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: Consider 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. Effective From: Fall 2011.

Number of Credits: 3

Prerequisites: None.

Course-Section and Instructors

<table>
<thead>
<tr>
<th>Course-Section</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 105-005</td>
<td>Professor G. Mytalas</td>
</tr>
</tbody>
</table>

Required Textbook:

<table>
<thead>
<tr>
<th>Title</th>
<th>Understanding Basic Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author</td>
<td>Brase and Brase</td>
</tr>
<tr>
<td>Edition</td>
<td>7th</td>
</tr>
<tr>
<td>Publisher</td>
<td>Cengage</td>
</tr>
<tr>
<td>ISBN #</td>
<td>978-1305254060</td>
</tr>
</tbody>
</table>

University-wide Withdrawal Date: Please note that the last day to withdraw with a W is November 2, 2015. It will be strictly enforced.

COURSE GOALS

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. Topics to be
covered include sampling, descriptive statistics, correlation and regression, notions of probability, binomial and normal distributions, estimation and hypothesis testing.

**Course Outcomes**

- Demonstrate their understanding of various statistical terms, types of data, and data collection methods
- Efficiently summarize, organize, and present data
- Effectively compute measures of central tendency, position, and variation and interpret the results
- Demonstrate their understanding of notions of probability and distributions
- Perform statistical analysis, such as estimation, hypothesis testing, correlation and regression and draw conclusions
- Apply statistical reasoning to real world problems and make informed decisions

**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:

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments</td>
<td>20%</td>
</tr>
<tr>
<td>Midterms</td>
<td>30%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>50%</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90 - 100</td>
</tr>
<tr>
<td>B+</td>
<td>85 - 89</td>
</tr>
<tr>
<td>B</td>
<td>80 - 84</td>
</tr>
<tr>
<td>C+</td>
<td>75 - 79</td>
</tr>
<tr>
<td>C</td>
<td>65 - 74</td>
</tr>
<tr>
<td>D</td>
<td>55 - 64</td>
</tr>
<tr>
<td>F</td>
<td>0 - 54</td>
</tr>
</tbody>
</table>

**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 Policy:** Homework will be assigned every week. Either homework will be collected or a quiz will be given in class.

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

- **Final Exam Week:** December 15 - 21, 2015

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 their absence during a midterm or final exam, please review the required steps under the DMS Examination Policy found here:

- [http://math.njit.edu/students/policies_exam.php](http://math.njit.edu/students/policies_exam.php)

**ADDITIONAL RESOURCES**
Math Tutoring Center: Located in Cullimore, Room 214 (See: Fall 2015 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.

All students must familiarize themselves with and adhere to the Department of Mathematical Sciences Course Policies, in addition to official university-wide policies. The Department of Mathematical Sciences takes these policies very seriously and enforces them strictly.

Accommodation of Disabilities: NJIT is committed to providing students with documented disabilities equal access to programs and activities. If you have, or believe that you may have, a physical, medical, psychological, or learning disability that may require accommodations, please contact the Coordinator of Student Disability Services located in the Center for Counseling and Psychological Services, in Campbell Hall, Room 205, (973) 596-3414. Further information on disability services related to the self-identification, documentation and accommodation processes can be found on the webpage at:


Important Dates (See: Fall 2015 Academic Calendar, Registrar)

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 1, 2015</td>
<td>T</td>
<td>First Day of Classes</td>
</tr>
<tr>
<td>September 7, 2015</td>
<td>M</td>
<td>Labor Day - University Closed</td>
</tr>
<tr>
<td>September 8, 2015</td>
<td>T</td>
<td>Monday Classes Meet</td>
</tr>
<tr>
<td>September 8, 2015</td>
<td>T</td>
<td>Last Day to Add/Drop Classes</td>
</tr>
<tr>
<td>November 2, 2015</td>
<td>M</td>
<td>Last Day to Withdraw</td>
</tr>
<tr>
<td>November 25, 2015</td>
<td>W</td>
<td>Friday Classes Meet</td>
</tr>
<tr>
<td>November 26 - 29, 2015</td>
<td>R - Su</td>
<td>Thanksgiving Recess - University Closed</td>
</tr>
<tr>
<td>December 10, 2015</td>
<td>R</td>
<td>Last Day of Classes</td>
</tr>
<tr>
<td>December 11 &amp; 14, 2015</td>
<td>F &amp; M</td>
<td>Reading Days</td>
</tr>
<tr>
<td>December 15 - 21, 2015</td>
<td>T - M</td>
<td>Final Exam Period</td>
</tr>
</tbody>
</table>

Course Outline

<table>
<thead>
<tr>
<th>Week #</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Statistics, Samples and Organizing Data</td>
</tr>
<tr>
<td>2</td>
<td>Measures of Central Tendency and Variation. BoxWhisker Plots</td>
</tr>
<tr>
<td>3</td>
<td>Linear Correlation and Regression, Coefficient of Determination</td>
</tr>
<tr>
<td>4</td>
<td>Review and 1ST MIDTERM</td>
</tr>
<tr>
<td>5</td>
<td>Basic Probability. Rules Events Counting Techniques</td>
</tr>
<tr>
<td>6</td>
<td>Random Variables Discrete and Continuous. Bernoulli and Binomial distributions</td>
</tr>
<tr>
<td>7</td>
<td>Normal Distribution, Normal Curve</td>
</tr>
<tr>
<td>8</td>
<td>Central Limit Theorem. Approximation to Binomial Distribution</td>
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<tr>
<td></td>
<td></td>
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<td>---</td>
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</tr>
<tr>
<td>9</td>
<td>Review and <strong>2ND MIDTERM</strong></td>
</tr>
<tr>
<td>10</td>
<td>Point Estimation (Average and Proportion)</td>
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<tr>
<td>11</td>
<td>Test Hypothesis</td>
</tr>
<tr>
<td>12</td>
<td>Hypothesis for Average</td>
</tr>
<tr>
<td>13</td>
<td>Hypothesis for Proportion</td>
</tr>
<tr>
<td>14</td>
<td>Review for <strong>FINAL EXAM</strong></td>
</tr>
</tbody>
</table>

*Updated by Professor G. Mytalas - 8/28/2015*