Teaching Assistants:
Yubang Tian (yubang.tian@bc.edu)  Igor Karagodsky (karagods@bc.edu)

Office Hours/Optional Sections*
Professor Cichello  M 10 am-noon, TH 1-2:30 pm, or by appointment.
Igor  F 9-10:30 am (Maloney 340B)  W* 7-8 pm, room TBA
Yubang  T 1:30-3 pm  (Maloney 340C)  TH* 7-8 pm, room TBA

You will also be able to discuss these concepts with your lab discussion leader. Additionally, the Connors Family Learning Center (in O’Neill) has tutors available for you to consult.

Textbook

If you buy your textbook outside of the BC Bookstore, you will be able to buy access to MyStatLab for approximately $90. (WARNING: Although it has the same authors and title, this is not the same text being used by Father McGowan’s section.)
### Grading

Your course grade will be determined using the following grading scheme:

- Lab (including lab assignments): 20%
- Participation (including graded problem sets): 10%
- 10 Minute Quizzes: 5%
- Midterm 1: 13%
- Midterm 2 (cumulative): 20%
- Final Exam (cumulative): 32%

### Mandatory Lab Sections

In addition to lecture, you will attend a lab once a week. The lab work and assignments will be incorporated into your final course grade. In the lab, you will learn how to use STATA - a statistical software package - and apply the concepts learned in lecture. Details on how to access STATA will be presented in lab.

### Problem Sets

Problem sets from class will consist of two portions: a graded portion, which is more mechanical, and an ungraded portion, which includes more conceptual questions.
- The graded portion will be completed online (and automatically graded) using MyStatLab.
- The ungraded portion will include conceptual questions (or parts of questions) that are more reflective of the difficulty of the exam questions. You will not turn these in. Solution sets will be made available. I strongly encourage you to work together with a study partner on these more conceptual questions.

### 10 Minute Quizzes

There will be four to eight 10-minute quizzes throughout the semester. These are meant to test your understanding of the basic terms and methods discussed in the previous week’s lectures. I will be clear about what topics might be tested on the quiz. Each quiz will have 1 question (worth 1 pt.) that will be straight-forward and 1 question (worth .5 pts.) that may be slightly tougher or refer to basic material from previous weeks. Your quiz grade will be determined as follows:

\[
\text{Quiz grade} = \frac{100 \times \sum_{i=1}^{n} s_i}{n}, \text{MIN} \{1, 1\}
\]

where \(s_i\) is the score on quiz \(i\) (of \(n\) quizzes).

### Participation

Your participation grade is determined in equal parts by:
- attending class (measured by I-clicker responses);
- completing graded problem sets on MyStatLab (described previously); and
- your performance on these graded problem sets.

### Exams

Exams will be closed book. I will provide a formula cheat sheet as well as any statistical tables you will need. I will post those cheat sheet/tables in advance.

### Examination Make-up Policy

The following policy will be strictly enforced:
1. You must obtain my approval before the exam or you will be penalized.
2. There will be no make-up exams for either midterm. If you miss a midterm exam, the weight assigned to that exam will be distributed over the remaining exams.
EC 1151.02: Statistics Syllabus (as of 8/26/14) Cichello

Classroom Technology

Canvas: Class announcements, class handouts, problem sets, problem set solutions and other material will be posted on the course website on Canvas. Material for the STATA lab will also be posted on our class Canvas website.

I>Clicker: We will be using I>clicker in the classroom. Every student must buy a clicker from the bookstore (if you do not already have one). You must register your I>Clicker on Canvas (for each course it is used in). Your attendance, measured via I>Clicker responses, will affect your participation grade.

Notes on Class Structure

1. Lecture handouts will be posted on Canvas prior to class. It is the responsibility of the student to download these lecture notes and bring them to class. I will post my slides after class.

2. I will often post additional post-class handouts that will help you walk you through some of the material we have covered in class.

3. I will also have a question or two on MyStatLab corresponding to the topic covered each day. The post-class questions are optional but give you a chance to walk through a basic problem on the topic covered. (Exam questions may be considerably more difficult. See ungraded problem sets.)

