

STAT4102 (Theory of Statistics II) Syllabus, Spring 2008

1 Course Description

This course is the second in a two-course sequence. The course descriptions are as follows; changes indicate what we will be doing this semester instead of last semester.

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

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

2 Course Information

- Instructor: Aaron Rendahl
Office Hours: Ford 352, Monday 1:15–2:15 and 3:30–4:30, or by appointment.
Office: Ford 471 (but office hours in Ford 352)
Email: arendahl, at stat.umn.edu
- Teaching Assistant: Xiaoqiao Wei
Office Hours: Ford 352, Time and Day TBA
Email: xiaoqiao, at stat.umn.edu
- Web Site: www.stat.umn.edu/~arendahl/Teaching/Spring2008-STAT4102/
You should also be able to reach this page by going to the Statistics home page (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 Amundson 120.
Lab: Tuesday, 2:30–3:20 in Amundson 116.
In-class Midterms: Wednesday, February 27 and Wednesday, April 16.
Final Exam: Thursday, May 15, 1:30–3:30pm

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

This is a really excellent text. Last summer I reviewed 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, using the following rubric:

- 5: 90% or more of the problems attempted with good effort; more than 75% correct.
- 4: 90% or more of the problems attempted with good effort; less than 75% correct.
- 3: 50–90% of the problems attempted with good effort; more than 75% correct.
- 2: 50–90% of the problems attempted with good effort; less than 75% correct.
- 1: Less than 50% of the problems attempted with good effort.
- 0: Not turned in.

So you see that most of the credit comes from putting good effort into attempting all the problems, not from getting the problems right. In order to get credit for this part, you need to show your work. Simply writing down a solution will not be considered good effort. Your goal should be convince the TA that your answer is correct, or at least, to explain what you do know about the problem or why you recognize what you've done isn't correct. To determine how much was correct, the TA may not grade all problems each week; which problems are graded will be at his discretion. Solutions will be posted on the course site following the due date.

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 (February 27 and April 16) and a final (Thursday, May 15, 1:30–3:30pm). 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), which will be converted into a letter grade on the 0–5 scale (see Final Grade section). The conversion scale (or curve, if you like) 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%.

I will curve each exam to a five point scale (0–5), where 4–5 is an A, 3–4 is a B, 2–3 is a C, 1–2 is a D, and 0–1 is an F. Above 0.7 adds a + and below 0.3 adds a –. So for example, a 3.71 is a B+ and a 3.29 is a B–. The homework will be graded directly on this scale.

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.)