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/](http://www.calvin.edu/~stob/courses/m241/) 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 three 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 short, closed-book, multiple choice portion and the remainder of the exam will be open-book, open-computer. The exam will be given during the final class period, Wednesday, January 23.
Doing statistics requires the use of statistical software. In this class, we will make extensive use of R, the statistical software package.

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. I don’t have specific office hours during interim but you may drop by any time that I am in (or make an appointment).

Attendance The very short time period and consequent intense pace makes it very difficult to learn statistics in the interim. It will be absolutely crucial that you attend each class – missing a class in interim is like missing a week during the regular semester. Worse, because you just don’t have the time to catch up. Therefore, participation in class activities and regular in-class quizzes form part of the grade and cannot be made up. Find a way to come each day and be on time.

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 (20%), quizzes (20%), your projects (20%), and the final exam (40%). More details on how participation is evaluated will be given during the first few days 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.