

STAT 452 Statistics Methods II
Spring 2021
MWF 10:00-10:50

Course Information

- **Instructor:** David Patterson, david.patterson@umontana.edu
- **Office Hours:** See Moodle page.
- **Prerequisites:** Stat 451 or equivalent.
- **Textbook:** Stats: Data & Models, 5th ed., by DeVeaux, Velleman, & Bock.
- **Recommended:** Writing Science in Plain English, by Anne Greene, U. Chicago Press.
- **On-line homework:** MyStatLab homework system required. You will have access through the e-book.
- **Software:** Some assignments will require the use of the free programs R/RStudio. Instructions for installing R/RStudio are posted on Moodle.
- **Computer lab:** Stat 458 is an optional 1-credit course on R/RStudio. The instructor is Mohsen Tabibian.

This is an online only course. All lectures will be by Zoom and will be recorded. Attendance at the “live” Zoom lectures is not required. Links to the lecture recordings, the slides for the lectures and many other resources will be posted on the Moodle page for the class. Tests may be taken remotely or in-person. Details of this arrangement will be given later.

Catalog description

Continuation of STAT 451. Multiple regression, experimental design, analysis of variance, other statistical models.

Learning Outcomes :

1. To understand multiple linear regression, model building, and associated normal-based inference procedures.
2. To understand analysis of variance and to carry out analyses of variance for a variety of experimental designs, including completely randomized and randomized block designs.
3. To understand the assumptions behind standard statistical inference procedures for linear regression and analysis of variance.
4. To gain exposure to a wide variety of applied problems, and understand how statistical methods were used to answer specific scientific questions.
5. To carry out analyses of real data sets and communicate the results in written form.

Topics

We will cover chapters 21-26 in the textbook, and then proceed to additional material on multiple regression, design of experiments and generalized linear models.

Important dates:

- **Monday January 18:** Martin Luther King Jr. Day – no classes.
- **Monday February 15:** Presidents’ Day – no classes..
- **Thursday, March 4:** Student break, no classes.
- **Tuesday, March 16:** Student break, no classes.
- **Thursday, March 18, 5 pm:** last day to change grading option or to drop course without WP or WF.

- **Friday, April 2:** Student break, no classes.
- **Friday, April 23:** Last day of regular classes.

Grading (+/- grading will be used):

- **Homework:** 40% (10% MyStatLab, 30% hand-in).
- **Midterm Exams 1,2:** 20% each. Tentative dates are **Wed, Feb 17** and **Wed, Mar 24** in late afternoon/early evening (we will have class that morning, but no class on Friday). You will have the option of taking these exams in person or remotely via Zoom. Some parts of the test may require R. Makeups are given at instructor's discretion and only in cases of emergency or other important circumstances.
- **Final Exam** 20%. **Tuesday, April 27, 10:10 – 12:10.** The final will not be given early.

Homework

- 10% of your grade will be based on MyStatLab homework assignments. Make sure you save your work regularly, particularly if you are approaching the deadline. You may continue to work on assignments after the deadline. You will receive half-credit for additional work completed after the deadline.
- 30% of your grade will be based on 7 or 8 hand-in homework assignments that will be submitted through Moodle. You may hand in one assignment up to 48 hours after the deadline without penalty. Subsequent late assignments (within 48 hours of the deadline) will get half-credit.

Graduate Increment

- If you are taking the course for graduate credit, you will be required to complete occasional extra homework problems. These will affect your grade only if you don't do them or do them adequately in which case they will lower your course grade. Otherwise, they will not figure directly into your grade calculation.

Incompletes

Incompletes are given at the discretion of the instructor and are only considered in cases where the student has been in attendance and doing passing work up to three weeks before the end of the semester, and for reasons beyond the student's control and which are acceptable to the instructor, the student has been unable to complete the requirements of the course on time. Negligence and indifference are not acceptable reasons.

Students with disabilities may request reasonable modifications by contacting me. The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. "Reasonable" means the University permits no fundamental alterations of academic standards or retroactive modifications.

Academic Honesty

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary action by the University. All students need to be familiar with the Student Conduct Code. You can find it in the A-Z index on the UM home page or at <https://www.umt.edu/student-affairs/community-standards/default.php>.