

Stat 250 - Introduction to Statistical Programming

Professor Robert Richardson

Course Information

- ▶ **Course:** Stat 250 - Introduction to Statistical Programming
- ▶ **Schedule:** MWF 2:00 - 2:50
- ▶ **Location:** 1161 WVB

Instructor Information

- ▶ **Professor:** Robert Richardson
 - ▶ **Email:** richardson@stat.byu.edu
 - ▶ **Office:** 2186 WVB
 - ▶ **Zoom Room:** 8014223736
 - ▶ **Office Hours:** Monday and Thursday, 10:15 to 11:00

TA Information

- ▶ **TA:** Riley Rawhouser
 - ▶ **Email:** everestm@student.byu.edu
 - ▶ **Office:** 1151 WVB
 - ▶ **Office Hours:** TBD

Course Description

Introduce programming concepts essential for success as a statistician. These include

- ▶ Basic to Advanced Programming Knowledge
- ▶ Data Wrangling and Visualization
- ▶ Simulation, sampling, and testing

Course Materials

Texts:

- *R For Data Science*, 2nd Edition <https://r4ds.hadley.nz> - *Hands on Programming in R*, 4th Edition <https://rstudio-education.github.io/hopr/>

Course Management: Learning Suite

Materials: GitHub Repository

Grade Distribution

- ▶ Homework: 40%
- ▶ Projects: 25%
- ▶ Midterm Exam: 15%
- ▶ Final Exam: 20%

Exams

- ▶ **Midterm:** Details to come
- ▶ **Final Exam:** Details to come

Homework

- ▶ The course is split into several units, each unit has
 - ▶ Slides for the material
 - ▶ A homework set
 - ▶ This will be completed, turned in, and graded
 - ▶ Part of this will always be done in class together
 - ▶ A second set of problems
 - ▶ I call these drills because they are extra non-comprehensive practice often focusing on a single concept
 - ▶ These are not turned in, but are expected to be understood
 - ▶ Solutions to these will be posted as well, but try to answer them and understand them without the solutions first
- ▶ Homework will be in the form of quarto files you will need to fill in

Import technologies and tools

- ▶ **RStudio**: An IDE, or Integrated Development Environment that helps to organize a coding environment
- ▶ **R**: Is a programming software that is especially tuned to data analysis problems

Download both from <https://posit.co/download/rstudio-desktop/>

Tentative Schedule

Week	Topics
Unit 1	Hypothesis Testing Using R
Unit 2	Random Sampling and Data Structures
Unit 3	Simulation Basics
Unit 4	Simulation Studies and Coding Efficiency
Midterm	
Unit 5	Data Import and Visualization
Unit 6	More Visualization
Unit 7	Tidy Data and Wrangling
Unit 8	More Wrangling
Unit 9	Text Processing

Praying in Class

I have an opt-in prayer schedule. Sign up for days here:

<https://docs.google.com/spreadsheets/d/1w7S-xuLLaKEXfCRjYYCHJgcB2KtbtwevKuAwSWWloYM/edit?usp=sharing>

Discord

Discord is a handy tool for asking quick simple questions. Both the TA and myself or other students can help out when you are stuck. This link should be good through Jan 15, after which you can message me to join the class discord.

<https://discord.gg/x6GYFmaE>

Policies

Honor Code

Students are expected to maintain academic honesty and adhere to BYU's Dress and Grooming Standards.

Violations may result in disciplinary action.

AI

I am in the camp of professors who think AI is amazing and we should be using it. This class is a great place for you to understand the limits of an AI tool, like ChatGPT in helping you code. For example, debugging with ChatGPT is much easier than before. To get the most out of this class, I would ask that you try to code first before turning to ChatGPT.

Accessibility Services

If you require accommodations, contact the University Accessibility Center (UAC) at 801-422-2767.

Mental Health Support

Confidential counseling is available through CAPS:

- Phone: 801-422-3035
- Website: caps.byu.edu

Questions?

Feel free to email me or stop by during office hours!