Syllabus for Math 15

Course Information

Semester & Year: Spring 2020
Course ID & Section #: MATH-15, D8561
Instructor's name: Levi Gill
Day/Time: Tuesday, Thursday 05:15PM - 07:20PM
Location: DM 15
Number of units: 4

Note: Combined with Math 15S, the entire class period runs from 5:15-8:55 with a ten-minute break in the middle.

Instructor Contact Information

Office location: E2
Office hours: By appointment
Phone number: 707-465-2361
Email address: levi-gill@redwoods.edu
Preferred Contact through Canvas

Required Materials

Textbook title: *See book options below*
Other requirement: Statcrunch account

Catalog Description

An introduction to basic concepts of descriptive and inferential statistics, with emphasis on the meaning and use of statistical significance. Students will use probability techniques to make decisions via hypothesis testing and will estimate parameters using confidence intervals. The course includes applications from a variety of technical and social science fields.

Course Student Learning Outcomes

1. Accurately communicate statistical ideas using correct statistical notation, graphs, and vocabulary.
2. Use descriptive and inferential statistics to better understand real-world problems.
3. Demonstrate appropriate use of technology in making decisions based upon real-world data.
4. Read and interpret information that contains statistical analysis and be able to communicate these results.
5. Judge the validity of research reported in the mass media and peer reviewed journals.

Evaluation & Grading Policy

Canvas Exercises/Quizzes & Discussion Boards 20%
Canvas Checkpoint Quizzes & In Class Quizzes.....20%
Exams.....40%
Reading Reports.....20%

A	$92 \leq Grade$
A-	$90 \leq Grade < 92$
B+	$87 \leq Grade < 90$
B	$82 < Grade < 87$
B-	$80 \leq Grade \leq 82$
C+	$78 \leq Grade < 80$
C	$70 \leq Grade < 78$
D	$60 \leq Grade < 70$
F	$Grade < 60$

Prerequisites/co-requisites/ recommended preparation

Completion of Intermediate Algebra or appropriate placement based on AB 705 mandates.

Welcome to Class!

Statistics is an incredibly relevant topic in our society. It is used in news, business, politics, academic research, and in every field that uses data. Understanding statistics will not only further your educational and career goals, but help you be an informed citizen and consumer.

You may be intimidated by this class, but don't worry! This is not your typical math class.

Statistics is about critical thinking

At its heart, statistics is uses data to answer questions. And even though it involves math, many people find that their intuition goes a long way in this class.

Statistics is best learned hands-on

In this class we will be learning interactively, which means our classes won't be primarily lecture-based but will involve interactive group work.

Things You Should Know

Time Commitment

This class will keep you busy! We have long class periods and a lot of homework. You should be ready to commit at least 12 to 16 hours per week to work outside of class. At the beginning it can feel a little overwhelming, but in the first few weeks you'll find your pace.

Math 15S – Corequisite Support

This class is linked with a corequisite support course Math 15S. Essentially the support course builds in more time into class each week so that we can learn statistics hands-on. We also address some other important skills. In order to be enrolled in this section you must be enrolled in Math 15S as well.

Class Rules

As a general rule, *be respectful to your classmates and help provide a healthy environment for learning*. Give your full attention to the material or activities we are working on (i.e. cell phones are productivity killers). When working in groups be mindful to engage everyone. My favorite phrase for group activities is, "Step back; Step forward." Some of you will be more prone to step forward and take charge – take step back and give others a chance to engage! Others of us will naturally want to hang back – your contributions are important, so step forward!

Grading

Canvas Exercises/Quizzes & Discussion Boards ……20%

Instead of using a textbook we'll be using an interactive course in Canvas that will give you readings and have you immediately work with the material. It will also require you to interact with problems in discussion boards which provides you a chance to work through a problem and then get/give feedback. Giving and getting feedback is critical to making sure you gain increased mastery of the material.

Canvas Checkpoint Quizzes …….20%

Statistics has lots of parts, so we're going to spread out the testing and instead of having a few big exams (two midterms and a Final), we'll have lots of medium sized Checkpoint Quizzes and a few Exams. At the end of each unit you'll have an online Checkpoint Quiz. The Quiz allows you three attempts, and we keep the best grade. Some days we'll have in class quizzes as well. *Quizzes are for learning.* It let's you how you're doing with the material, and give you an early alert if you're missing something.

