**Psych 3020: Research Methods in Psychology II**

Fall 2020

M/W: 9 - 9:50 AM in Psychology 313

F: 9 - 9:50 AM in Strickland 222A

**Course Information**

Instructor: Kyle Ripley, MA2

Email: [krrggc@mail.missouri.edu](mailto:krrggc@mail.missouri.edu)

Office: Irrelevant, thanks to Covid

Office Hours: Tuesday 11:30 - 12:30

Friday 10:00 - 11:00

or by appointment

Please email me from your MU account. University policy requires all email communication between instructors and students be conducted through the student’s MU account. When you email me, please indicate the course in which you are enrolled.

**Textbook**

Field, A. (2016). *An adventure in statistics: The reality enigma*. Sage.

ISBN-13: 978-1446210451

During the course of the semester, I may assign additional readings. These readings will be posted on the Canvas page for the course approximately one week before they will be discussed in class.

**Catalog Description**

“Continuation of PSYCH 3010 and required for all further labs in psychology. Prerequisites: MATH 1100 with a grade of C- or better or exemption, and PSYCH 1000, and a grade of C or better in PSYCH 3010 and STAT 1200 or exemption. This course is restricted to junior and senior psychology majors.”

**Course Description and Learning Objectives**

This course is designed for undergraduate students in Psychological Sciences. In this course, we will cover the fundamentals of sampling, data management, hypothesis testing, statistical analysis, and statistical inference. Students will be taught how to apply these data analytic tools via the R computing language.

By the end of this course, I hope that you will have:

* Developed an understanding of the different types of sampling and their impact on how results are generalizable to different populations
* Learned the meaning of, and how to identify, various qualities of distributions, as well as their impact on the validity of statistical interpretations
* The ability to succinctly describe distributions of data by their key qualities (i.e., descriptive statistics)
* Become comfortable with forming research questions and testable hypotheses about data
* Learned which statistical analyses are appropriate for certain types of variables and hypotheses
* The ability to interpret, explain, and report (in APA format) the results of your analyses
* Developed the ability to import, clean, manage, manipulate, analyze, and visualize your data inside of the R computing language
* Developed the skills necessary to become a responsible and discerning consumer of data and representations/misrepresentations of data
* Gained first-hand experience with data analysis and come through it thinking “Hey, that was actually pretty fun!”

**Course Format**

Monday and Wednesday class sessions will consist of lectures and discussions. Friday class sessions, on the other hand, will consist of learning to program in R (it’s okay if you have no previous programming experience, that’s what I’m here for!). On Fridays, class will be held in a computer lab; however, if you’d like to bring your own laptop to work on, you’re more than welcome to.

We will make great use of canvas in this course, so I strongly encourage you to turn on notifications for the course.

**Attendance**

Attendance is not mandatory for this course; however, I strongly encourage you to attend all lectures and lab sessions in order to help you earn the grade that you desire for this course.

**Assignments and Grading**

Performance in this class will be evaluated based on homework assignments, quizzes, and exams.

**Homework Assignments**: 34% of final grade (200 points)

There will be 11 homework assignments during the semester. They are worth 20 points each, and the lowest score will be dropped. Homework assignments will primarily focus on applying the skills learned during lab sessions. You will have one week to complete each homework assignment, and they will be **due by the start of class on the due date.** No late assignments will be accepted.

**Quizzes**: 16% of final grade (100 points)

There will be 11 quizzes during the semester. They are worth 10 points each, and the lowest score will be dropped. Quizzes will take place during the final 10 minutes of class on Wednesdays and will primarily focus on recollection of material covered in lecture that week. No make-up quizzes will be given.

**Exams**: 50% of final grade (300 points)

There will be 4 exams, three during the semester (midterm) and one during finals week. Midterm exams *will not be* cumulative; the final exam *will be* cumulative. Each exam will be worth 100 points; however, your lowest exam grade will be dropped. If you’re happy with your grades on the first three exams, you do not need to take the final.

**Academic Honesty**

Academic integrity is fundamental to the activities and principles of a university. All members

of the academic community must be confident that each person's work has been responsibly and honorably acquired, developed, and presented. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards breaches of the academic integrity rules as extremely serious matters. Sanctions for such a breach may include academic sanctions from the instructor, including failing the course for any violation, to disciplinary sanctions ranging from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting, collaboration, or any other form of cheating, consult the course instructor.

**Intellectual Pluralism**

The University community welcomes intellectual diversity and respects student rights. Students who have questions or concerns regarding the atmosphere in this class (including respect for diverse opinions) may contact the Departmental Chair or Divisional Director; the Director of the

Office of Students Rights and Responsibilities(http://osrr.missouri.edu/); or the MU Equity Office(http://equity.missouri.edu/), or by email at equity@missouri.edu. All students will have the opportunity to submit an anonymous evaluation of the instructor(s) at the end of the course.

