EC151, Elementary Economic Statistics,  
Summer I 2013, 3 Credits

Instructor: Alison Kelly  
email: Kellyao@bc.edu  
Office: McGuinn 100  
Office Hours: Mondays and Wednesdays 5:00 pm – 6:00 pm  
Telephone: (617) 552-3900  
Schedule (class times and day(s)): Mondays and Wednesdays 6:15 pm – 9:15 pm  
Room: TBD

**Boston College Mission Statement**

Strengthened by more than a century and a half of dedication to academic excellence, Boston College commits itself to the highest standards of teaching and research in undergraduate, graduate and professional programs and to the pursuit of a just society through its own accomplishments, the work of its faculty and staff, and the achievements of its graduates. It seeks both to advance its place among the nation's finest universities and to bring to the company of its distinguished peers and to contemporary society the richness of the Catholic intellectual ideal of a mutually illuminating relationship between religious faith and free intellectual inquiry.

Boston College draws inspiration for its academic societal mission from its distinctive religious tradition. As a Catholic and Jesuit university, it is rooted in a world view that encounters God in all creation and through all human activity, especially in the search for truth in every discipline, in the desire to learn, and in the call to live justly together. In this spirit, the University regards the contribution of different religious traditions and value systems as essential to the fullness of its intellectual life and to the continuous development of its distinctive intellectual heritage.

**Course Description**

Introduction to statistical techniques employed in the analysis and interpretation of quantitative data. The topics considered are: descriptive statistics, basic probability, probability distributions, sampling and estimation, testing statistical hypotheses and regression. Applicable to business, economics and social science.
## Course Objectives

<table>
<thead>
<tr>
<th>GOALS</th>
<th>OBJECTIVES</th>
<th>ASSESSMENTS</th>
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<tbody>
<tr>
<td>Upon successful completion of this course, students will know/understand:</td>
<td>Upon successful completion of this course, students will be able to:</td>
<td>How the student will be assessed on these learning objectives:</td>
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<tr>
<td>Understand how to summarize data.</td>
<td>1. Present data effectively with the use of tables and graphs.  2. Compute and interpret measures of central location and measures of dispersion.</td>
<td>On-line assignments, quizzes and exams</td>
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<tr>
<td>Understand probability and probability distributions.</td>
<td>1. Employ basic concepts including conditional probabilities and rules of probabilities.  2. Compute summary measures for a probability distribution.  3. Compute probabilities for discrete and continuous probability distributions.  4. Discuss the sampling distribution of the sample mean and the sample proportion.</td>
<td>On-line assignments, quizzes and exams</td>
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<tr>
<td>Understand statistical inference.</td>
<td>1. Construct confidence intervals for the population mean and the population proportion.  2. Select a sample size to estimate the population mean and the population proportion.  3. Conduct hypothesis tests about a population mean and population proportion.</td>
<td>On-line assignments, quizzes and exams</td>
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<tr>
<td>Understand regression analysis.</td>
<td>1. Interpret the components of a regression model.  2. Use the regression model to make a prediction using sample data.  3. Assess the regression model.</td>
<td>On-line assignments quizzes and exams</td>
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## Grading

- **LearnSmart assignments** contribute 5% to the final grade. LearnSmart, an adaptive self-study technology, is a component of CONNECT, see Instructional Plan for more details. After the first week of classes, these assignments **must be submitted BEFORE the scheduled meeting time**. The grade evaluates your
work on the material as a part of the required preparation prior to the class meeting.

- **On-line homework assignments** contribute 20% to the final grade. These assignments require submitting written solutions on CONNECT at or before the due date.
- **Participation** contributes 5% to final grade.
- **In-class quizzes** contribute 10% to final grade.
- **Midterm** contributes 30% to the final grade.
- **Final Exam (cumulative)** contributes 30% to the final grade.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Contribution to Final Grade</th>
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<tbody>
<tr>
<td>LearnSmart</td>
<td>5%</td>
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<tr>
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<td>Participation</td>
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<tr>
<td>Midterm</td>
<td>30%</td>
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<td>Final exam</td>
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**Late Work Policy**

- *No* make-ups are given on any quiz/exam and no late assignments are accepted. Unexcused absences will result in a zero for that particular quiz/exam. For an absence to be excused, you must come see me during my office hours and explain your absence (documentation always helps). I will reweight your grade after this occurs.

**Summer Grading System**

The undergraduate grading system consists of twelve categories: A (4.00), A- (3.67), excellent; B+ (3.33), B (3.00), B- (2.67), good; C+ (2.33), C (2.00), C- (1.67), satisfactory; D+ (1.33), D (1.00), D- (.67), passing but unsatisfactory; F (.00), failure; I (.00), incomplete; F (.00), course dropped without notifying office; W (.00), official withdrawal from course. The graduate grading system is A (4.00), A- (3.67), Excellent; B+ (3.33), B (3.00), good; B- (2.67), C (2.00), passing but not for degree credit; F (.00), failure.

