



Syllabus for Math 15

Introduction to Statistics

Course Information

Semester & Year: Fall, 2020
Course ID & Section #: Math 15 (D9906)
Instructor’s name: Levi Gill
Course units: 4

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

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

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. 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 Boards20%

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 Quizzes20%

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.

Ways to Connect

Do you have a question? Here are some ways to get a hold of me or get help.

- ***Might your question benefit other people in the class?*** Then post it in the Ask and Answered forum. You can find the link to it on the Homepage and in each Module. I'll check it once a day, but I'll give space for others to answer or discuss questions first, because explaining things helps topics gel in your own mind. If we all keep this active, then this can be the fastest way to get help!
 - **Bonus Points:** If you have been active in asking questions *and* answering questions in the Ask and Answered forum, I will take this account when submitting final grades. If you are sitting on a minus grade (B-, A-) then I will round it to a full grade (B, A). If you are sitting on a plus grade (C+, B+) I will round up to the next letter minus grade (B-, A-).
- ***Is your message private?*** Please send me a message using the messaging tool in Canvas (just click on the INBOX button in the left toolbar). You are also welcome to email me (levi-gill@redwoods.edu), but I get a lot of emails, and I don't want your message to get lost. If you do email me, please include "V-STAT-15" in your subject line. Please note that if you send me a message that I feel will benefit your classmates, I may ask you to post your question in the discussion forum, so everyone. I will try to respond within 24 hour to your emails.

Regardless of how you reach out, if you don't hear back from me within 48 hours of sending your message, you can assume I did not receive it (or it got lost in my chaos)...so please resend.

Netiquette

Please be polite. In an online environment, this is called **netiquette**. Sometimes it is difficult to convey nuance or humor through written (electronic) communication. Just be respectful to your classmates and be kind, considerate, and forgiving in all of your posts in the discussion forums. Adhere to the same standards of behavior online that you follow in real life, because you don't want to forget: Real humans read your posts. After all, our Canvas space is our classroom, and we want to create a positive, collaborative, interesting community. To learn more about netiquette, read [10 Netiquette Guidelines Online Students Need to Know \(Links to an external site.\)](#).

In some of the written discussions you will be expect to provide constructive feedback, which might take on the form of telling someone they made a mistake. You might feel bad, but don't! If we are committed to polite collegiality and being a learning community, then when we read your feedback in that tone. People are usually grateful if you can catch mistakes and explain mistakes because everyone benefits.

Note: Additional policies may be added as I deem necessary to provide you with the best learning environment possible.

Technology Skills

Online courses require adequate computer skills. If you are worried about your computer skills, please let me know, because I can help. But to check yourself before we get started, you should be able to:

- - - navigate a class in Canvas
 - receive and respond to messages sent to your CR email account (this means you need to check your CR email!)
 - download and upload files in Canvas assignments
 - use a phone or digital camera (or webcam?) to upload pictures into assignments
 - use a word processor program (such as Microsoft Word or Google Docs)
 - use a webcam or a phone to participate in Zoom class sessions

It is your responsibility to meet the technological demands of the course, which may often include troubleshooting technological adventures.

Computer and Hardware Requirements

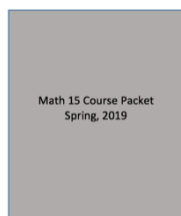
- **Computers:** You should plan on doing the majority of your work (especially exams and assignments) from a reasonably recent model notebook or desktop computer (Mac or PC). We don't recommend that you plan on participating in this class solely from a portable device (phone or tablet), but it is possible. Please let me know if this will be an issue for you, and we can try to help.
- **Portable Devices:** You can use recent model portable devices (such as Android or iOS phones & tablets) for some things in this class. If you do decide to use your portable device for some of your class work, use the free Canvas app (called "Canvas by Instructure") available in iTunes (for iOS) and the Google Play Store (for Android). This app is much better than trying to connect to Canvas using a web browser on a portable device.
- **Webcam:** You will need to be able to record videos of yourself for this class. Many computers have a built in webcam. If yours does not, you will need to purchase (or borrow) a webcam. There are inexpensive options available that plug into a USB port. (You may also be able to use your phone for this.)
- **Smartphone camera or other digital camera:** You will need to be able to upload pictures of your classwork. You can take a picture, or use an app like CamScanner or Adobe Scanner.