**University of Missouri Notice of Nondiscrimination**

The University of Missouri System is an Equal Opportunity/ Affirmative Action institution and is nondiscriminatory relative to race, religion, color, national origin, sex, sexual orientation, age, disability or status as a Vietnam-era veteran. Any person having inquiries concerning the University of Missouri's compliance with implementing Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the Americans With Disabilities Act of 1990, or other civil rights laws should contact the Assistant Vice Chancellor, Human Resource Services, University of Missouri-Columbia, 130 Heinkel Building, Columbia, Mo. 65211, 573/882-4256, or the Assistant Secretary for Civil Rights, U.S. Department of Education.

**Americans with Disabilities Act**

The University of Missouri complies with the guidelines set forth in the Americans with Disabilities Act of 1990.

Students with Disabilities:

If you anticipate barriers related to the format or requirements of this course, if you have emergency medical information to share with me, or if you need to make arrangements in case the building must be evacuated, please let me know as soon as possible.

If disability related accommodations are necessary (for example, a note taker, extended time on

exams, captioning), please register with the Office of Disability Services (http://disabilityservices.missouri.edu), S5 Memorial Union, 882-4696, and then notify me of your eligibility for reasonable accommodations. For other MU resources for students with disabilities, click on "Disability Resources" on the MU homepage.

**Tentative Course Schedule**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Week (Dates) | Assigned Reading | Topic | | Graded Events |
|  |  | Lecture | Lab |  |
| Week 1 8/23 - 8/29 | Chapters 1 & 2 | Review of Necessary Topics | Intro to R | None |
| Week 2 8/30 - 9/5 | Chapter 3 & 4 | Summarizing Data & Central Tendency | Packages and Functions | HW 1 |
| Week 3 9/6 - 9/12 NO CLASS 9/7 | Chapter 5 | Visualizing Data | Intro to ggplot2 | HW 2 |
| Week 4 9/13 - 9/19 | Chapters 6 & 7 | Z-scores & Probability | Exploratory Data Analysis | HW 3 |
| Week 5 9/20 - 9/26 | Any chapter you missed up to now | Review | Importing & Exporting Data | Exam 1 |
| Week 6 9/27 - 10/3 | Chapter 8 | Inferential Statistics | Confidence Intervals | HW 4 |
| Week 7 10/4 - 10/10 | Chapter 9 | Robust Estimation |  | HW 5 |
| Week 8 10/11 - 10/17 | Chapters 10 & 11 | Hypothesis Testing & Alternatives |  | HW 6 |
| Week 9 10/18 - 10/24 | Chapter 12 | Assumptions | Assumption Testing | HW 7 |
| Week 10 10/25 - 10/31 | Chapter 13 | Relationships in Data | Correlation and Chi-Square | HW 8 |
| Week 11 11/1 - 11/7 | Any chapter you missed up to now | Review |  | Exam 2 |
| Week 12 11/8 - 11/14 | Chapter 14 | General Linear Model | Simple Linear Regression | HW 9 |
| Week 13 11/15 - 11/21 | Chapter 15 | Comparing Two Means | t-Tests | HW 10 |
| Week 14 11/22 - 11/28 | **Thanksgiving Break** | | | |
| Week 15 11/29 - 12/5 | Chapter 16 | Comparing Several Means | ANOVA | HW 11 |
| Week 16 12/6 - 12/12 | Any chapter you missed up to now | Review | **NO CLASS 12/11** | Exam 3 |
| Week 17 12/13 - /19 | Finals Week | | | Exam 4 |

**Due Dates**

|  |  |
| --- | --- |
| Graded Event | Due Date |
| Quiz 1 | 9/2 |
| HW 1 | 9/4 |
| Quiz 2 | 9/9 |
| HW 2 | 9/11 |
| Quiz 3 | 9/16 |
| HW 3 | 9/18 |
| Midterm 1 | 9/23 |
| Quiz 4 | 9/30 |
| HW 4 | 10/2 |
| Quiz 5 | 10/7 |
| HW 5 | 10/9 |
| Quiz 6 | 10/14 |
| HW 6 | 10/16 |
| Quiz 7 | 10/21 |
| HW 7 | 10/23 |
| Quiz 8 | 10/28 |
| HW 8 | 10/30 |
| Midterm 2 | 11/4 |
| Quiz 9 | 11/11 |
| HW 9 | 11/13 |
| Quiz 10 | 11/18 |
| HW 10 | 11/20 |
| Quiz 11 | 12/2 |
| HW 11 | 12/4 |
| Midterm 3 | 12/9 |

**Please Note: This syllabus is subject to change.** Any changes will be announced in class and posted on Canvas. Depending on how long it takes to discuss each topic, changes may or may not be made to this tentative schedule.