# 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/. 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, reading guides are provided on D2L to aid in taking notes while you complete the required readings. 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 out-of-class activities will be completed outside of class, typically between the Monday and Wednesday classes. The additional 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. 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.
  - 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*:
  - Fill in the lecture notes during class.
  - 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.
  - Complete any remaining assigned readings for the week.
  - Complete the week's homework assignment.

# Spring 2024 Calendar of Coursepack Activities

This calendar only lists the lectures, the in-class and out-of-class activities, RStudio labs and exams each week. For required readings 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 | 1/17 | Intro to Data |
| 1 | F | 1/19 | Data Lecture |
| 2 | M | 1/22 | Study Design Lecture |
| 2 | W | 1/24 | Complete Out-of-Class Activity Week 2 |
| 2 | W | 1/24 | American Indian Address Part 2 |
| 2 | F | 1/26 | Week 2 Lab |
| 3 | M | 1/29 | Categorical and Quantitative EDA Lecture |
| 3 | W | 1/31 | Complete Out-of-Class Activity Week 3 |
| 3 | W | 1/31 | Activity 3 |
| 3 | F | 2/2 | Week 3 Lab |
| 4 | M | 2/5 | Regression Lecture |
| 4 | W | 2/7 | Complete Out-of-Class Activity Week 4 |
| 4 | W | 2/7 | Movie Profits |
| 4 | F | 2/9 | Week 4 Lab |
| 5 | M | 2/12 | Exam 1 Review |
| 5 | W | 2/14 | Group Midterm Exam 1 |
| 5 | F | 2/16 | Midterm Exam 1 |
| 6 | M | 2/19 | (*No class*) |
| 6 | W | 2/21 | Hypothesis Testing Lecture |
| 6 | F | 2/23 | Complete Out-of-Class Activity Week 6 |
| 6 | F | 2/23 | Week 6 Lab |
| 7 | M | 2/26 | Theory-based Testing Lecture |
| 7 | W | 2/28 | Complete Out-of-Class Activity Week 7 |
| 7 | W | 2/28 | Handedness of Male Boxers — Theory |
| 7 | F | 3/1 | Week 7 Lab |
| 8 | M | 3/4 | Two Proportion Simulation Lecture |
| 8 | W | 3/6 | Complete Out-of-Class Activity Week 8 |
| 8 | W | 3/6 | Good Samaritan — Simulation HT and CI |
| 8 | F | 3/8 | Week 8 Lab |
| Holiday | M–F | 3/11–3/15 | **No Class — Spring Break** |
| 9 | M | 3/18 | Two Proportion Theory Lecture |
| 9 | W | 3/20 | Complete Out-of-Class Activity Week 9 |
| 9 | W | 3/20 | Helmet Use and Head Injuries — Theory HT and CI |
| 9 | F | 3/22 | Week 9 Lab |
| 10 | M | 3/25 | Probability and Relative Risk Lecture |
| 10 | W | 3/27 | Complete Out-of-Class Activity Week 10 |
| 10 | W | 3/27 | Relative Risk |
| 10 | F | 3/29 | (*No class*) |
| 11 | M | 4/1 | Exam 2 Review |
| 11 | W | 4/3 | Group Midterm Exam 2 |
| 11 | F | 4/5 | Midterm Exam 2 |

| **Week** | **Day** | **Date** | **Activity** |
|---|---|---|---|
| 12 | M | 4/8 | Paired Inference Lecture |
| 12 | W | 4/10 | Complete Out-of-Class Activity Week 12 |
| 12 | W | 4/10 | Color Interference |
| 12 | F | 4/12 | Week 12 Lab |
| 13 | M | 4/15 | Two Independent Samples Inference Lecture |
| 13 | W | 4/17 | Complete Out-of-Class Activity Week 13 |
| 13 | W | 4/17 | Triple Crown |
| 13 | F | 4/19 | Week 13 Lab |
| 14 | M | 4/22 | Regression Inference Lecture |
| 14 | W | 4/24 | Complete Out-of-Class Activity Week 14 |
| 14 | W | 4/24 | Golf Driving Distances |
| 14 | F | 4/26 | Week 14 Lab |
| 15 | M | 4/29 | Final Exam Review |
| 15 | W | 5/1 | Final Group Exam Part 1 |
| 15 | F | 5/3 | Final Group Exam Part 2 |
| Common Final Exam | M–R | 5/6–5/9 | See www.montana.edu/registrar/Schedules.html |