Mathematics 344

Instructor M. Stob
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Office Hours whenever I am in!
Website [www.calvin.edu/~stob/courses/m344/S15](http://www.calvin.edu/~stob/courses/m344/S15)
Tests March 6, April 17 (dates are negotiable)
Exam Monday, May 18, 9AM (date is not negotiable!)

**Course Goals** Math 343–344 is a mixture of statistics, mathematics, and computation. While it is not always easy to separate these three strands, they provide a useful framework for stating the learning objectives for this course. In this course students will

1. develop statistical skills, including the ability to
   - reason and communicate about and with data
   - use data to estimate unknown quantities
   - use data to test hypotheses and make decisions
   - collect and organize data in ways that make it possible to draw broader inferences

2. develop mathematical skills, including the ability to
   - apply calculus and linear algebra in probabilistic and statistical contexts
   - use random events and random variables to model a wide variety of phenomena
   - use mathematical notation and language precisely, clearly, and correctly
   - use mathematical techniques and results to derive properties of random distributions

3. develop computational skills, including the ability to
   - use a statistical programming language (R) to explore and summarize data and perform computations
   - use simulations to explore distributions and their properties
   - use and write functions to automate repeated tasks

4. develop additional skills, including the ability to use techniques of reproducible research to present results

**Course Webpage** There is a webpage for this course. 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. You are responsible for any announcements that are made through the website (although of course not immediately after they appear).
Homework  Obviously, you’re only going to learn this stuff if you do lots of problems. There will be two types of homework assignments. First, each day you will have one problem (the “prep problem”) that is due at the beginning of class. Going over this problem will help us get the class started. Your solution won’t be collected but I will check to make sure that you have done it. Have your solution in front of you at the beginning of class. Second, I will assign problems regularly as we cover the material and collect them about once a week. A homework schedule is available at the course webpage. The class day to ask questions about homework problems is the class before they are due — start early!

Tests  There will be two tests. Each test will have a closed-book component and a component on which a computer can be used (which may be take-home). You will need to bring a laptop to the test. More information about the format of the tests will be given well in advance of the first test. There are no makeup tests.

Final Exam  The final exam is given only at the scheduled time. The college requires that I give and you take the exam at this time! The final exam is cumulative. A portion of the exam may be take-home.

Collaboration  It is perfectly acceptable to help each other. I encourage you to work together on any assignment unless I explicitly say otherwise. Of course academic honesty and common sense require that only honest effort on your part be rewarded; do not turn in “joint” work which is really only the work of someone else. However you do not have to feel guilty turning in work that reflects mostly the good ideas of someone else if you were genuinely working together. Even if your work is joint, you should write your own solutions as independently as possible. That is, do not simply copy from others. This is to ensure that you really understand the solution. You should always indicate who you collaborated with on a problem (make a note next to the problem on your homework assignment). 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. Office hours don’t really work (we already determined that there was no time except the class time that you are all available). However I encourage you to come see me anytime that I am in either of my offices. You can set a time and figure out where I am using email. While I check email regularly and will answer it promptly, email isn’t very useful for answering the more technical questions that might come up in homework. Also, don’t assume that just because you are awake and writing email that I am awake and reading email!

Attendance  I do not explicitly require attendance or make attendance a part of the grade. However the work in class will usually be important for understanding the material and therefore students who don’t attend class will likely do poorly on tests and the exam. Also, there will be a small component of the grade devoted to the problem due at the beginning of class and if you miss class on those days you cannot receive that credit. I will start and end class on time and I expect you to do likewise. If you must come late or leave early, do so as unobtrusively as possible and do not make it a habit.

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 \( F \) will be computed from your grades (suitably normalized) on the homework \((H)\), prep problems \((P)\), tests \((T)\), and final exam \((E)\) by the following formula:

\[
F = .30E + .35T + .15H + .10P + .10 \max(E, H)
\]

In order to account for the fact that you may not be able to take all the tests (due to illness, athletic events, or mysterious events involving non-functional alarm clocks), \( T \) will be computed by using your exam grade for any test for which the exam grade is greater. (Note that this policy implies that \( T \geq E \) in the equation above since each test will be at least \( E \).) Your homework grade will be based on the homework that you turn in on time. Since late homework is not accepted for any reason, some allowance will be made for the fact that you might have to miss an assignment.

**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.

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*Statistical thinking will one day be as necessary for effective citizenship as the ability to read and write.*

H. G. Wells

*An approximate answer to the right question is worth a good deal more than the exact answer to the wrong problem.*

John Tukey