

# STAT4101 (Theory of Statistics I) Syllabus, Fall 2007

## 1 Course Description

This course is the first in a two-course sequence. The course descriptions are as follows:

STAT4101 (4 credits) Theory of Statistics I

Random variables and distributions; generating functions; standard distribution families; data summaries; sampling distributions; likelihood and sufficiency.

STAT4102 (4 credits) Theory of Statistics II

Estimation; significance tests; distribution free methods; power; application to regression, analysis of variance, and analysis of count data.

To cover all topics in the course description for 4101, we need to get through chapter 7 this semester. I have a tentative schedule (see the website) for achieving this, but it is open to change depending on how the semester goes.

## 2 Course Information

- Instructor: Aaron Rendahl  
Office Hours: Ford 352, Monday & Wednesday 1:15–2:15, or by appointment.  
Office: Ford 471 (but office hours in Ford 352)  
Email: arendahl, at stat.umn.edu
- Teaching Assistant: Yanping (Petty) Qu  
Office Hours: Ford 352, Time and Day TBA  
Email: pettyq, at stat.umn.edu
- Web Site: [www.stat.umn.edu/~arendahl/Teaching/Fall2007-STAT4101/](http://www.stat.umn.edu/~arendahl/Teaching/Fall2007-STAT4101/)  
You should also be able to reach this page by going to the Statistics home page ([www.stat.umn.edu](http://www.stat.umn.edu)) and following the link to “Our Courses.” The site will have important class announcements, the syllabus and a tentative course schedule, and homework assignments and solutions.
- Class Times:  
Lectures: MWF, 2:30–3:20 in Akerman 313.  
Lab: Tuesday, 2:30–3:20 in Ford 151.  
In-class Midterms: Wednesday, October 10 and Tuesday, November 20.  
Final Exam: Monday, December 17, 10:30am–12:30pm

Lab section will review material from lecture and present additional examples. There will usually be enough time for you to ask questions about the homework.

Please note that the second mid-term is scheduled for Tuesday, during a lab time. This scheduling is unorthodox but it should allow us to reach a good break in topics before the exam. This will also result in no homework over Thanksgiving for the

students, although the instructor will be busy grading. If this scheduling will not work for you, please contact me in the first two weeks of class (by September 14) so other arrangements can be made.

There will be no class Wednesday, November 21.

- Required Items:

**Text:** Mathematical Statistics with Applications, Sixth (or Seventh) Edition, by Wackerly, Mendenhall, and Schaeffer.

This is a new book for this year; the book that has been used for this class in the past is now out of print. Also, the publisher is in the process of coming out with a seventh edition, it's expected to be available in late September. I will primarily be using the sixth edition, but if anyone wants to wait for the seventh edition, that will be fine too.

This is a really excellent text. I had the opportunity this summer to review four or five options, and the explanations in this text are significantly better than those in other texts. Often it is tempting to skip the sections that don't have any math in them; with this text, I highly discourage this; these sections help you to understand *why* we need the mathematics and help to build the bigger picture of what is going on.

**Calculator:** A calculator with basic functions will be necessary for some homework assignments and exams.

## 3 Grading

### 3.1 Homework

There will be weekly homework assignments, due on Wednesdays at the end of lecture. You may also put it in the TA's mailbox (3rd floor Ford) at any time before that. LATE HOMEWORKS WILL NOT BE ACCEPTED, but your lowest homework score will be dropped. To determine the overall homework score, all homework scores except the lowest will be averaged.

Homework will be graded by the TA, and the method will vary at the TA's discretion. Not all problems may be graded each week, although points may be given for attempting problems not fully graded. So you should attempt every problem each week. And please show your work. Simply writing down the solution will not be considered a correct answer. Your goal should be convince the TA that your answer is correct. Solutions will be posted on the course site.

