

Math 5651

Basic Theory of Probability and Statistics, Spring 2025 (Section 3)

SYLLABUS

Time and Place: 2:30 pm - 4:25 pm TTh (01/21/25 - 05/01/25) Burton Hall 125
Text: M. H. DeGroot, M. J. Schervish. Probability and Statistics.
2012 Addison-Wesley, Fourth Edition.
Instructor: Sergey G. Bobkov (Vincent Hall 228, bobkov@math.umn.edu)
Teaching Assistant: Ratul Biswas (Vincent Hall 454, biswa087@umn.edu)
Office hours: 2:30 pm - 3:45 pm MW (with TA in Vincent Hall 454)

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	01-21 to 01-23	Introductory remarks, sections 1.4, 1.5, 1.6
2	01-28 to 01-30	1.7, 1.8, 1.9, 1.10
3	02-04 to 02-06	2.1, 2.2, 2.3
4	02-11 to 02-13	3.1, 3.2, 3.3
5	02-18 to 02-20	Tuesday: Test 1; 3.4, 3.5
6	02-25 to 02-27	3.6, 3.7, 3.8
7	03-04 to 03-06	3.9, 4.1, 4.2
8	03-11 to 03-13	Spring break
9	03-18 to 03-20	4.3, 4.4, 4.5
10	03-25 to 03-27	4.6, 4.7, 5.2
11	04-01 to 04-03	5.3, 5.4, 5.5
12	04-08 to 04-10	Tuesday: Test 2; 5.6, 5.7
13	04-15 to 04-17	5.8, 5.9, 5.10
14	04-22 to 04-24	6.2, 6.3
15	04-29 to 05-01	Review; Thursday: Test 3

Tests: Tuesday, February 18, 2025

Tuesday, April 7, 2025

Thursday, May 1, 2025

Homeworks: You will have 4 homeworks due on February 11,

March 4, April 1, and April 22, 2025

Composition of grade: Tests – 60%, homeworks – 40%.

Every test is graded in the range of 20 points.

Every homework is graded in the range of 10 points.

Homework Assignments Spring 2025

1	Due on February 11	Section 1.4 Section 1.5 Section 1.6 Section 1.7 Section 1.8 Section 1.9 Section 1.10 Section 2.1 Section 2.2 Section 2.3 Section 2.5	7 3, 4 1, 6 5, 7 4 7 1, 5 6 9, 12 5 3
2	Due on March 4	Section 3.1 Section 3.2 Section 3.3 Section 3.4 Section 3.5 Section 3.6 Section 3.7 Section 3.8 Section 3.9	2, 4 4 4, 6 4 3, 10 3, 6 1 4, 8 4
3	Due on April 1	Section 4.1 Section 4.2 Section 4.3 Section 4.4 Section 4.5 Section 4.6 Section 4.7 Section 4.9 Section 5.2	3, 8 3 7 3, 8 2, 3 12, 13 2, 7 4 6, 8
4	Due on April 22	Section 5.3 Section 5.4 Section 5.5 Section 5.6 Section 5.7 Section 5.8 Section 5.9 Section 6.2 Section 6.3	4 8, 14 2, 6 2, 11 2, 3, 4 5 6 6 2