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
This course focuses on the analytical tools of statistics that are applicable to management practice and decision making. Topics include descriptive statistics, probability, random variables, sampling distributions, estimation of parameters, hypothesis testing, and regression.

Textbooks & Readings (Required)

Canvas
Canvas is the Learning Management System (LMS) at Boston College, designed to help faculty and students share ideas, collaborate on assignments, discuss course readings and materials, submit assignments, and much more - all online. As a Boston College student, you should familiarize yourself with this important tool. For more information and training resources for using Canvas, click here.
Course Objectives
The overall purpose of the course is to provide you with some of the important tools to support data-driven decision-making. After an introduction to the examination of data, both in a tabular and graphical way, the course covers basic probability (analysis and distributions), a language to describe and quantify the systematic uncertainty (not an oxymoron) that characterizes variation in products and processes. Then we enter the world of statistical decision making to make inference from data concerning decision parameters. Finally, we study the assessment of relationships between variables, used often for purposes of prediction. Throughout the course, we employ Excel as “statistical software” to produce visual, and compute numerical, material to enhance the statistical-decision-making process.

Specific Objectives and Perspectives
• The improvement of the ability to analyze systematically and interpret critically statistical information.
• The demonstration of how and under what conditions such quantitative techniques may be appropriately applied for making managerial decisions in a wide range of situations in industry, business, public administration, and addressing social issues and problems.
• The development of the ability to identify situations where such techniques may be effectively applied, and to communicate with specialists in the field, and to evaluate critically, interpret properly, and utilize wisely the recommendations of experts.
• The providing of a broad understanding of these techniques, so that the student may be better able to appreciate their potentialities as well as their limitations, and to recognize their relative contributions to systematic planning and wise decision making.

Additional Detailed Skills
Students will be able to
• Describe data sets numerically.
• Distinguish among the various sampling techniques.
• Develop and use sampling distributions for means and proportions.
• Apply inferential statistics using confidence interval estimation and hypothesis testing.
• Create, run and interpret linear regression models and their output.
• Demonstrate a proficiency in using Excel statistical software to perform statistical analyses.

Grading
Cases–best 4 out of 5...@7.5% each...30%
Participation..............................10%
2 Quizzes...@15% each...................30%
Final Exam.................................30%

All students can access final course grades through Agora after the grading deadline each the course ends. Transcripts are available through the Office of Student Services.

Deadlines and Late Work
Given how fast things move in the summer, late assignments will not be accepted.

