

Chapter 1

COURSE INFORMATION & REQUIREMENTS

- Goal of STAT 401: Prepare researchers to take 400-level methods courses (e.g. multiple regression, multivariate methods, experimental design, sampling, graphical techniques, non-parametric methods, logistic regression).
- Prerequisite: graduate standing plus Stat 216 or equivalent
- Required Texts
 - Devore, J. L. and Peck, R. (2005). *Statistics: The Exploration and Analysis of Data*, 5th edition. Belmont CA: Brooks Cole.
 - Boik, R. J. (2006). *Course Notes: Statistics 401*. These notes are available in the bookstore.
- Instructor
 - Al Parker, PhD, 2-243 Wilson, 994-5369, parker@math.montana.edu.
 - Office Hours: Mondays: 9-10am; Wednesdays and Fridays: 9-10am and 11am-12pm; and other times by appointment.
- Course Web Page: <http://www.math.montana.edu/~parker/courses/STAT401>
- Grading: 600 Points Total; Letter grades will be assigned as follows (percentages): F 0-59, D 60-66, D+ 67-69, C 70-76, C+ 77-79, B 80-86, B+ 87-89, A 90-100. All exams are closed book. One 8.5" x 11" sheet of notes (written on only one side) is allowed for exams 1 and 2. One 8.5" x 11" sheet of notes (written on both sides) is allowed for the final exam. Equation sheets will be provided for exam 2 and the final.
 - Projects: 300 points (50%)
 - Exam 1: Friday, September 29: 100 points (16.6%)
 - Exam 2: Friday, November 3: 100 points (16.6%)
 - Comprehensive Final Exam: Monday, December 11, 8:00–9:50am: 100 points (16.6%)
- Computer Software: R will be used for class examples as well as for exams and projects. At your own risk, you may use a different package for projects.
- Disabilities: If you have a documented disability for which you are or may be requesting an accomodation, contact me and the Disabled Student Services as soon as possible.

Projects

A new project assignment will be handed out approximately once a week, except for weeks that include scheduled exams. Most projects consist of a data analysis component (numerical and graphical) and an interpretation component. Projects must be turned in by the beginning of class on the due date. A complete solution to each project will be posted on the course web page. Each student is responsible for reading and understanding the solution. Project topics are listed below.

- Project 1: Data
- Project 2: Sampling Plans and Experimental Designs
- Project 3: Descriptive Statistics
- Project 4: Distributions and Transformations
- Exam 1: Friday, September 29
- Project 5: Sampling Distributions
- Project 6: Estimation
- Project 7: One Sample Hypothesis Testing
- Project 8: Two Sample Hypothesis Testing
- Exam 2: Friday, November 3
- Project 9: One-way ANOVA
- Project 10: Categorical Data Analysis
- Project 11: Simple Linear Regression
- Final Exam: Tuesday, December 12, 4:00–5:50pm

Help

You may provide help to and/or receive help from any of your fellow classmates throughout the semester (except on exams, of course). It often is helpful to work on the projects with a fellow student. This is OK with me, as long as each student comes away from the experience with the greatest possible understanding. On all projects, I do expect each student to hand in **their own work**, even if you may have worked together with another student. Please always feel free to ask me for help as well.

Syllabus

1. Data Collection and Descriptive Statistics: Chapters 1–4
2. Probability and Sampling Distributions: Chapters 6–8
3. Elementary Inferential Procedures: Chapters 9–11
4. Intermediate Inferential Procedures: Chapters 5, 12, 13, 15