

Syllabus for Applied Statistical Methods I

Dr. Robin Donatello

MATH 315, Fall 2017

Logistics

- **Instructor:** Dr. Robin Donatello
- **Office Location:** Holt 202
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- **website:** <https://norcalbiostat.github.io/MATH315/>
- **Prerequisites:** Basic computer literacy. Recent statistics course such as Math 105.
- **Meeting Days and Times**
 - Section 02 MWF 10-11 noon HOLT 257
 - Section 01 MWF 12-1 pm HOLT 277

You can download the Syllabus in PDF form by clicking [this link](#).

Learning Outcomes

By the end of the semester students will be able to

- Collect data using online tools and record it in a format ready to analyze.
- Process, screen, recode, transform, and clean data.
- Describe data using visualizations and words.
- Select and carry out an appropriate statistical analysis.
- Explain study results and limitations to a non-technical audience.
- Understand and implement a reproducible research pipeline.
- Become a data nerd (Optional, but recommended).

Required Materials

- **Textbook:** Open Intro Statistics https://www.openintro.org/stat/textbook.php?stat_book=os
- **Reliable Laptop with internet connectivity:** Required to bring every day. Contact me if this poses a problem or concern for you.
- **Headphones:** In case you forget to watch a required video before class you may be asked to do so in class.
- **Computer Software:** All required software is free. Instructions on how to download and install can be found at this link: <https://norcalbiostat.netlify.com/post/software-overview/>
- **Blackboard Learn Use:** I will use Blackboard learn for
 - Regular Announcements (which will also get emailed to your campus email)
 - Submitting and returning assignments
 - Grades
 - Discussion board for outside of class collaboration.

Coursework

There are 6 types of assignments that I use to help you learn, and to assess how well you have learned the material and can synthesize information. These categories are listed below, somewhat ordered in roughly how prompt the feedback is (Top:immediate, Bottom: approx 1 week)

1. **BBLearn:** Quizzes typically worth 1 point on Blackboard Learn.
 - These are a random set of questions from a pool of questions.
 - You have unlimited attempts to earn the score you desire.
 - Late submissions are accepted until EOD of the day before the upcoming exam.
2. **R:** You will spend a fair amount of time on Data Camp learning R.
 - There will be a corresponding BBLearn learn quiz associated with each lesson.
 - You will have multiple (but not unlimited) attempts at these quizzes.
 - Questions can be conceptual, interpreting results, and asking you to write code to demonstrate a task.
 - The corresponding DC labs range in difficulty and length, so the points per assignment will range from 5-10.
3. **Learning:** These types of assignments are all designed to help you become aware of how you learn and how you can become a more active learner.
 - Learning assignments take the form of readiness assurance tests, team preparation, Exam error assessments and meta-cognition assessments and reading.
4. **Exams:** There will be 3 exams.
 - An Error Analysis can be conducted on Exam 1 and 2 to earn back up to half the credit missed.
5. **Written:** Includes problem sets from the course notes, and in-class worksheets.
 - Typically be submitted as either code files or compiled PDF/Word/HTML documents.
 - These will take a considerable amount of time writing and are worth 5-10 pts.
 - The solutions are posted to the course website after the due date.
 - See comment about late homework below.
6. **Project:** You will be working in pairs on a project throughout the term.
 - There will be several check in points
 - You will present your work as a poster at the end of the semester.

In addition to the above there will be general weekly participation points granted for answering questions in class.

Late work:

- Written homework is due via Blackboard Learn every Sunday end of day (EOD). This means midnight.
- Late work and resubmission for assignments earning 0 pts will be accepted until EOD day before exam, for at most half credit. These are then not graded for correctness, just effort and completeness.

Grading

- Your final grade will be a straight sum of points earned and will be displayed as a running total in Blackboard Learn.
- The approximate contributions per category are: In class participation, BBLearn, Reading, Learning and R are combined worth about 25%, Written assignments 25%, Exams 25%, and the project 25%.
- I use a standard grade cutoff of 100-90%: A, 89-80%: B, 79-70%: C, 69-60%: D, 0-59%: F Plusses and minuses will be as displayed on Blackboard Learn.

Topic Overview

- Data Collection and recording
- Preparing data for analysis
- Data Visualization
- Foundations for Inference: Random variables, Parameters vs. Statistic, Confidence Intervals, Hypothesis Testing
- Inference for a single sample (t-tests, χ^2 tests)
- Inference comparing multiple samples (t-tests, ANOVA, χ^2 tests)
- Linear regression analysis (Simple and Multiple, Categorical predictors and contrasts)

Adding and Dropping the course

The last day to drop or add a course is 9/15/17. After this date, withdraws will only be allowed for serious and compelling reasons subject to department chair approval.

Americans with Disabilities Act

If you need course adaptations or accommodations because of a disability or chronic illness, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Please also contact Accessibility Resource Center (ARC) as they are the designated department responsible for approving and coordinating reasonable accommodations and services for students with disabilities. ARC will help you understand your rights and responsibilities under the Americans with Disabilities Act and provide you further assistance with requesting and arranging accommodations.

Accessibility Resource Center
530-898-5959
Student Services Center 170
arcdept@csuchico.edu

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