

Math 5651

Basic Theory of Probability and Statistics, Fall 2023 (Section 1)

SYLLABUS

Time and Place: 10:10 am - 12:05 pm TTh (09/05/23 - 12/12/23) Blegen Hall 230
Text: M. H. DeGroot, M. J. Schervish. Probability and Statistics.
2012 Addison-Wesley, Fourth Edition.
Instructor: Sergey G. Bobkov
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Office hour: 1:25 pm - 2:15 pm F

5651. Basic Theory of Probability and Statistics.

Elementary Probability: Basic concepts, classical probability, combinatorial methods, conditional probability, independent events, Bayes' theorem. Random variables: distribution, expectation, moments, variance, moment generating function. Random vectors: marginal distribution, functions of random variables. Special distributions. Poisson approximation. The law of large numbers. The central limit theorem.

WEEK	DATES	MATERIAL (preliminary distribution)
1	09-05 to 09-07	Introductory remarks, sections 1.4, 1.5
2	09-12 to 09-14	1.6, 1.7, 1.8
3	09-19 to 09-21	1.9, 1.10, 2.1
4	09-26 to 09-28	2.2, 2.3, 3.1
5	10-03 to 10-05	3.2, 3.3, 3.4
6	10-10 to 10-12	3.5, 3.6, 3.7
7	10-17 to 10-19	Tuesday: Test 1; 3.8, 3.9
8	10-24 to 10-26	4.1, 4.2, 4.3
9	10-31 to 11-02	4.4, 4.5, 4.6
10	11-07 to 11-09	4.7, 5.2, 5.3
11	11-14 to 11-16	Tuesday: Test 2; 5.4, 5.5
12	11-21 to 11-23	5.6, 5.7; Thursday: Thanksgiving
13	11-28 to 11-30	5.8, 5.9, 5.10
14	12-05 to 12-07	6.2, 6.3; Review
15	12-12	Tuesday: Test 3

Tests: Tuesday, October 17, 2023
Tuesday, November 14, 2023
Tuesday, December 12, 2023

Homeworks: You will have 5 homeworks due on September 21,
October 10, November 2, 21, and December 5, 2023

Composition of grade: Tests – 60%, homeworks – 40% (counting 4 best out of 5).
Every test is graded in the range of 20 points.
Every homework is graded in the range of 10 points.

Homework assignments Fall 2023

1	Due on September 21	Section 1.4 Section 1.5 Section 1.6 Section 1.7 Section 1.8 Section 1.9 Section 1.10	7 3, 4 1, 6 5, 7 4 7 1, 5
2	Due on October 10	Section 2.1 Section 2.2 Section 2.3 Section 2.5 Section 3.1 Section 3.2 Section 3.3 Section 3.4	6 9, 12 5 3 2, 4 4 4, 6 4
3	Due on November 2	Section 3.5 Section 3.6 Section 3.7 Section 3.8 Section 3.9 Section 4.1 Section 4.2 Section 4.3 Section 4.4	3, 10 3, 6 1 4, 8 4 3, 8 3 7 3, 8
4	Due on November 21	Section 4.5 Section 4.6 Section 4.7 Section 4.9 Section 5.2 Section 5.3 Section 5.4	2, 3 12, 13 2, 7 4 6, 8 4 8, 14
5	Due on December 5	Section 5.5 Section 5.6 Section 5.7 Section 5.8 Section 5.9 Section 6.2 Section 6.3	2, 6 2, 11 2, 3, 4 5 6 6 2