Grade Reports. All students are required to log into the web through Agora to access their summer grades. Students must utilize their BC username and password to log on. If your username or password is not known, the HELP Desk located in the Campus Technology Resource Center (CTRC) in O’Neill Library will issue a new one. The CTRC requires a valid picture ID (a BC ID, driver’s license or passport) to obtain your password.
Instructional Plan

   b. New textbook packaged with CONNECT. Available at bookstore. After purchase, go to [http://connect.mcgraw-hill.com/class/a_kelly_ec151-summer_i_2013](http://connect.mcgraw-hill.com/class/a_kelly_ec151-summer_i_2013) and enter access code for CONNECT packaged with textbook.

   Unless you are given a used text, the eBook with CONNECT is the most economical way to purchase the class materials.

2. Prior to each class meeting, students will be required to answer a set of conceptual exercises using LearnSmart (an adaptive, self-study technology component of CONNECT). With the exception of the first week of class, each LearnSmart assignment must be submitted **before** the scheduled class meeting time. Late submissions are not allowed. These assignments evaluate the student’s work in preparation for the class meeting.

3. Students will be required to complete weekly online homework assignments using CONNECT. CONNECT grades homework automatically and provides feedback on any problems that students are asked to solve. Late submissions are not allowed.

4. There will be approximately five quizzes.

5. There will be a midterm and final.

**Important Policies**

**Scholarship and Academic Integrity**

It is expected that students will produce original work and cite references appropriately. Failure to reference properly is plagiarism. Scholastic dishonesty includes, but is not necessarily limited to, plagiarism, fabrication, facilitating academic dishonesty, cheating on examinations or assignments, and submitting the same paper or substantially similar papers to meet the requirements of more than one course without seeking permission of all instructors concerned. Scholastic misconduct may also involve, but is not necessarily limited to, acts that violate the rights of other students, such as depriving another student of course materials or interfering with another student’s work.

**Request for Accommodations**

If you have a disability and will be requesting accommodations for this course, please register with either Dr. Kathy Duggan (dugganka@bc.edu), Associate Director, Connors Family Learning Center (learning disabilities or AHD) or Dean Paulette Durrett, (paulette.durrett@bc.edu), Assistant Dean for students with disabilities, (all other disabilities). Advance notice and appropriate documentation are required for accommodations. Follow this link for more information:
Attendance
Class attendance is an important component of learning. Students are expected to attend all classes and to arrive by the beginning of and remain for the entire class period. When an occasion occurs that prevents a student from attending class, it is the student’s obligation to inform the instructor of the conflict before the class meets. The student is still expected to meet all assignment deadlines. If a student knows that he or she will be absent on a particular day, the student is responsible for seeing the instructor beforehand to obtain the assignments for that day. If a student misses a class, he or she is responsible for making up the work by obtaining a classmate's notes and handouts and turning in any assignments due. If you miss class, you cannot make up participation points associated with that class. Types of absences that are not typically excused include weddings, showers, vacations, birthday parties, graduations, etc. If circumstances necessitate excessive absence from class, the student should consider withdrawing from the class.

Consistent with our commitment of creating an academic community that is respectful of and welcoming to persons of differing backgrounds, we believe that every reasonable effort should be made to allow members of the university community to observe their religious holidays without jeopardizing the fulfillment of their academic obligations. It is the responsibility of students to review course syllabi as soon as they are distributed and to consult the faculty member promptly regarding any possible conflicts with observed religious holidays. If asked, the student should provide accurate information about the obligations entailed in the observance of that particular holiday. However, it is the responsibility of the student to complete any and all class requirements for days that are missed due to conflicts due to religious holidays.

There may be circumstances that necessitate a departure from this policy. Feel free to contact the Summer Session Office at 617-552-3800 for consultation.

