

## PSC 200: Data Analysis I

Room: Gavett 310

Days and Time: MW, 2:00pm-3:15pm

Instructor: Prof. Sergio Montero

Office: M, 4:00pm-5:00pm, Harkness Hall 320

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Teaching Assistant: Anna Walsdorff

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**Course Description:** Data analysis has become a key part of many fields including politics, business, law, and public policy. This course covers the fundamentals of data analysis, giving students the necessary statistical skills to understand and critically analyze contemporary political, legal, and policy puzzles. Lectures will focus on the theory and practice of quantitative analysis, and weekly lab sessions will guide students through the particulars of statistical software.

*Number of Credit Hours:* This course follows the College credit hour policy for four-credit courses. The course meets twice weekly for 150 minutes per week, and there is an additional 75-minute recitation/lab session every week.

**Prerequisites:** No prior knowledge of statistics or data analysis is required. Working knowledge of high-school algebra is the only course prerequisite. Without special permission of the instructor, students may not enroll in this course if they have earned credit and a letter grade for ECO 230, PSC 205, PSY/CSP 211, STT 211, STT 212, STT 213, STT 214, or any other course in statistics, or if they have received a score of 4 or 5 on the Advanced Placement exam in Statistics.

**Grading:** Evaluation is based on weekly problem sets (30%), three in-class exams (20% each), and class participation (10%).

The lowest homework grade will be dropped when calculating the final course grade to allow for illness or other unforeseen events. Late assignments will be penalized 10/100 points for each day they are late. Homeworks more than 7 days late will not be accepted.

*Collaboration Policy:* While collaboration on problem sets is encouraged, all assignments must be completed individually.

*Academic Honesty:* Please be familiar with the University's policies on academic integrity and disciplinary action (<https://www.rochester.edu/college/honesty/>).

*Disability Resources:* The University respects and welcomes students of all backgrounds and abilities. If you encounter any barriers to full participation in this course, please contact the Office of Disability Resources (<https://www.rochester.edu/college/disability/>).

**Text:** Diez, David M., Christopher D. Barr, and Mine Çetinkaya-Rundel (2015), *OpenIntro Statistics*, 3rd ed (free download: <https://www.openintro.org/stat/index.php>). In addition, lecture notes will be uploaded to Blackboard.

**Computing:** Students will learn to code in R. Computing labs will be held on F, 2:00pm-3:15pm, in Harkness 114.

### **Course Schedule:**

August 28: Course overview

September 2: No class (Labor Day)

September 4,9,11: Introduction to data (chapter 1)

September 16,18,23: Probability (chapter 2)

September 25,30, October 2: Distributions of random variables (chapter 3)

October 7: First exam

October 9,16,21: Foundations for inference (chapter 4)

October 14: No class (fall term break)

October 23,28: Inference for numerical data (chapter 5)

October 30: Inference for categorical data (chapter 6)

November 4: Second exam

November 6: No class

November 11,13,20: Introduction to linear regression (chapter 7)

November 18: No class

November 25, December 2,4: Multiple and logistic regression (chapter 8)

November 27: No class (Thanksgiving break)

December 9: Third exam