Academic Integrity

Cheating on any exam will result in
   (1) an automatic failure in the course and
   (2) reporting the incident to the College of Arts and Sciences as required by the University.
See http://www.bc.edu/publications/ucatalog/policy.shtml#integrity for a full discussion of the university’s policies and procedures regarding academic integrity.

Accommodations for Learning Disabilities

If you have a learning disability, you are strongly encouraged to request accommodations for this course. Exams are lengthy and have some time pressure. Please register with either Kathy Duggan (Kathleen.duggan@bc.edu) Associate Director, Academic Support Services, the Connors Family Learning Center (learning disabilities and ADHD) or Suzy Conway (suzy.conway@bc.edu), Assistant Dean for Students with Disabilities (all other disabilities). Advance notice and appropriate documentation are required for accommodations.

Note on the flu and other illnesses

If you are out sick, please email me a note from the medical center/doctor. I can adjust your participation score accordingly. You should get notes from a classmate and keep up with the homework to the extent possible. You should also expect to come to office hours to review any questions you have when you feel better. Please feel free to ask me for an extension on problem sets if you cannot keep up due to the illness. Also, please be pro-active in contacting me when it comes to missing exams. (See Examination Make-up Policy section above.)
## Tentative Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Chapter</th>
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<tbody>
<tr>
<td>9/2</td>
<td><strong>How to Fast Track Your Career</strong></td>
<td>1.1-1.4 Ch 1 DW*</td>
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<td></td>
<td>Introductions; Summation Notation</td>
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<td>9/4</td>
<td><strong>The SI Jinx &amp; why alumni can’t get their kids into BC!</strong></td>
<td>1.5; 1.6; 6.1; 2.1; (2.3)</td>
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<td></td>
<td>Regression to Mean</td>
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<td>How did you choose where to apply to college?</td>
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<td>How much do you think you will make after college?</td>
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<td>Descriptive Statistics: Measures of Central Tendency; Percentiles;</td>
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<td></td>
<td>and Histograms; (Weighted Means)</td>
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<tr>
<td>9/9</td>
<td><strong>Re-centering (and re-scaling) your world</strong></td>
<td>2.2; 2.4</td>
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<td>Variance, Standard deviation; z-scores</td>
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<td><strong>Why do Colleges care about SAT scores?</strong></td>
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<td>Why does BC pay the football coach so much?</td>
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<td>Are we in danger of the 3rd thing???</td>
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<td>Covariance and Correlation</td>
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<td>9/11</td>
<td><strong>Who is going to the Fall Concert?</strong></td>
<td>3.1-3.3</td>
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<td>Probability Basics; Conditional Probabilities; Independence</td>
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<tr>
<td>9/16</td>
<td><strong>Should we screen for breast cancer?</strong></td>
<td>3.4-3.5</td>
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<td>Joint and Marginal Probabilities; Bayes Rule</td>
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<tr>
<td>9/18</td>
<td><strong>Why do insurance companies exist?</strong></td>
<td>4.1-4.3 Ch 5 NS*</td>
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<td><strong>Why do the rich get richer?</strong></td>
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<td>Expected Values and Variances of Discrete Random Variables and Linear Functions of Discrete Random Vars.</td>
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<tr>
<td>9/23</td>
<td><strong>What if all beer tastes the same?</strong></td>
<td>4.4; 4.7; (4.5; 4.6) pp. 68-71 NS*</td>
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<td>Binomial Random Variables</td>
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<td><strong>How to Manage Risk</strong></td>
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<td>Joint Distributions and Discrete Random Variables</td>
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<td>9/25</td>
<td><strong>Avoiding common statistical traps:</strong></td>
<td>Ch 6 NS*</td>
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<td>Missing Airplanes, The SI Jinx, Convicting on DNA evidence, In OJ’s defense, Short Breaks Cause Cancer</td>
