Course Description: Probability theory is the study of “random events,” with a focus on what can be said before an event or experiment happens. This led us to study random variables and special distributions in Math 471. By contrast, the focus of statistical inference is on the conclusions that may be drawn about a random event after it has already taken place. Topics covered by this course will include some or all of the following: parameter estimation, hypothesis testing, regression, analysis of variance, sequential analysis, and basic experimental design theory.

Text: Introduction to Mathematical Statistics and Its Applications, by Larsen and Marx, 5th ed. I may ask you to bring your text to class sometimes to discuss important definitions, examples, or case studies. Please be prepared to do so.

Reading: Note that I will not cover every theorem and example in the text; many of the details will be your responsibility. Few people understand a new idea the first time they see it (myself included). Your understanding of the material will improve dramatically if you skim the text for ideas before class, follow the lecture, and then do the relevant assignment shortly thereafter. Try to look in the text as little as possible when doing the homework.

Course Grade: Your final grade for the course will be determined as follows:

<table>
<thead>
<tr>
<th>Written Homework:</th>
<th>34%</th>
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<tbody>
<tr>
<td>Midterm Exam:</td>
<td>33%</td>
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<tr>
<td>Final Exam:</td>
<td>33%</td>
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Exams: There will be one in-class midterm, and a final exam during the scheduled exam period. By registering for this course, you are agreeing to be present for the exams. No early or late exams will be given.

Homework: You will have written homework due approximately every two weeks. Homework should be turned in by the end of class on the due date; late homework will be accepted with a 10% penalty per day late. Your work should be written neatly, and in complete, grammatically correct sentences. This is a 400-level math course, so I expect you to fully justify all of your solutions.
In addition, each assignment must contain a cover page that answers the following questions in complete sentences:

1. In your opinion, what were the main ideas covered in the assignment?
2. Were there any topics that you believe should have been covered, but were not?
3. What problems did you have with the assignment, if any?

Collaboration Policy: This material is challenging, but you do not have to do it alone. I encourage you to discuss the homework problems with your classmates and with me. However, you must write up your solutions by yourself. You are free to work on homework in groups, but academic honesty dictates that you should give credit to all of the people with whom you discussed the problems. Please do this on each assignment.

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