MATH 661: Applied Statistics
Fall 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: Role and purpose of applied statistics. Data visualization and use of statistical software used in course. Descriptive statistics, summary measures for quantitative and qualitative data, data displays. Modeling random behavior: elementary probability and some simple probability distribution models. Normal distribution. Computational statistical inference: confidence intervals and tests for means, variances, and proportions. Linear regression analysis and inference. Control charts for statistical quality control. Introduction to design of experiments and ANOVA, simple factorial design and their analysis. MATH 661 and MATH 663 cannot both be used toward degree credits at NJIT.

Number of Credits: 3

Prerequisites: MATH 112

Course-Section and Instructors:

Course-Section	Instructor
Math 661-851	Professor A. Pole

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

Required Textbook:

Title	*Introduction to the Practice of Statistics*
Author	Moore, McCabe, and Craig
Edition	10th
Publisher	MacMillan Learning
ISBN #	1. E-book ISBN:9781319377656 2. Loose-Leaf ISBN:9781319383985 3. Paperback ISBN:9781319244446

Note	** We will be using the Macmillan Achieve system for some assignments – details to come

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Wednesday, November 10, 2021**. It will be strictly enforced.

COURSE GOALS

Course Objectives

This course will acquaint students with statistical techniques, with emphasis on applications.

Course Outcomes

On successful completion of this course, the student will be able to:

- Demonstrate understanding of statistical methods for summarizing and displaying data
- Demonstrate knowledge of basic probability and inference
- Demonstrate conceptual understanding of sampling distributions and the central limit theorem
- Perform statistical analysis including estimation, hypothesis testing, and analysis of variance.

Course Assessment: Assessment of objectives is achieved through homework assignments and two examinations: a midterm exam and a 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 Assignments	40%
Midterm Exam	30%
Final Exam	30%

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: Textbook assignments are due the class day following the section lecture and will be collected/reviewed at the beginning of class.

Exams: There will be one midterm exam during the semester and a cumulative final exam during the final exam week:

Midterm Exam	Week 9
Final Exam Period	December 15 - 21, 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: Fall 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.

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: Fall 2021 Academic Calendar, Registrar)

Date	Day	Event
September 1, 2021	Wednesday	First Day of Classes
September 4, 2021	Saturday	Saturday Classes Begin
September 6, 2021	Monday	Labor Day
September 8, 2021	Wednesday	Monday Classes Meet
September 8, 2021	Wednesday	Last Day to Add/Drop Classes
November 10, 2021	Wednesday	Last Day to Withdraw
November 25 to November 28, 2021	Thursday to Sunday	Thanksgiving Recess - Closed
December 10, 2021	Friday	Last Day of Classes

December 13 and December 14, 2021	Monday and Tuesday	Reading Days
December 15 to December 21, 2021	Wednesday to Tuesday	Final Exam Period

Course Outline

Week	Chapter	Topic
1		*No Tuesday class: Semester begins Wed 1 September*
2 - 3	*Chapter 1*	*Looking at data distributions*
4	*Chapter 2*	*Looking at data relationships*
5 - 6	*Chapter 4*	*Probability: The study of randomness*
7 - 8	*Chapter 5*	*Sampling distributions*
9		*MIDTERM EXAM*
10 - 11	*Chapter 6*	*Introduction to inference*
12	*Chapter 7*	*Inference for means*
13	*Chapter 8*	*Inference for proportions*
14	*Chapter 9*	*Inference for categorical data*
15	*Chapter 12 and Review*	*One way analysis of variance*
Exam Week		*FINAL EXAM*

Updated by Professor A. Pole - 8/13/2021
Department of Mathematical Sciences Course Syllabus, Fall 2021