Math 305: Probability and Statistics I
Wednesday: 6:30 – 9:00 pm, Seigle Hall, Room #305

**Instructor:** Michael Yingling  
**Email:** myingling33@gmail.com  
**Phone:** (573) 579-1412  
**Office Hours:** By appointment or before class

**Textbook:** Stats: Data and Models, Third Edition, by De Veaux, Velleman, and Bock

**Course Description:** An elementary introduction to probability theory and statistics. Discrete and continuous random variables, mean and variance, hypothesis testing and confidence limits, nonparametric methods, student’s analysis of variance, regression, and contingency tables. Prerequisite: U20-156 (Calculus II) or consent of department.

**Important Dates:**
- January 14, 2015 – First Day of Class  
- January 28, 2015 – Last day to receive a 100% refund and drop without a W  
- February 11, 2015 – First Exam (tentative)  
- March 9-15, 2015 – Spring Break  
- March 16, 2015 – Last day to change grade option (to pass/fail or letter grade)  
- April 1, 2015 – Second Exam (tentative)  
- April 20, 2015 – Last day to withdraw from course  
- April 29, 2015 – Final Exam

**Course Format:** Problem sets will be assigned each week and will be due prior to the following class. Please scan your solutions and email them to me. You do not need to type up your responses providing I can read your writing. In-class meetings will consist of lecture and some group work. The goal is to cover 2-3 chapters per class period. Exams will consist of a take-home portion and an in-class portion. Since questions of the statistical nature are often solved with the aid of a software program, occasionally, I will assign a problem or two that is to be solved using a computer software package.

**Grading:** Your grade in this course will consist of the following components:

- Homework: 30%  
- Computer Problems: 10%  
- 3 Exams (weighed equally): 60%

The final grade issued will be based on the following percentages:

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<tr>
<th>Grade</th>
<th>Percentage</th>
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<tr>
<td>A</td>
<td>≥ 90%</td>
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<tr>
<td>B</td>
<td>80% - 89%</td>
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<td>C</td>
<td>70% - 79%</td>
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<td>D</td>
<td>60% - 69%</td>
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<tr>
<td>F</td>
<td>&lt; 60%</td>
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Software/Calculators: Scientific and graphing calculators may be used on homework and exams. R will be the primary software demonstrated in class, however, students are free to use other software with which they may be more familiar (e.g., SPSS, Stata, SAS, etc...).

Chapter Topics: Again, the goal is to cover 2-3 chapters per class period. It is possible that we may not get to every chapter.

Chapter 1 – Stats Starts Here – Problems Assigned: None
Chapter 2 – Data – Problems Assigned:
Chapter 3 – Displaying and Describing Categorical Data – Problems Assigned:
Chapter 4 – Displaying and Summarizing Quantitative Data – Problems Assigned:
Chapter 5 – Understanding and Comparing Distributions – Problems Assigned:
Chapter 6 – The Standard Deviation as a Ruler and the Normal Model – Problems Assigned:
Chapter 7 – Scatterplots, Association, and Correlation – Problems Assigned
Chapter 8 – Linear Regression – Problems Assigned:
Chapter 9 – Regression Wisdom – Problems Assigned:
Chapter 10 – Re-expressing Data: Get it Straight! – Problems Assigned:
Chapter 11 – Understanding Randomness – Problems Assigned:
Chapter 12 – Sample Surveys – Problems Assigned:
Chapter 13 – Experiments and Observational Studies – Problems Assigned:
Chapter 14 – From Randomness to Probability – Problems Assigned:
Chapter 15 – Probability Rules! – Problems Assigned:
Chapter 16 – Random Variables – Problems Assigned:
Chapter 17 – Probability Models – Problems Assigned:
Chapter 18 – Sampling Distribution Models – Problems Assigned:
Chapter 19 – Confidence Intervals for Proportions – Problems Assigned:
Chapter 20 – Testing Hypotheses About Proportions – Problems Assigned:
Chapter 21 – More About Tests and Intervals – Problems Assigned:
Chapter 22 – Comparing Two Proportions – Problems Assigned:
Chapter 23 – Inferences About Means – Problems Assigned:
Chapter 24 – Comparing Means – Problems Assigned:
Chapter 25 – Paired Samples and Blocks – Problems Assigned:
Chapter 26 – Comparing Counts – Problems Assigned:
Chapter 27 – Inferences for Regression – Problems Assigned:
Chapter 28 – Analysis of Variance – Problems Assigned:

Disability Policy Statement: Students who require reasonable accommodations (due to a disability) to properly execute coursework should see the instructor.

Additional Resources:
1) Instructor
2) Coursera.org
3) The Analysis Factor
4) R Bloggers
5) The R Reference Card