

MATH 663: Introduction to Biostatistics *Spring 2019 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 diagnostic 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 663-102	Professor G. Kariuki

Office Hours for All Math Instructors: [Spring 2019 Office Hours and Emails](#)

Required Textbooks:

Title	<i>Fundamentals of Biostatistics</i>
Author	Bernard Rosner
Edition	8th
Publisher	Cengage
ISBN #	978-1305268920

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Monday, April 8, 2019**. 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	WEEK 8
Final Exam Period	May 10 - 16, 2019

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 Fenster Hall, Room 260. 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:

- <http://www5.njit.edu/studentsuccess/disability-support-services/>

Important Dates (See: [Spring 2019 Academic Calendar](#), Registrar)

Date	Day	Event
January 22, 2019	T	First Day of Classes
February 1, 2019	F	Last Day to Add/Drop Classes
March 17 - 24, 2019	Su - Su	Spring Recess - No Classes, NJIT Open
April 8, 2019	M	Last Day to Withdraw
April 19, 2019	F	Good Friday - No Classes, NJIT Closed
May 7, 2019	T	Friday Classes Meet/ Last Day of Classes
May 8 & 9, 2019	W & R	Reading Days
May 10 - 16, 2019	F - R	Final Exam Period

Course Outline

Date	Lecture	Chapter	Topic	Assignment
WEEK 1	1	Chapter 1-2	Introduction, Descriptive Statistics	
WEEK 2	2	Chapter 3	Probability	
WEEK 3	3	Chapter 4-5	Discrete Probability Distributions and Continuous Probability Distributions	
WEEK 4	4	Chapter 6	Estimation, Sampling Distribution Models and Confidence Intervals for Proportions	
WEEK 5	5	Chapter 7	Hypothesis Testing: One Sample Inference	
WEEK 6	6	Chapter 8	Hypothesis Testing: Two Sample Inference	
WEEK 7	7	Chapter 10	Categorical data, Chi-Square tests and Two-Sample Test for Binomial Proportions	
WEEK 8	8		MIDTERM EXAM	
WEEK 9	9	Chapter 13	Logistic Regression	
WEEK 10	10	Chapter 14	Survival Analysis I	
WEEK 11	11	Chapter 14	Survival Analysis II	
WEEK 12	12	Chapter 14	Survival Analysis III	
WEEK 13	13		Nonparametric Analysis I	
WEEK 14	14		Nonparametric Analysis II	
WEEK 15	15		REVIEW	

