours and Emails

Required Textbook:

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 5, 2021**. 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 quizzes, 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:

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.

Homework Policy: Homework is an expectation of the course. The homework assignments are to be completed using the homework portal called WebAssign. The online assignments can be completed at www.webassign.net. You must purchase webassign online to get the initial access code to get into the class. In addition, on the first day of class your course instructor will give an additional code "Class key" needed to enroll to WebAssign. WebAssign gives you free access for two weeks after the start of class so there should be no delay in creating and registering your account. All homework assignments are expected to be completed by the deadlines set forth in the web portal. If you have any difficulties with registering and getting an account with Webassign please contact the instructor immediately.

> **Note**: Homework Assignments are DUE frequently (at least weekly) at the dates and times specified online and by your instructor.

Policy for Exams and Quizzes: Exams will be proctored using both Respondus LockDown Browser+Monitor and Webex. Students will be required to join a Webex meeting from their phone with their cameras on, and to access the exam through LockDown Browser on a Mac or Windows PC with webcam. Students must follow all instructions related to environment checks and camera positioning.

> **Quizzes:** Quizzes will be given approximately once a week throughout the semester. They will be based on the lecture, homework and the in-class discussions. Quizzes will be administered in Canvas using the same method of proctoring as described in the DMS Policy for Exams and Quizzes. Students will have approximately 20 minutes to write solutions to their quiz, and then must upload their written work within 5 minutes of completing the quiz. If a student experiences difficulty uploading their work to Canvas, they MUST email their work to their instructor immediately.

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

Midterm Exam I	Friday, February 26, 2021
Midterm Exam II	Friday, April 16, 2021
Final Exam Period	May 7 -13, 2021

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 2021 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.

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

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 Chantonette Lyles, Associate Director of the Office of Accessibility Resources and Services at 973-596-5417 or via email at lyles@njit.edu. The office is located in Kupfrian Hall, Room 201. A Letter of Accommodation Eligibility from the Office of Accessibilty Resources and Services 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 2021 Academic Calendar, Registrar)

Date	Day	Event
January 19, 2021	T	First Day of Classes
January 23, 2021	S	Saturday Classes Begin
January 25, 2021	M	Last Day to Add/Drop Classes
March 14 - March 21, 2021	Su - Su	Spring Recess - No Classes
April, 2, 2021	F	Good Friday - No Classes
April 5, 2021	M	Last Day to Witdraw
May 4, 2021	T	Friday Classes Meet
May 4, 2021	T	Last Day of Classes
May 5 & May 6, 2021	W & R	Reading Days
May 7 - May 13, 2021	F - R	Final Exam Period

Course Outline

Week #	Date	Sections	Topics
1	1-22-2021	1.1-1.3	Introduction, Statistics and Sampling
2	1-29-2021	2.1-2.3	Organizing Data
3	2-5-2021	3.1-3.3	Averages and Variation
4	2-12-2021	4.1-4.2	Correlation and Regression
5	2-19-2021	5.1-5.3	Probability Theory + Review for the Midterm
6	2-26-2021		***MIDTERM #1 (ONLINE WITH LD BROWSER/RESPONDUS MONITOR) CHAPTERS 1, 2, 3, & 4***
	2-26-2021	5.1-5.3	Probability Theory cont'd
7	3-5-2021	6.1-6.3	Binomial Distribution
8	3-12-2021	6.1-6.3	Binomial Distribution cont'd
	3-12-2021	7.1	Normal Distribution
9	3-26-2021	7.2	Normal Distribution cont'd
10	4-9-2021	7.4	Sampling Distributions
	4-9-2021	7.5	Central Limit Theorem + Review for the Midterm

12	4-16-2021		***MIDTERM #2 (ONLINE WITH LD BROWSER/RESPONDUS MONITOR)CHAPTERS 5, 6, & 7***
	4-16-2021	8.1-8.2	Estimating the Mean
13	4-23-2021	8.3	Estimating Proportions
	4-23-2021	9.1-9.2	Hypothesis Testing and Tessting the Mean
14	4-30-2021	9.3	Testing a Proportion
	4-30-2021		Catch Up
16	5-4-2021	Tuesday	*FINAL EXAM REVIEW*
EXAM WEEK	5-7-2021 to 5-13-2021	1.1-9.3	**FINAL EXAM (CUMULATIVE) (ONLINE WITH LD BROWSER/RESPONDUS MONITOR) - Chapters 1 thru 9 - Date TBD**