MATH 661: Applied Statistics
Fall 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: 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 661-109	Professor C. Kim

Office Hours for All Math Instructors: Fall 2022 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

University-wide Withdrawal Date: The last day to withdraw with a **M** is **Monday, November 14, 2022**. 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

1) Demonstrate understanding of various statistical methods for summarizing and displaying data
2) Demonstrate knowledge of basic probability and inference
3) Demonstrate conceptual understanding of sampling distributions and the central limit theorem
4) Perform statistical analysis such as estimation, hypothesis testing, regression, and analysis of variance.

Course Assessment: The assessment tools used will include online homework assignments, quizzes, mid-term exam, and a comprehensive/cumulative 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:

Homeworks / Quizzes	25%
Midterm Exam	35%
Final Exam	40%

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

A	90 - 100	**C+**	75 - 79
B+	85 - 89	**C**	60 - 74
B	80 - 84	**F**	0 - 59

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 Requirements: Weekly homework problems will be assigned on Canvas. In addition to the online homeworks there will be Quizzes. Quizzes could be on paper or using an online proctored environment (Lock down browser with Respondus). http://www.respondus.com/lockdown/download.php?id=264548414

Software: Minitab/Excel will be used in the course for assignments/demonstration in class lectures.

Technical Support

Students may contact the IST Service Desk with any questions. Questions or problems can be submitted via web form by going to: https://servicedesk.njit.edu (Links to an external site.) and clicking on the "Report your issue online" link.

You may also call the IST Service Desk with any questions at 973-596-2900.

Exams: There will be a proctored midterm exam during the semester and one cumulative/comprehensive proctored final exam during the final exam week. Use of Non-programmable/Non-graphing calculator is permitted during the exam. Formula sheet and tables will be provided. Exams will be held on the following days:

Midterm Exam	October 31, 2022 (tentative)
Final Exam	December 16 – 22, 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

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.

Important Dates (See: Fall 2022 Academic Calendar, Registrar)

Date	Day	Event
September 5, 2022	Monday	Labor Day
September 6, 2022	Tuesday	First Day of Classes
September 12, 2022	Monday	Last Day to Add/Drop Classes
November 14, 2022	Monday	Last Day to Withdraw
November 22, 2022	Tuesday	Thursday Classes Meet
November 23, 2022	Wednesday	Friday Classes Meet
November 24 to November 25, 2022	Thursday and Friday	Thanksgiving Recess - Closed
November 26, 2022	Saturday	Saturday Classes Meet
December 14, 2022	Wednesday	Last Day of Classes
December 15, 2022	Thursday	Reading Day
December 16 to December 22, 2022	Friday to Thursday	Final Exam Period

Course Outline

Changes or modifications, if any, will be announced in class.

Week	Lecture	Chapter	Topic
Week 1 09/12 (M)	**1**	**1**	Looking at Data-Distributions
Week 2 09/19 (M)	**2**	**1**	Looking at Data-Distributions
Week 3 09/26 (M)	**3**	**2**	Looking at Data-Rutions
Week 4 10/03 (M)	**4**	**4**	Probability: The study of Randomness
Week 5 10/10 (M)	**5**	**4** **5**	Probability: The study of Randomness Sampling Distributions
Week 6 10/17 (M)	**6**	**5**	Sampling Distributions
Week 7 10/24 (M)	**7**	**6**	Introduction to Inference **Review for Exam**
Week 8 10/31 (M)	**8**	**6**	Introduction to Inference **MIDTERM EXAM: MONDAY, OCTOBER 31 (tentative)**
Week 9 11/07 (M)	**9**	**6** **7**	Introduction to Inference Inference for Means
Week 10 11/14 (M)	**10**	**6** **7**	Introduction to Inference Inference for Means

WITHDRAWAL DEADLINE: 11/14(M)			
Week 11 11/21 (M)	**11**	**6** **8**	Introduction to Inference Inference for Proportions
Week 12 11/28 (M)	**12**	**7** **9**	Inference for Means Inference for Categorical data **THANKSGIVING RECESS: 11/24(R) TO 11/27(S)**
Week 13 12/05 (M)	**13**	**12**	One-Way Analysis of Variance
Week 14 12/12 (M)	**14**		**Review for Final Exam**
			LAST DAY OF CLASSES 12/14 (W)
			Reading Day 12/15(R)
			FINAL EXAM WEEK: 12/16(F) to 12/22(R)

Updated by Professor C. Kim - 8/26/2022
Department of Mathematical Sciences Course Syllabus, Fall 2022