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DEPARTMENT OF MATHEMATICAL SCIENCES



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MATH 105 COURSE SYLLABUS - SPRING 2014

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.

Math 105: Introduction to Probability and Statistics

Number of Credits: 3

Course Description: Intended for students who are not in Science or in Engineering. Considers notions of probability. Topics include the binomial and normal distributions, expected value, and variance. The notions of sampling, hypothesis testing, and confidence intervals are applied to elementary situations.

Prerequisites: None

Textbook: Understanding Basic Statistics by Brase & Brase, 6th Edition.

(The ISBN# for the custom edition with fewer chapters is 9781285110363)

(The ISBN# for the Regular edition is 9781111827021)

Copyright Year: 2012

Publisher: Cengage Learning

Course Objectives: The objective of this course is to acquaint students with basic concepts and methods in statistics and probability and demonstrate real world applications using examples drawn from various fields.

Student Learning Outcomes: Upon successful completion of this course, the student will be able to

- 1) Demonstrate understanding of various statistical terms, types of data, and data collection methods
- 2) Demonstrate understanding of various techniques for summarizing, organizing, and presenting data
- 3) Compute measures of central tendency, position, and variability and interpret the results
- 4) Demonstrate understanding of the notions of probability and probability distributions such as binomial and normal
- 5) Demonstrate conceptual understanding of sampling distributions and the central limit theorem
- 6) Perform statistical analysis, such as estimation, hypothesis testing, correlation and regression, and draw conclusions.
- 7) Apply statistical reasoning to real world problems

Assessment:

The assessment tools used will include weekly homework assignments/quizzes, two mid-term exams and a final exam.

Instructor: (for specific course-related information, follow the link below)

Math 105-002	<u>Prof. Dios</u>
Math 105-004	<u>Prof. Dios</u>
Math 105-006	<u>Prof. Choudhury</u>
Math 105-102	<u>Prof. Kim</u>

Grading Policy: The final grade in this course will be determined as follows:

▪ Projects/Class Activities /Homework/ Quizzes:	20%
▪ 2 Midterm Exams:	20% each
▪ Final Exam:	40%

Your final letter grade will be based on the following tentative curve. This curve may be adjusted slightly at the end of the semester.

A	90-100	C	65-74
B+	85-89	D	55-64
B	80-84	F	0-54
C+	75-79		

Drop Date: Please note that the University Drop Date **March 31, 2014** deadline will be strictly enforced.

Attendance: Attendance at all classes will be recorded and is **mandatory**. Please make sure you read and fully understand the Department's **Attendance Policy**. This policy will be **strictly** enforced.

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

Exam 1:	
Exam 2:	
Final Exam Week:	May 8-14, 2014

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 department's **Examination Policy**. This policy will be **strictly** enforced. Please refer to the registrar's website for the official date and time of each exam at <http://www.njit.edu/registrar/exams/index.php>

Makeup Exam Policy: There will be **NO MAKE-UP EXAMS** during the semester. In the event the Final Exam is not taken, under rare circumstances where the student has a legitimate reason for missing the final exam, a makeup exam will be administered by the math department. In any case the student must notify the **Math Department Office and the Instructor** that the exam will be missed and present written verifiable proof of the reason for missing the exam, e.g., a doctors note, police report, court notice, etc., clearly stating the date AND time of the mitigating problem.

Further Assistance: For further questions, students should contact their Instructor. All Instructors have regular office hours during the week. These office hours are listed at the link above by clicking on the Instructor's name. Teaching Assistants are also available in the math learning center.

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

MATH DEPARTMENT CLASS POLICIES LINK

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. For DMS Course Policies, please **[click here](#)**.

January 20, 2014	M	Dr. Martin Luther King, Jr. Day ~ University Closed
March 16-23, 2014	Su-Su	Spring Recess ~ No Classes Scheduled ~ University Open
March 31, 2014	M	Last Day to Withdraw from this course

April 18, 2014	F	Good Friday ~ University Closed
May 6, 2014	T	Classes follow a Friday Schedule
May 7, 2014	W	Reading Day
May 8-14, 2014	R-W	Final Exams

COURSE OUTLINE AND HOMEWORK ASSIGNMENTS:

Week	Section	Topic
1	1.1-1.3	Statistics and Sampling
	1.1-1.3	Statistics and Sampling
2	2.1- 2.2	Organizing data
	2.2- 2.3	Organizing data
3	3.1 - 3.2	Measures of Central Tendency
	3.3	Percentiles and Visual Displays
4	4.1	Linear Correlation
	4.2	Linear Regression
5	5.1-5.2	Probability
	5.3	Counting Principles
6		MIDTERM EXAM I:
7	6.1	Probability distributions
	6.2	Binomial Probabilities
8	6.3	Properties of Binomial Distribution
	7.1	Normal distribution
9	7.2-7.3	Area Under Normal Curve
	7.4- 7.5	Central limit theorem
10		MIDTERM EXAM II:
11	7.6	Binomial Distribution Approximations
	8.1-8.2	Estimation of Means
12	8.3	Estimating p in Binomial Distributions
	9.1	Hypothesis Testing

13	9.2	Hypothesis Testing	
14	9.3	Hypothesis Testing	
		REVIEW FOR FINAL EXAM	
5/8-5/14		FINAL EXAM WEEK	

Prepared By: **Prof. Seonja Kim**

Last revised: December 16, 2013

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