You are encouraged to collaborate with other students on the homework, however, you are required to turn in only your own work. Copying a group solution is not permitted. In practice, what this often looks like is to first work together with other students, perhaps at a blackboard, until the solution is agreed upon by all. Then each student turns away from the others and the group solution and writes up the solution independently. Copying homework or turning in homework that you did not do yourself is considered cheating. See the section on Academic Integrity for more details.

## 3.2 Exams

There will be two in-class midterms (October 10 and November 20) and a final (Monday, December 17, 10:30am–12:30pm). The final will be cumulative, but with an emphasis on the last third of the course. One sheet of letter sized paper with formulas or notes hand-written on both sides is permitted for the first exam, two for the second, and three for the final. Calculators may be needed for some exams, and may be forbidden for others. This will be announced in class and on the web site at least one week before the exam.

Exams will be given a score in points (eg. 17/22), and an accompanying letter grade (eg. A–), which will be determined after reviewing the test scores.

Exams are expected to be your own work. Sharing of notes sheets or calculators (if applicable), or using any materials other than your own note sheets or calculator (if applicable) is not permitted. See the section on Academic Integrity for more details.

### 3.2.1 Missed Exams

University policy states the midterms and final exam can be made up for legitimate (documented) absences, such as verified illness, participation in University sponsored activities, jury duty, military service, religious observances. Talk to the instructor at lectures or during office hours prior to the exam if you must miss the exam. If you will miss an exam (for a legitimate absence) without having made arrangements, call the department office (612-625-8046) and leave a message. **YOU MUST DO THIS BEFORE THE TIME OF THE EXAM.**

If a legitimate absence occurs, makeup exams may be arranged to be taken any time before the exam is returned to the class. If such arrangements are impossible, your total exam grade will be based on the other midterm and final.

## 3.3 Final Grades

The letter grades from each graded aspect of the course will be averaged using the following weights: Homework: 20%, Midterms: 20% each, Final: 40%.

## 3.4 Meaning of Grades

Per University policy, grades will reflect the following levels of achievement:

- A achievement that is outstanding relative to the level necessary to meet course requirements
- B achievement that is significantly above the level necessary to meet course requirements
- C achievement that meets the course requirements in every respect
- D achievement that is worthy of credit even though it fails to meet fully the requirements
- F represents failure (or no credit) and signifies that the work was either (1) completed but at a level of achievement that is not worthy of credit or (2) was not completed and there was no agreement between the instructor and the student that the student would be awarded an I.

On the S/N scale, a grade of at least a C is required to achieve an S.

### 3.5 Incompletes

University policy states: “There shall be a temporary symbol I, incomplete, awarded to indicate that the work of the course has not been completed. The I shall be assigned at the discretion of the instructor when, due to extraordinary circumstances, the student was prevented from completing the work of the course on time. The assignment of an I requires a written agreement between the instructor and student specifying the time and manner in which the student will complete the course requirements. In no event may any such written agreement allow a period of longer than one year to complete the course requirements.” An I will be given only in cases of extreme hardship.

## 4 Academic Integrity

Academic Integrity is essential to a positive teaching and learning environment. All students enrolled in University courses are expected to complete coursework responsibilities with fairness and honesty. Failure to do so by seeking unfair advantage over others or misrepresenting someone else's work as your own can result in disciplinary action. The University Student Conduct Code defines scholastic dishonesty as follows:

Scholastic Dishonesty: Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis.

Additional guidelines for both homework and exams are given in the appropriate sections above. If you have questions regarding the expectations for a specific assignment or exam, ask.

While there are no automatic sanctions, and consideration is given to all known circumstances, an F for the course is a routine policy for cheating on an exam, and an F for the assignment a routine policy for cheating on an assignment.

All violations will be reported to the Office for Student Academic Integrity.

## 5 Disability Services

Equal learning opportunities will be ensured for disabled students. Talk to the instructor and Disability Services to make arrangements.

*(Portions of this syllabus are from University policy and suggested syllabus inserts.)*