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<td>Selection Bias, Regression to Mean, Multiple Tests, Improper</td>
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<td>Conditioning, Correlation ≠ Causation (3rd thing)</td>
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<td>9/30</td>
<td><strong>Are you Happy? Understanding Responses in the age of the internet...</strong></td>
<td>5.1, 5.2</td>
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<td>Continuous Random Variables: Uniform Distribution</td>
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<td>10/2</td>
<td><strong>First Midterm</strong></td>
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<tr>
<td>10/7</td>
<td><strong>The World is Normal? (lots of examples)</strong></td>
<td>5.3, 5.4, 5.6 Ch. 8 DW*</td>
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<td>Continuous Random Variables: Normal Distributions</td>
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<tr>
<td>10/9</td>
<td><strong>Drill, baby, drill!</strong></td>
<td>Review 5.3; 6.1; 6.2</td>
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<td>The Standard Normal Distribution;</td>
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<td><strong>Where are we anyway?</strong></td>
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<td>Distribution of Sample Means from a Normal Distribution</td>
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<td>10/14</td>
<td><strong>Return to Schlitz Marketing Campaign?</strong></td>
<td>6.2</td>
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<td>How to catch cheaters and shysters! From schools to Wall Street to business</td>
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<td>Central Limit Theorem and Distribution of Sample Means</td>
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<tr>
<td>Date</td>
<td>Topic</td>
<td>Notes</td>
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<tr>
<td>10/16</td>
<td><strong>Who is Color Blind in America?</strong></td>
<td>Proportions</td>
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<tr>
<td>10/21</td>
<td>Estimation: Single Population; Normal Distributions, Confidence Intervals</td>
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<tr>
<td>10/23</td>
<td><strong>Assessing Claims on the Internet</strong></td>
<td>Hypothesis Testing; Two-tailed and one-tailed tests; Normal distribution with known variance</td>
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<td>10/28</td>
<td><strong>Assessing Claims on the Internet, pt. 2</strong></td>
<td>Hypothesis testing: Normal distribution with unknown variance; t-distributions</td>
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<td>10/30</td>
<td><strong>Sex education in Ecuador</strong></td>
<td>Hypothesis testing: large sample or proportions</td>
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<td>11/4</td>
<td><strong>What’s up with my Soda?</strong></td>
<td>Distribution of Sample Variances of a Normal distribution ($\chi^2$ distribution); Confidence Interval and Hyp. Testing</td>
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<td>11/6</td>
<td><strong>Second Midterm</strong></td>
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<td>11/11</td>
<td><strong>Sex Education in Ecuador pt. 2</strong></td>
<td>Multiple populations: Distribution and Hypothesis Testing</td>
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<tr>
<td>11/13</td>
<td><strong>Catching cheaters at low cost: Consulting Problem</strong></td>
<td>Power of a test</td>
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<td>11/18</td>
<td><strong>More than Correlation: Identifying Meaningful Impacts</strong></td>
<td>Overview of Linear Models; Linear Regression Models</td>
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<tr>
<td>11/20</td>
<td><strong>The Return of Inference! (and Covariance)</strong></td>
<td>Least Squares Model, R-squared and Standard errors</td>
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<td>11/25</td>
<td><strong>It’s a Non-linear world: Viral growth and standard economic theory</strong></td>
<td>Log functional forms</td>
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<td>11/27</td>
<td><strong>No Class: Thanksgiving Break</strong></td>
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<tr>
<td>12/2</td>
<td><strong>Gender Discrimination in Thailand?</strong></td>
<td>Dummy Variables and Regression as a conditional mean</td>
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<tr>
<td>12/4</td>
<td><strong>Addressing that 3rd thing: Beauty in the Labor Market</strong></td>
<td>Multiple Regression, partial derivatives, and quadratic functional forms</td>
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<td>12/9</td>
<td>Course Overview; Review for final</td>
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<tr>
<td>12/15</td>
<td><strong>FINAL EXAM: 12:30 pm – 4:30 pm</strong></td>
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NS* refers to Charles Wheelan’s Naked Statistics.
Chapters from DW* and NS* will be made available on Canvas.