Connection and Software Requirements

It is important that you set yourself up for success by making sure that you have the necessary internet connection and software in order to participate fully in the course. Please make sure that you have the following set up by the first week of class:

- - - **High-speed internet:** You should have high-speed internet (such as broadband) service from cable, DSL, or satellite providers as there are video lectures and conferencing as part of this course, and they require this speed. You need to have reliable access to the internet for the duration of the course. Anticipate problems with your computer and internet access (including power outages) by not waiting until the last minute to submit assignments. It is your responsibility to meet the class deadlines.
 - **Browsers** - You will need to use the most recent version of one of the following browsers in order to best access the course and activities; Mozilla Firefox (10 or higher), Chrome (54.0.2840.99 m or higher), or Safari (1.2 or higher). We don't recommend using Internet Explorer as it doesn't seem to play well with Canvas.
 - **Word Processing and Graphing Software** - You may need Microsoft Word (or a compatible word processing program) for writing assignments in the class. You might also need Microsoft Excel (or a compatible spreadsheet program) to create graphs in this class. But we have good news! All students at CR have access to Office 365 (Word, PowerPoint, Excel, and OneNote) free with a valid @mycr.redwoods.edu email account. Go to <https://office.com/getoffice365> ([Links to an external site.](#)) to get started. (There are also free options for tools like this, such as [Google docs](#) ([Links to an external site.](#)) or [OfficeLibre](#). ([Links to an external site.](#)) Google docs requires a gmail account, which your mycr email actually IS.)
 - **Acrobat Reader** – [Adobe Acrobat Reader DC](#) ([Links to an external site.](#)) is a free program that will allow you to read and download pdf files.
 - **Statcrunch** - [Statcrunch](#) ([Links to an external site](#)) is the main software tool that we'll use for creating graphs and doing other statistical calculations.
 - **Technology Support:** Before contacting Technical Support please visit the [Online Support Page](#) ([Links to an external site.](#)). For password issues with Canvas, Web Advisor or your mycr.redwoods.edu email, contact its@redwoods.edu or call 707-476-4160 or 800-641-0400 ext. 4160 between 8:00 A.M. and 4:00 P.M., Monday through Friday.

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.

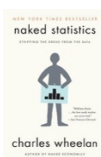
Book Options

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

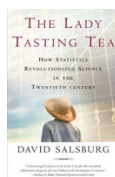
If you've read this book already (example Math 102 students), then you can't use this one. Otherwise, this is a book is a good introduction to the topic of statistics as it's used in society today. It will reinforce and further inform you on the topics we discuss in this class



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 $\sqrt{\quad}$ button. You don't need a big, fancy graphing calculator, but if you already have one you can use it.

Admissions Deadlines & Enrollment Policies

Fall 2020 Dates

- Classes begin: 8/22/20
- Last day to add a class: 8/28/20
- Last day to drop without a W and receive a refund: 9/4/20
- Labor Day (all-college holiday): 9/7/20
- Last day to petition to file P/NP option: 9/18/20
- Last day to petition to graduate or apply for certificate: 10/29/20
- Last day for student-initiated W (no refund): 10/30/20
- Last day for faculty-initiated W (no refund): 10/30/20
- Veteran's Day (all-college holiday): 11/11/20
- Fall break (no classes): 11/23/20-11/28/20
- Thanksgiving (all-college holiday): 11/25/20-11/27/20
- Final examinations: 12/12/20-12/18/20
- Semester ends: 12/18/20
- Grades available for transcript release: approximately 1/8/21

