

## MATH 279-104: Statistics and Probability for Engineers

### *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.

**DMS Online Exam Policy Spring 2021:** 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.

Please be sure you read and fully understand our [DMS Online Exam Policy](#).

### 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 279-104	Professor P. Ward

**Office Hours for All Math Instructors:** [Spring 2021 Office Hours and Emails](#)

**Required Textbook:**

Title	<i>Engineering Statistics</i>
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, April 5, 2021**. 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	20%
Quizzes	20%
Midterm Exam	30%
Final Exam	30%

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

A	90 - 100	C	60 - 69
B+	85 - 89	D	50 - 59
B	75 - 84	F	0 - 59
C+	70 - 74		

**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.

**Technology Requirements:** 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.

**Homework Policy:** Homework will be assigned through Canvas and may be collected on a weekly basis.

**Quiz Policy:** A short quiz based on homework and lecture will be given frequently. They may be announced or pop-quizzes given without prior warning.

**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	Week 7 (Tentative Date)
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.

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## 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](tel:973-596-5417) or via email at [lyles@njit.edu](mailto:lyles@njit.edu). The office is located in Kupfrian Hall, Room 201. A Letter of Accommodation Eligibility from the Office of Accessibility 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 Withdraw
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

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## Course Outline

Week	Date	Section	Topic
1	1/21	2.1, 2.2	Data Summary and Display; Stem-and-Leaf Diagrams
2	1/28	2.3, 2.4	Histograms; Box Plots

3	2/4	3.1 - 3.3	Introduction to Random Variables and Probability
4	2/11	3.4	Continuous Random Variables
5	2/18	3.5	The Normal Distribution
6	2/25	3.7	Discrete Random Variables
7	3/4		<b>MIDTERM EXAM</b> (Tentative Date)
8	3/11	3.8	The Binomial Distribution
9	3/18	3.9	Poisson Process
10	3/25	3.10	The Normal Approximation
11	4/1	3.13	The Central Limit Theorem
12	4/8	4.1, 4.2, 4.3	Statistical Inferences; Point Estimation; Hypothesis Testing
13	4/15		<b>NO SCHOOL</b>
14	4/22	4.3	Hypothesis Testing
15	12/29	4.4, 4.5	Inference on the Mean of a Population
16	5/7 - 5/13		<b>FINAL EXAM</b>

*Updated by Professor P. Ward - 1/13/2021*  
*Department of Mathematical Sciences Course Syllabus, Spring 2021*

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