ADMT253002, Statistics, 3 Credits.
Woods College of Advancing Studies
Spring 2016 Semester, January 19 – May 16, 2016
Tuesday, 6.15pm – 9.15pm

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Office Hours: Tuesday, 5-6pm, and by appointment.

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 inferential statistics covering description of sample data, probability, binomial and normal distribution, random sampling, estimation, and hypothesis-testing.

Textbooks & Readings (Required)
You can sign up for MyStatLab at http://www.pearsonmylabandmastering.com/northamerica/students/get-registered/index.html using the course ID “banfield49728”.

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

1. Students will demonstrate critical analysis of studies involving statistical claims across cultural settings and will learn the impact of culture, gender, and age in statistics as demonstrated by applying and interpreting appropriate statistical tests.

2. Students will be able to express statements involving uncertainty in the language of probability theory.

3. Students will be able to calculate moments, and use these to interpret probability distributions and critically analyze and describe data.

4. Students will be able to apply hypothesis testing in theoretical and real-world situations and calculate confidence intervals.

Grading

There will be one midterm exam, one project to be completed over the course of a week, and one final examination. Homework will be assigned weekly on MyStatLab, to be completed online, and on Canvas, to be handed in on paper. These components will be weighed as follows:

- 18% MyStatLab assignments
- 6% written homework assignments
- 18% midterm exam
- 18% project
- 40% final examination

Students will be expected to participate and contribute to the class through presenting their work and debating relevant material. Students actively participating will receive 5% extra credit towards their final grade for the course.

The undergraduate grading system for Woods College is as follows:

A (4.00), A- (3.67)
B+ (3.33), B (3.00), B- (2.67)
C+ (2.33), C (2.00), C- (1.67)
D+ (1.33), D (1.00), D- (.67)
F (.00)

All students can access final grades through Agora after the grading deadline each semester. Students who complete course evaluations can access grades earlier, as they are posted.

Deadlines and Late Work

Written homework is due at the start of the class, and online assignments on MyStayLab will be due Saturday at midnight. Students may submit two homework assignments, either written or online on MyStatLab, up to 5 days late. Further late homework will not be considered.

The project due date will be announced in class and on Canvas. Late project submissions will receive a penalty of 20%, applied to the maximal possible percentage grade, for every late day.
Course Assignments
It is expected that you will spend 8 hours per week 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 8 hours per week over the semester.

Tentative Course Schedule

<table>
<thead>
<tr>
<th>Date/Week</th>
<th>Topic</th>
<th>Reading/Assignments</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/19/15</td>
<td>Introduction; measures of center</td>
<td>Ch. 1-3.2</td>
<td></td>
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<tr>
<td>1/26/15</td>
<td>Measures of variation and relative standing</td>
<td>Ch. 3.3, 3.4</td>
<td></td>
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<tr>
<td>2/2/15</td>
<td>Probability</td>
<td>Ch. 4.1-4.3</td>
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<tr>
<td>2/9/15</td>
<td></td>
<td>MIDTERM EXAM</td>
<td></td>
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<tr>
<td>2/16/15</td>
<td>Multiplication principle, conditional probability</td>
<td>Ch. 4.4 – 4.6</td>
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<tr>
<td>2/23/15</td>
<td>Probability distributions</td>
<td>Ch. 5</td>
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<tr>
<td>3/1/15</td>
<td>Normal distribution</td>
<td>Ch. 6.1 – 6.3</td>
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<td>3/15/15</td>
<td>Central limit theorem, normal approximations.</td>
<td>Ch. 6.4 – 6.7</td>
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<tr>
<td>3/22/15</td>
<td>Population proportion estimates</td>
<td>Ch. 7.1, 7.2</td>
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<tr>
<td>3/29/15</td>
<td>Mean and variance estimates</td>
<td>Ch. 7.3, 7.4</td>
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<td>4/5/15</td>
<td>Hypothesis testing</td>
<td>Ch. 8.1 – 8.3</td>
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<tr>
<td>4/12/15</td>
<td>Hypothesis testing for mean and variance</td>
<td>Ch. 8.4 – 8.6; PROJECT</td>
<td>PROJECT DUE</td>
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<tr>
<td>4/26/15</td>
<td>Inference from two samples</td>
<td>Ch. 9</td>
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<tr>
<td>5/3/15</td>
<td>Correlation, Regression</td>
<td>Ch. 10</td>
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<tr>
<td>5/10/15</td>
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<td>FINAL EXAM</td>
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Written Work
Woods College 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. Students missing multiple classes will not receive any extra participation credit outlined in the “Grading” section.

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 Woods College 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 Woods College 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](http://www.bc.edu/sites/accessibility) for more information.

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