

STAT 1152 – “Introduction to Mathematical Statistics”

Spring 2014

Tuesday-Thursday 2:30—3:45 P.M.
300 Old Engineering Hall

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Office Hours: Monday 11:00-12:00 or by appointments

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Office Hours: Wednesdays 1:00—2:45 at CL2712 (Reading Room) or by appointment

Textbook: I. Miller and M. Miller, *John E. Freund’s Mathematical Statistics with Applications*, Seventh Edition, Pearson Prentice Hall, NJ

Overview: This course is continued from STAT1151, “Introduction to Probability,” and introduces the elementary concepts of statistical inference, which are essential in appreciation of advanced statistical methods. A brief review of probability theory will be provided in the beginning. Topics include functions of random variable, sampling distributions, point and interval estimation, hypothesis testing, regression, and analysis of variance.

Chapters 1-7 (review), Chapters 8-13, and selected topics from Chapters 14-16.

Prerequisite: Calculus (Differentiation and Integration) and STAT 1151 (Probability)

Grade Distribution:

1. Homework & Quiz 30%
2. Midterm 30%
3. Final (cumulative) 40%

Homework:

- Nine sets of homework will be assigned throughout the semester, collected at the beginning of the lecture.
- No late homework will be accepted. No electronic copy will be accepted. Missed homework will receive a grade of zero. Show all work neatly on letter-sized papers. Clearly label each problem and be sure to circle the final answer. Write your full name in ink at the top of all homework pages. Homework pages must be stapled together. *A homework violating any of the above will receive a grade of zero. All homework grades will be counted for final grade.*
- Homework grades, as well as other important announcements, can be found at **Courseweb** page.

Quiz:

- Two quiz sessions throughout the semester, which will be announced at least one week ahead.

Exams:

- All exams are required and there will be no make-up exams.
- Missed exams will receive a grade of zero.

Midterm: Tuesday, March 4

Final: Wednesday, April 23. 4:00 PM – 5:50 PM

Detailed Syllabus:

Weeks, materials to be covered, chapters of the textbook.

1. Review of preliminary probability theory (1-7)
2. Sampling distributions: distribution of mean, large sample theory (8)
3. Sampling distributions: Chi-squared and related distributions (8)
4. Sampling distributions: Order Statistics (8)
5. The methods of point estimation (10)
6. Properties of estimators (10)
7. Properties of estimators (10)
8. – Midterm
9. Interval estimation (11)
10. – Spring break
11. Interval estimation (11)
12. Hypothesis testing (12)
13. Hypothesis testing (12,13)
14. Hypothesis testing (13)
15. Regression (14)
16. – Final