NJIT New Jersey's Science & Technology University

THE COLLEGE OF SCIENCE AND LIBERAL ARTS

THE DEPARTMENT OF MATHEMATICAL SCIENCES

MATH 663: Introduction to Biostatistics
Fall 2020 Graduate 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: Introduction to statistical techniques with emphasis on applications in health related sciences. This course will be accompanied by examples from biological, medical and clinical applications. Summarizing and displaying data; basic probability and inference; Bayes' theorem and its application in diagonostic testing; estimation, confidence intervals, and hypothesis testing for means and proportions; contingency tables; regression and analysis of variance; logistic regression and survival analysis; basic epidemiologic tools; use of statistical software. MATH 661 and MATH 663 cannot both be used toward degree credits at NJIT.

Number of Credits: 3

Prerequisites: Undergraduate Calculus.

Course-Section and Instructors

Course-Section	Instructor
Math 663-101	Professor S. Subramanian

Office Hours for All Math Instructors: Fall 2020 Office Hours and Emails

Required Textbooks:

Title	*Fundamentals of Biostatistics*
Author	Bernard Rosner
Edition	8th
Publisher	Cengage
ISBN #	978-1305268920

University-wide Withdrawal Date:The last day to withdraw with a **W** is **Monday, November 9, 2020**. 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 and Quizzes	25%
Midterm Exam	30%
Final Exam	45%

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

A	90 - 100	**C**	68 - 74
B+	85 - 89	**D**	50 - 67
B	80 - 84	**F**	0 - 49
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 problems will be assigned in class.

Exams: There will be one midterm exam held in class during the semester and one comprehensive final exam. Exams are held on the following days:

Midterm Exam	November 3, 2020
Final Exam Period	December 15 - 21, 2020

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: To properly report your absence from a midterm or final exam, please review and follow the required steps under the DMS Examination Policy found here:

- http://math.njit.edu/students/policies_exam.php

Cellular Phones: All cellular phones and other electronic devices must be switched off during all class times.

ADDITIONAL RESOURCES

Accommodation of Disabilities: Disability Support Services (DSS) 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 Disability Support 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 Disability Support 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 Disability Support Services (DSS) website at:

- https://www.njit.edu/studentsuccess/accessibility/

Important Dates (See: Fall 2020 Academic Calendar, Registrar)

Date	Day	Event
September 1, 2020	T	First Day of Classes
September 5, 2020	S	Saturday Classes Begin
September 7, 2020	M	Labor Day
September 8, 2020	T	Monday Classes Meet
September 8, 2020	T	Last Day to Add/Drop Classes
November 9, 2020	M	Last Day to Withdraw
November 25, 2020	W	Friday Classes Meet
November 26-29, 2020	R - Su	Thanksgiving Recess - University Closed
December 10, 2020	R	Last Day of Classes
December 11 & 14, 2020	F & M	Reading Days
December 15 - 21, 2020	T - M	Final Exam Period

Course Outline

Date	Lecture	Chapter	Topic	Assignment
WEEK AUG 31	1	Chapter 1-2	Introduction, Descriptive Statistics	
WEEK SEP 14	2	Chapter 3	Probability	
WEEK SEP 21	3	Chapter 4	Discrete Probability Distributions	
WEEK SEP 28	4	Chapter 5	Continuous Probability Distributions	
WEEK OCT 5	5	Chapter 6	Estimation, Sampling Distribution Models and Confidence Intervals for Proportions	
WEEK OCT 12	6	Chapter 7	Hypothesis Testing: One Sample Inference	
WEEK OCT 19	7	Chapter 8	Hypothesis Testing: Two Sample Inference	
WEEK OCT 26	8	Chapter 10	Categorical data, Chi-Square tests and Two-Sample Test for Binomial Proportions	
WEEK NOV 2	9		**MIDTERM EXAM**	
WEEK NOV 9	10	Chapter 13	Logistic Regression	
WEEK NOV 16	11	Chapter 14	Survival Analysis I	
WEEK NOV 23	12	Chapter 14	Survival Analysis II	

WEEK NOV 30	13		Nonparametric Analysis I	
WEEK DEC 7	14		Nonparametric Analysis II and Review	