Course Assignments

It is expected that 12 hours per week of your study time out will be spent on out of class assignments and exercises. These are listed below. Please note that some weeks will require more time and some weeks less time but the average is approximately 12 hours per week over the six-week summer session.
<table>
<thead>
<tr>
<th>Date</th>
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<tr>
<td><strong>Week 1:</strong></td>
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| 5/13, Monday | **Read** Chapter 1: Statistics and Data  
1.1 The Relevance of Statistics  
1.2 What is Statistics?  
1.3 Variables and Scales of Measurement |
| 5/15, Wednesday | **Read** Chapter 2: Tabular and Graphical Methods  
2.1 Summarizing Qualitative Data  
2.2 Summarizing Quantitative Data |
| 5/17, Friday | **Complete** LearnSmart Chapter 1 and LearnSmart Chapter 2 by midnight, Friday, May 17th. |
| 5/19, Sunday | **Submit** Homework Assignment 1 and Homework Assignment 2 by midnight, Sunday, May 19th. |
| **Week 2:** |                                                                             |
| 5/20, Monday | **Read** Chapter 3: Numerical Descriptive Measures  
3.1 Measures of Central Location  
3.2 Percentiles and Boxplots  
3.4 Measures of Dispersion |
| 5/20, Monday | **Complete** LearnSmart Chapter 3 and LearnSmart Chapter 4 by 5:00 pm Monday. |
| 5/22, Wednesday | **Read** Chapter 4: Introduction to Probability  
4.1 Fundamental Probability Concepts  
4.2 Rules of Probability  
4.3 Contingency Tables and Probabilities |
| 5/22, Wednesday | **Complete** LearnSmart Chapter 5 by 5:00 pm Wednesday. |
| 5/27, Monday  | **Submit** Homework Assignment 3, Homework Assignment 4, and  
Homework Assignment 5 by midnight, Monday, May 27th. |
| **Week 3:** | **Read** Chapter 6: Continuous Probability Distributions  
6.1 Continuous Random Variables and the Uniform Distribution  
6.2 The Normal Distribution  
6.3 Solving Problems with Normal Distributions  
5/29, Wednesday |  
6/2, Sunday **Submit** Homework Assignment 6 by midnight, June 2\textsuperscript{nd}.  
5/29, Wednesday **Complete** LearnSmart Chapter 6 by 5:00 pm May 29\textsuperscript{th}. |
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<td><strong>Week 4:</strong></td>
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6/3, Monday ***Midterm: Monday, June 3\textsuperscript{rd}: Chapters 1 – 6***  
6/5, Wednesday **Read** Chapter 7: Sampling and Sampling Distributions  
7.1 Sampling  
7.2 The Sampling Distribution of the Sample Mean  
7.3 The Sampling Distribution of the Sample Proportion  
6/5, Wednesday **Complete** LearnSmart Chapter 7 by 5:00 pm June 5\textsuperscript{th}.  
6/9, Sunday **Submit** Homework Assignment 7 by midnight, June 9\textsuperscript{th}.  
6/5, Wednesday |
| **Week 5:** |  
6/10, Monday **Read** Chapter 8: Estimation  
8.1 Interval Estimators  
8.2 Confidence Interval for the Population Mean when \( \sigma \) is known  
8.3 Confidence Interval for the Population Mean when \( \sigma \) is unknown  
8.4 Confidence Interval for the Population Proportion  
8.5 Selecting the Required Sample Size  
6/10, Monday **Complete** LearnSmart Chapter 8 by 5:00 pm June 10\textsuperscript{th}.  
6/12, Wednesday **Read** Chapter 9: Hypothesis Testing  
9.1 Introduction to Hypothesis Testing  
9.2 Hypothesis Test of the Population Mean when \( \sigma \) is known  
9.3 Hypothesis Test of the Population Mean when \( \sigma \) is unknown  
9.4 Hypothesis Test of the Population Proportion  
6/12, Wednesday **Complete** LearnSmart Chapter 9 by 5:00 pm June 12\textsuperscript{th}.  
6/16, Sunday **Submit** Homework Assignment 8 and Homework Assignment 9 by midnight, Sunday, June 16\textsuperscript{th}.  
6/16, Sunday |
## Date Assignment

<table>
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<tr>
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<tr>
<td><strong>Week 6:</strong></td>
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<tr>
<td>6/17, Monday</td>
<td><strong>Read</strong> Chapter 14: Regression Analysis</td>
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<td>14.2 The Simple Linear Regression Model</td>
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<td>14.3 The Multiple Linear Regression Model</td>
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<td></td>
<td>14.4 Goodness-of-Fit Measures</td>
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<tr>
<td>6/17, Monday</td>
<td><strong>Read</strong> Chapter 15: Inference with Regression Models</td>
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<td>15.1 Tests of Significance</td>
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<tr>
<td>6/18, Tuesday</td>
<td><strong>Complete</strong> LearnSmart Chapter 14 and LearnSmart Chapter 15 by 5:00 pm, Monday, June 17th.</td>
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<tr>
<td>6/18, Tuesday</td>
<td><strong>Submit</strong> Homework Assignment 10 by midnight, Tuesday, June 18th.</td>
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*** Final, Wednesday, June 19<sup>th</sup>: Chapters 1 – 9, 14, 15***