

Time & Place	Monday, Wednesday, Friday 1:30–2:20 pm, 66 Schaeffer Hall
Prerequisite	STAT:4100 (22S:153)
Required Text	Hogg, McKean, and Craig (2005), <i>Introduction to Mathematical Statistics</i> (6th ed.), Prentice-Hall, ISBN 0-13-008507-3.
Class web page	Selected notes and grades will be posted on ICON: http://icon.uiowa.edu
Instructor	Russell Lenth — 271 Schaeffer Hall — 335-0814 — russell-lenth@stat.uiowa.edu
Office Hours	Monday and Wednesday 2:30–3:20 pm, Thursday 1:00–2:00 pm; and by appointment
Statistics office	DEO: Professor Luke Tierney — 241 Schaeffer Hall — 335-0712

Course Goals

The successful student will leave this course with a basic understanding of many of the important foundational concepts in statistical inference. In addition, he or she will be comfortable using a wide variety of mathematical tools for solving statistical inference problems.

Topics

This is the second course in the two-semester mathematical statistics sequence 22S:153-4. This course gives a mathematical introduction to the foundations of statistical inference, primarily from the frequentist perspective. We will cover most of Chapters 4–8 of the text, and very limited material from Chapters 9–11, as time permits.

Chapter 4 discusses the limiting behavior of statistics (i.e., what happens as the sample size increases). Chapter 5 gives an overview of basic statistical inference concepts such as, sampling, order statistics, confidence intervals, and hypothesis testing. Chapter 6 focuses on maximum-likelihood methods—estimation and testing. Chapter 7 studies the assessment of quality of estimators: unbiasedness, consistency, sufficiency, efficiency, completeness, and ancillarity. Chapter 8 explores optimality properties of statistical tests of hypotheses: for example, most powerful and uniformly most powerful tests.

Course work

There will be weekly assignments due on Fridays, weekly quizzes each Wednesday (except exam days), two regular exams, and a comprehensive final exam. The dates of the exams are given in the section on grading. The best 10 of the 12 quiz grades will be counted; however, *all* homework assignments count.

Important: To get credit for the final exam, you must be here at the scheduled final-exam time—University policy does not allow exceptions for early finals. Make your travel plans accordingly.

Exams and quizzes will be closed-book. You will be allowed to prepare and bring one or two pages of notes to exams, as announced in class. No notes will be allowed for quizzes. Calculators will often be needed (and allowed) for exams and quizzes.

Grading

Grading elements are weighted as follows:

Exam 1	Wed, Sep. 28	20%
Exam 2	Wed, Nov. 2	20%
Final exam	Tue, Dec. 13, 9:45–11:45 am	30%
Quizzes	Every non-exam Wed	20%
Homework	Every Friday	10%

The basic cutoffs between whole-letter grades are at 90, 80, 70, . . . , and the determination of minus, unmodified, or plus is based on the ones digit being in the sets $\{0, 1, 2\}$, $\{3, 4, 5, 6\}$, and $\{7, 8, 9\}$.

For example, the *A* range is 93.00–96.99, and the *B+* range is 87.00–89.99.

Preparation

By referring to the schedule (posted on the course website), you will always know what is coming up. Even without any specific direction to do so, I expect you to read the text materials in advance of the lectures, and to be prepared to answer questions on what you have read.

Working together

Unless instructed otherwise, you may work together on the homework problems. However, you must write up your own solutions in your own words. You must also write the name(s) of your collaborator(s) on your papers—e.g., “John Doe - worked with Jane Buck.” Duplicated work will be treated in accordance with academic-fraud policies

College Policies

The following policy and procedural statements have been summarized from the web pages of the College of Liberal Arts and Sciences, <http://www.clas.uiowa.edu/>, and The University of Iowa Operations Manual, <http://www.uiowa.edu/~our/opmanual/index.html>.

Administrative Home

The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall, or see the CLAS Student Academic Handbook, <http://www.clas.uiowa.edu/students/handbook/>.

Electronic Communication

University policy specifies that students are responsible for all official correspondences sent to their University of Iowa e-mail address (@uiowa.edu). Faculty and students should use this account for correspondences. (Operations Manual, III.15.2: <http://www.uiowa.edu/~our/>

(see below).

Late work and absences

Barring illness or family emergencies, late homework is not accepted. In the event of an emergency or illness, please notify me as soon as possible. Failure to communicate in a timely way will hurt your chances of being accommodated. See also the CLAS policies below regarding absence forms for missed exams and quizzes.

Extra Help

I am available to help outside of class, and will try to always be in my office at announced office hours (see the top section of the syllabus). You may also call or e-mail to make an appointment. The Statistics Department maintains a list of tutors at www.stat.uiowa.edu/courses/tutoring.html.

[opmanual/iii/15.htm#152](http://www.clas.uiowa.edu/~our/opmanual/iii/15.htm#152). Scroll down to k.11.)

Accommodations for Disabilities

A student seeking academic accommodations should first register with Student Disability Services and then meet privately with the course instructor to make particular arrangements. See <http://www.uiowa.edu/~sds/> for more information.

Academic Fraud

Plagiarism and any other activities when students present work that is not their own are academic fraud. Academic fraud is a serious matter and is reported to the departmental DEO and to the Associate Dean for Undergraduate Programs and Curriculum. Instructors and DEOs decide on appropriate consequences at the departmental level while the Associate Dean enforces additional consequences at the collegiate level. See the CLAS Academic Fraud section of the Student Academic Handbook, <http://clas.uiowa.edu/students/handbook/academic-fraud-honor-code>.

CLAS Final Examination Policies

Final exams may be offered only during finals week. No exams of any kind are allowed during the last week of classes. Students should not ask their instructor to reschedule a final exam since the College does not permit rescheduling of a final exam once the semester has begun. Questions should be addressed to the Associate Dean for Undergraduate Programs and Curriculum.

Making a Suggestion or a Complaint

Students with a suggestion or complaint should first visit the instructor, then the course supervisor, and then the departmental DEO. Complaints must be made within six months of the incident. See the CLAS Student Academic Handbook, <http://clas.uiowa.edu/students/handbook/student-rights-responsibilities>.

Understanding Sexual Harassment

Sexual harassment subverts the mission of the

University and threatens the well-being of students, faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. See the UI Comprehensive Guide on Sexual Harassment, <http://www.uiowa.edu/~eod/policies/sexual-harassment-guide/index.html>, for assistance, definitions, and the full University policy.

Reacting Safely to Severe Weather

In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the Public Safety web site, <http://police.uiowa.edu/stay-informed/emergency-communication/>.