

**Instructor:** Brian Steele

**Room:** Math 314

**Phone:** 243-5396

**email:** brian.steele@umontana.edu

**Time:** Monday, Wednesday, Friday, NAC 011, 10:00AM-10:50AM

**Prerequisites:** STAT 452 or Math 442

**Textbook:** Regression Modeling Strategies. Harrell, F. An electronic copy can be downloaded from the Mansfield Library. The textbook will serve primarily as a reference and a source of examples and problems. We will not follow the text closely.

**Office Hours:** Tuesday 1-2:30 p.m.; often but not always, 1:30-3 p.m. MWF, and by appointment.

**Web Page:** Moodle

**Grading:** Homework: 75% (~6 assignments), Project: 25%. The final is scheduled for Friday, December 15th, 8 a.m.

**Homework** will be textbook problems primarily consisting of short computational exercises and longer data analyses. Working with others on homework is encouraged, so long as you hand in your own work, and do not simply copy someone else's work.

Students will be asked to do carry out a project— either present a lecture on a standard topic or write a short paper on a topic not covered in the textbook. Please discuss the matter with me before beginning.

**Course Material and Objectives:** The course topic is regression analysis and is intended for students in disciplines both within and outside of mathematics who are seeking statistical tools for data analysis. Emphases are split between on methods for data exploration and inference. The statistical programming language R will be used extensively for statistical analysis and students will be expected to write R programs (scripts in the R lexicon) for data-based homework problems. Some, but not extensive, instruction on R programming will be provided during class hours. R is available in the Math department computer lab and can be downloaded for free from <http://www.r-project.org/>.

**Misconduct** All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. Available for review online at <http://www.umn.edu/SA/VPSA/index.cfm/page/1321>.

**Special Accommodations** Students with disabilities are welcome to discuss accommodations with me.

The following table shows the primary content areas and a rough schedule. There's likely to be some deviation of the schedule.

Table 1: **A Rough Summary of Topics**

Week	Chapter
1	Introduction
2	Exploratory Methods
3	Transformations
4	Least squares
5	Inference
6	Model Fitting
7	Factors
8	Analysis of Variance
9	Residual Analysis
10	Logistic Regression
11	Loglinear Regression
13	The Lasso
14	Artificial Neural Networks