Course Goals

1. Students will understand basic concepts of experimental design and their role in answering engineering questions.

2. Students will be able to choose appropriate graphical and numerical techniques to summarize univariate data and to describe the relationship between two variables.

3. Students will be able to choose an appropriate statistical model in several situations (such as modeling measurement error).

4. Students will be able to construct confidence intervals for parameters of several statistical models.

5. Students will be proficient in the use of a standard statistical package.

6. Students will be able to state the underlying assumptions of the particular probabilistic models used in the course and explain the role that such assumptions play in probabilistic models generally.

7. Students will be able to read journal articles that rely on statistical methods, to explain these methods, and to evaluate the appropriateness of the use of those methods.

Course website This course has a website. [http://www.calvin.edu/~stob/courses/m241/F11](http://www.calvin.edu/~stob/courses/m241/F11) You should check this often. In particular, it will contain copies of all class handouts, due dates for all assignments, and a description of what you should do to prepare for class each day.

Homework This course will seem backwards to you. In a typical mathematics course, you have probably covered the content in class and then did homework based on this content outside of class. Instead, in this course you will cover the content outside of class before we use it. A large portion of class will be devoted to doing problems and activities to master that content. Therefore, you will be expected to do the preparation for class before class each day. This will typically include a reading assignment and some practice problems. The practice problems are for you to determine whether you have mastered the material rather than to turn in.

Projects There will be six or seven short projects that you will complete outside of class. Collaboration on these projects is encouraged. Instructions for each will describe the limits on collaboration.
Final Exam  The final exam will have a relatively short in-class portion that will be given at the time listed above. A take-home portion of the exam will be due on Friday, December 16, at 5 PM.

R  Doing statistics requires the use of statistical software. In this class, we will make extensive use of R, the statistical software package. We will use R in class over the internet so it will be necessary that you have a laptop in class. (Since we will always work in pairs or groups of three, just one laptop per group is necessary.)

Collaboration  It is perfectly acceptable to help each other. I encourage you to work together on the projects or the class preparation unless I explicitly say otherwise. The projects will always allow for group work. You should always indicate who you collaborated with on any work. Failure to do this is a form of academic dishonesty.

See Me  If you are having trouble with the course, if you don’t understand something important, if you have some special circumstance that is getting in the way of performing well in this class, or you just want to talk about the course, see me. While I have office hours, I encourage you to come see me anytime that I am in my office.

Attendance  I don’t grade explicitly on attendance, but I do count participation in the class activities as part of your grade. So regular attendance is necessary to get a good grade. The final grading scheme will make allowances for the possibility of missed classes. I plan to start on time and end on time and common courtesy to your classmates suggests that you plan likewise. If you must come late or leave early (it happens), be as unobtrusive as you can and don’t make a habit of it.

Disabilities  Calvin will make reasonable accommodations for persons with documented disabilities. Students should notify the Coordinator of Services for Students with Disabilities located in the Student Academic Services office. Students requiring such accommodations should meet with me during the first week of class.

Final Grade  Your final grade will be based on your participation in class (30%), your projects (30%), and the final exam (40%). More details on how participation is evaluated will be given during the first week of class.

Exceptions  I reserve the right to make changes or exceptions to the above policies either for the whole class or for individuals. The ultimate goal in this course is learning and formal requirements should not unnecessarily stand in the way of this. As a consequence, if you (individually or collectively) think that any of the above conditions are interfering with learning, let me know and we’ll see what can be done.