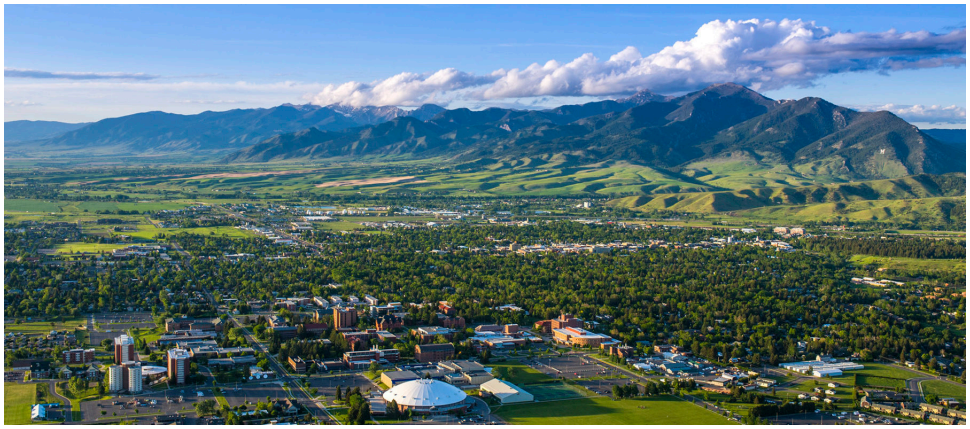
# STAT 216 Coursepack



Spring 2023
Montana State University

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This resource was developed by Melinda Yager, Jade Schmidt, and Stacey Hancock in 2021 to accompany the online textbook: Hancock, S., Carnegie, N., Meyer, E., Schmidt, J., and Yager, M. (2021). *Montana State Introductory Statistics with R.* Montana State University. https://mtstateintrostats.github.io/IntroStatTextbook/.

# Contents

# Preface

This coursepack accompanies the textbook for STAT 216: Montana State Introductory Statistics with R, which can be found at https://mtstateintrostats.github.io/IntroStatTextbook/. The syllabus for the course (including the course calendar), data sets, and links to D2L Brightspace, Gradescope, and the MSU RStudio server can be found on the course webpage: https://math.montana.edu/courses/s216/. Videos assigned in the course calendar and other notes and review materials are linked in D2L.

Each of the activities in this workbook is designed to target specific learning outcomes of the course, giving you practice with important statistical concepts in a group setting with instructor guidance. In addition to the in-class activities for the course, the coursepack includes reading guides to aid in taking notes while you complete the required readings and videos. Bring this workbook with you to class each class period, and take notes in the workbook as you would your own notes. A well-written completed workbook will provide an optimal study guide for exams!

The activities and labs in this coursepack will be completed during class time. Parts of each lab will be turned in on Gradescope. To aid in your understanding, read through the introduction for each activity before attending class each day.

STAT 216 is a 3-credit in-person course. In our experience, it takes six to nine hours per week outside of class to achieve a good grade in this class. By "good" we mean at least a C because a grade of D or below does not count toward fulfilling degree requirements. Many of you set your goals higher than just getting a C, and we fully support that. You need roughly nine hours per week to review past activities, read feedback on previous assignments, complete current assignments, and prepare for the next day's class. The following will give you an idea of what a typical week in the life of a STAT 216 student looks like.

- *Prior to class meeting*:
  - Read assigned sections of the textbook, using the provided reading guides to take notes on the material.
  - Watch assigned videos on that week's content, pausing to take notes and answer video quiz questions.
  - Read through the introduction to the day's in-class activity.
  - Read through the week's homework assignment and note any questions you may have on the content.
- *During class meeting*:
  - Work through the in-class activity or weekly lab with your classmates and instructor, taking detailed notes on your answers to each question in the activity.
- *After class meeting*:
  - Complete any parts of the activity you did not complete in class.
  - Review the activity solutions in the Math and Stat Center, and take notes on key points.
  - Finish watching any remaining assigned videos or readings for the week.
  - Complete the week's homework assignment.

# Spring 2023 Calendar of In-Class Activities

This calendar only lists the in-class activities, RStudio labs and exams each week. For required readings and videos as well as due dates for assignments, refer to the calendar at:
https://mtstateintrostats.github.io/Syllabus/#Course_calendar

| **Week** | **Day** | **Date** | **Activity** |
|---|---|---|---|
| 1 | W | 1/18 | Intro to Data |
| 1 | F | 1/20 | Week 1 Lab |
| 2 | M | 1/23 | American Indian Address Part A |
| 2 | W | 1/25 | American Indian Address Part B |
| 2 | F | 1/27 | Week 2 Lab |
| 3 | M | 1/30 | Myopia and Nightlights |
| 3 | W | 2/1 | IMDb Moview Reviews |
| 3 | F | 2/3 | Week 3 Lab |
| 4 | M | 2/6 | Movie Profits — Linear Regression |
| 4 | W | 2/8 | Movie Profits — Correlation |
| 4 | F | 2/10 | Week 4 Lab |
| 5 | M | 2/13 | Group Exam 1 Review |
| 5 | W | 2/15 | Group Midterm Exam 1 |
| 5 | F | 2/17 | Midterm Exam 1 |
| 6 | M | 2/20 | (*No class*) |
| 6 | W | 2/22 | Helper Hinderer — Simulation HT |
| 6 | F | 2/24 | Helper Hinderer — Simulation HT continued |
| 7 | M | 2/27 | Helper Hinder — Simulation CI |
| 7 | W | 3/1 | Handedness of Male Boxers — Theory |
| 7 | F | 3/3 | Week 7 Lab |
| 8 | M | 3/6 | Good Samaritan — Simulation HT |
| 8 | W | 3/8 | Good Samaritan — Simulation CI |
| 8 | F | 3/10 | Week 8 Lab |
| Holiday | M–F | 3/13–3/17 | **No Class — Spring Break** |
| 9 | M | 3/20 | Helmet Use and Head Injuries — Theory HT |
| 9 | W | 3/22 | Helmet Use and Head Injuries — Theory CI |
| 9 | F | 3/24 | Week 9 Lab |
| 10 | M | 3/27 | Group Exam 2 Review |
| 10 | W | 3/29 | Group Midterm Exam 2 |
| 10 | F | 3/31 | Midterm Exam 2 |
| 11 | M | 4/3 | Swearing |
| 11 | W | 4/5 | Color Interference |
| 11 | F | 4/7 | (*No class*) |
| 12 | M | 4/10 | Does Behavior Impact Performance? |
| 12 | W | 4/12 | The Triple Crown |
| 12 | F | 4/14 | Week 12 Lab |
| 13 | M | 4/17 | Crocodylian |
| 13 | W | 4/19 | Golf Driving Distances |
| 13 | F | 4/21 | Week 13 Lab |
| 14 | M | 4/24 | What's the probability? |
| 14 | W | 4/26 | Relative Risk |
| 14 | F | 4/28 | Week 14 Lab |

| **Week** | **Day** | **Date** | **Activity** |
|---|---|---|---|
| 15 | M | 5/1 | Final Group Exam Review |
| 15 | W | 5/3 | Final Group Exam Part 1 |
| 15 | F | 5/5 | Final Group Exam Part 2 |
| Finals | T | 5/9 6 - 7:50 pm | Common Final Exam<br>See www.montana.edu/registrar/Schedules.html |