Welcome to Statistics! The objective of this course is to develop skills analyzing and interpreting statistical data. Although examples will be drawn principally from biology, business, and science, the thrust of the course is on the underlying statistical techniques, all of which have applications to a wide array of other phenomena.

Course/Topic Agenda

<table>
<thead>
<tr>
<th>Week</th>
<th>Sections</th>
<th>Descriptions</th>
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<td>1</td>
<td>1.1 - 1.2</td>
<td>Graphs and Statistical Measurements</td>
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<td>2</td>
<td>1.3, 2.1 - 2.4</td>
<td>Normal Distributions, Correlation, Lease Squares</td>
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<td>3</td>
<td>3.1 - 3.4</td>
<td>Experimental Design</td>
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<td>4</td>
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<td>Randomness</td>
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<td>Means and variances</td>
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<td>7</td>
<td>5.1 - 5.2</td>
<td>Sampling</td>
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<td>8</td>
<td>6.1 - 6.4</td>
<td>Significance Testing</td>
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<td>9</td>
<td>7.1-7.3</td>
<td>Inference</td>
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<td>10</td>
<td>8.1 - 8.2</td>
<td>Inference for Proportions</td>
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<td>Review/Exam 2</td>
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<td>9.1 - 9.3</td>
<td>Analysis of Two-Way Tables</td>
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<td>14</td>
<td></td>
<td>Review</td>
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The prerequisites for this course are minimal, but include skill with basic algebra and trigonometry. (Though as the mathematician Paul Halmos says, “The beginner should not be discouraged if he finds he does not have the prerequisites for the prerequisites”–be bold, take the plunge.)

Homework and Participation (30%)

There are two canonical ways of learning mathematics: one is to do mathematics, the other is to talk about mathematics. Homework and in-class participation are ways to cover both bases, and as such should be viewed as means of mastering the material rather than objectives in themselves.

Homework will generally be assigned on the same day every week (we can decide on the day *en groupe*) and collected on the same day the following week. Although I will look at the homework, I will essentially only check completeness: in general, you will get full credit for any reasonably complete problem set. However, *it is your responsibility to make sure you understand all the homework problems!*

Quizzes (10%)

I will occasionally give in-class quizzes, sometimes announced, sometimes unannounced. The quizzes will be designed to consolidate your understanding, and you will get full credit for any reasonable attempt. There
will be no make-up quizzes, however, so you might endeavor to come to class.

**Exams (40%)**

There will be two cumulative in-class exams, spaced at roughly equal intervals throughout the semester. The best preparation for the exams will be the homework problems and the quizzes: make sure you understand all assigned problems, and can solve them expeditiously.

**Final (20%)**

A comprehensive closed-book exam to be administered in class.

**Grading**

Final grades will be assigned according to the percentages outlined above, with letter grades assigned according to the usual scheme:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>90-100</td>
</tr>
<tr>
<td>B</td>
<td>80-89</td>
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<tr>
<td>C</td>
<td>70-79</td>
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<tr>
<td>D</td>
<td>60-69</td>
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<tr>
<td>F</td>
<td>&lt; 60</td>
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Pluses and minuses will be assigned to scores on the high or low ends of the scale, respectively.

**Getting Help**

Statistics can be difficult: if you feel you need extra explanation on certain topics, seek out help as soon as possible. Three obvious resources:

- **Friends or classmates.** Peers are a great resource, and working together is encouraged. (Caveat: homework can be solved in groups, but should be written up independently.)

- **Tutors.** There are tutors in the CWLT, and additional tutors supplied by the math department. (Details will be announced as soon as they are known.)

- **The professor.** Nothing is worse than languishing alone in empty office hours: drop by, say hello, ask questions. If my office hours don’t work for you, drop in some other time, shoot me an email, or give me a call. (Contact information below.)

“Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write.”

– H. G. Wells