Course Assignments
It is expected that you will spend 8 hours/week on out-of-class assignments. Please note that some weeks will require more and some weeks less time but the average is about 8 hours/week over the semester.
<table>
<thead>
<tr>
<th>Date/Week</th>
<th>Topics</th>
<th>Reading of this day’s material from our text, SDV)</th>
<th>Assignment</th>
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</thead>
<tbody>
<tr>
<td>Class 1, W, May 18</td>
<td>Introduction, scale measurements; how not to be lied to by statistics; charts; frequency distributions; descriptive statistics/summary statistics; measures of central tendency; measures of dispersion.</td>
<td>Selected parts of Chapters 1-5</td>
<td>Chapter 2: 3a, 4a</td>
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<td>Chapter 5: 5bc, 42ab, 53</td>
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<tr>
<td>Class 2, F, May 20</td>
<td>Introduction to probability</td>
<td>Chapter 7, sections 1-8</td>
<td>NFTT-1</td>
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<td>Case 1: Simpson Pharmaceutical – (DUE W, MAY 25, the next class)</td>
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<td>Clue: see page 68-69 in text</td>
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<tr>
<td>M, May 23</td>
<td>No class – BC Graduation day</td>
<td>-</td>
<td>Case 1: Simpson Pharmaceutical – (DUE W, MAY 25, the next class)</td>
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<tr>
<td>Class 3, W, May 25</td>
<td>GO OVER CASE 1 REVIEW PROBLEMS FOR QUIZ 1 - CLASSES 1 and 2 (In class activity and then done together) Probability distributions; parameters; binomial distribution; continuous distributions; normal distribution I;</td>
<td>Chapter 8, sections 1, 2, selected parts of 3, 5</td>
<td>NFTT-2</td>
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<td>Case 2: Lotus Blossom Hotel (DUE W, June 1, the next class)</td>
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<td>Chapter 8: 19, 21</td>
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<tr>
<td>M, May 30</td>
<td>No Class – Memorial Day</td>
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<td>Class 4, W, June 1</td>
<td>QUIZ 1 (75 minutes – material of classes 1 and 2); GO OVER CASE 2 Normal distribution II Sampling from a normal distribution and Central limit theorem</td>
<td>Chapter 8, selected parts of section 5</td>
<td>Chapter 11: 1, 2</td>
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<td></td>
<td>Chapter 9, p268-270</td>
<td>Case 3: A and J Direct Marketing Co. (DUE M, June 6, the next class)</td>
</tr>
</tbody>
</table>
| Class 5, M, June 6 | GO OVER QUIZ 1  
GO OVER CASE 3  
Interval estimation:  
Confidence intervals:  
a) Known standard deviation  
b) Unknown standard deviation  
c) Proportions  
d) Finite populations | Chapter 11, sections 1-5 | NFTT-3  
Chapter 11: 7, 13  
Chapter 9: 13, 17  
Case 4: Asian Box Co.  
(DUE M, June 13) |
|---|---|---|
| Class 6, W, June 8 | REVIEW PROBLEMS FOR QUIZ 2 - CLASSES 3-5  
(In class activity and then done together)  
Introduction to hypothesis testing; testing means; testing proportions; type I and type II errors. | Chapter 10 (skip 10.3 until next class) | NFTT-4  
Chapter 10: 6, 15  
Case 5: Luna Electronics Co.  
(DUE W, June 15) |
| Class 7, M, June 13 | QUIZ 2 (75 minutes – material of classes 3-5)  
GO OVER CASE 4  
Hypothesis testing, continued; p-value; comparing two means. | Chapter 10, section 3 | Chapter 10: 3, 4, 9,10  
Chapter 12: 41 (use Excel) |
| Class 8, W, June 15 | GO OVER QUIZ 2  
GO OVER CASE 5  
Simple linear regression; least squares line and inference | Chapter 6 | Chapter 6: 25, 33  
Chapter 14: 10, 20  
TRY REVIEW PROBLEMS FOR FINAL EXAM |
| Class 9, M, June 20 | Multiple linear regression (MLR);  
REVIEW PROBLEMS FOR FINAL EXAM - CLASSES 6-9  
(In class activity and then done together) | Chapter 15 | STUDY FOR FINAL EXAM |
| Class 10, W, June 22 | FINAL EXAM (entire class – material of classes 6-9) | | |
**Written Work**  
Summer Session students are expected to prepare professional, polished written work. Written materials must be typed and submitted in the format required by your instructor. Strive for a thorough yet concise style. Cite literature appropriately, using APA, MLA or CLA style per your instructor’s requirements. Develop your thoughts fully, clearly, logically and specifically. Proofread all materials to ensure the use of proper grammar, punctuation and spelling. For writing support, please contact the [Connors Family Learning Center](#).

**Attendance**  
Attending class is an important component of learning. Students are expected to attend all class sessions. When circumstances prevent a student from attending class, the student is responsible for contacting the instructor before the class meets. Students who miss class are still expected to complete all assignments and meet all deadlines. Many instructors grade for participation; if you miss class, you cannot make up participation points associated with that class. Makeup work may be assigned at the discretion of the instructor. If circumstances necessitate excessive absence from class, the student should consider withdrawing from the class. Attendance will be taken each class and be part of the participation grade.

Consistent with BC’s commitment to creating a learning environment that is respectful of 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 their academic status. Students are responsible for reviewing course syllabi as soon as possible, and for communicating with the instructor promptly regarding any possible conflicts with observed religious holidays. Students are responsible for completing all class requirements for days missed due to conflicts with religious holidays.

**Accommodation and Accessibility**  
Boston College is committed to providing accommodations to students, faculty, staff and visitors with disabilities. Specific documentation from the appropriate office is required for students seeking accommodation in Summer Session courses. Advanced notice and formal registration with the appropriate office is required to facilitate this process. There are two separate offices at BC that coordinate services for students with disabilities:

- [The Connors Family Learning Center (CFLC)](#) coordinates services for students with LD and ADHD.
- [The Disabilities Services Office (DSO)](#) coordinates services for all other disabilities.

Find out more about BC’s commitment to accessibility at [www.bc.edu/sites/accessibility](http://www.bc.edu/sites/accessibility).

**Scholarship and Academic Integrity**  
Students in Summer Session courses must produce original work and cite references appropriately. Failure to cite references is plagiarism. Academic dishonesty includes, but is not necessarily limited to, plagiarism, fabrication, facilitating academic dishonesty, cheating on exams or assignments, or submitting the same material or substantially similar material 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. Please see the [Boston College policy on academic integrity](#) for more information.