Exams……40%

At key moments in the semester we'll have an exam. It will usually happen when we are transitioning into a new major topic. The idea is that you would have had lots of practice with increased levels of mastery, and the exam is an opportunity to show what you know.

Reading Reports……20%

There are some important parts of statistics we won't get a lot of time to discuss. Instead I'm assigning three possible books for you to read. You choose the book that you think you'll get the most out of, and I'll have you give periodic reports. Two of these books are written towards a more general audience, so it assumes you don't know much about statistics. The other is more academic and is geared for those who are going to use statistics in their field.

Falling Behind or Not Showing Up

First of all, I want to make it clear: *I will never judge you for falling behind or not showing up.* Despite our best efforts, sometimes life gets in the way of school. Sometimes other classes end up requiring more work than expected, so school gets in the way of school! I've been there in both cases and have had to drop classes mid-semester because I had too much on my plate. So I totally understand. I'm here to help you and don't feel like you owe me an apology for doing your best to balance your life.

But let's assume the worst happens, and for some reason your fall behind or stop showing up.

> **Falling Behind**. If I notice that you are falling behind, I'm going to reach out by email and offer to help. Guaranteed. But at some point you can get so far behind that there's no way you'll pass the class. *If you fall more than two weeks behind in your work, I reserve the right to withdraw you from the class.* This means you get a W instead of an F on your transcript, which is much better for your GPA. I'll never do this without discussing with it with you first and giving you plenty of heads up. My first impulse is always to get you caught up.

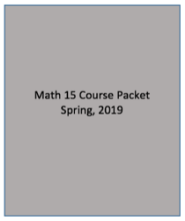
> **Not Showing Up**. This isn't an online class. To meet all the learning goals and objectives of this class, it is expected that you attend class and participate in the activities. So even if you're online doing the work but not showing up to class, I still have to consider you absent. Similar to the previous situation, *if you disappear from class and miss more than two weeks, then I reserve the right to withdraw you from the class*. I'll make an attempt to reach out to you first.

Are there exceptions? Yes, there's no way for me to predict every situation. That's why I use the language "I reserve the right." Ultimately I have to make a judgment call that makes sense for the each situation, and that's why I'll always try to reach out and discuss the situation with you. But in my experience, the critical amount of time/work from which it becomes nearly impossible to catch up from is two weeks.

Appealing a Grade

If you believe you have received the wrong (or an unfair) grade for an assignment, please come talk! I'm totally willing to admit when the mistake is on my end. If you earned the points, you deserve the points.

Course Packets



During class we'll be using packets to guide the discussion. You need to purchase a set from the bookstore.

Spring 2020 Note: There is a delay in the packets getting on the bookstore for purchase, so for now I'll bring in a copies, and you can purchase them when they arrive.

Book Options

You will have to read **one** of the following books for this class. My advice is buy them used, or check them out from the library.

Naked Statistics by Charles Wheelan

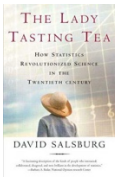
ISBN: 039334777

If you've read this book already (example Math 102 students), then you can't use this one. Otherwise, this is a book is a good introduction to the topic of statistics as it's used in society today. It will reinforce and further inform you on the topics we discuss in this class

The Lady Tasting Tea: How Statistics Revolutionized Science in the Twentieth Century by David Salsburg

ISBN: 0805071342

One of the neat things about statistics is that it is relatively new discipline. Most everything you would learn in algebra has been known for hundreds if not thousands of years. But statistics has been developed over the last one hundred years. In this book, David Salsburg weaves the topics of statistics together with the stories the people who created them.



Statistics Done Wrong: The woefully complete guide by Alex Reinhart

If you are going to use statistics after this class, then this is the book for you. It will build on the concepts we're learning and explain the boundaries and limits of the methods. It will also help you recognize when a study is using statistics improperly.

Technology

We'll be using this software for statistical calculations and analyzing data. You can purchase a 6-month license $13.00 at www.statcrunch.com/get-access

Basic Scientific Calculator

You want a calculator for **basic** computations. At the very least it needs to be able to take a square root, so look for the $\sqrt{\ }$ button. You don't need a big, fancy graphing calculator, but if you already have one you can use it.