

Math 5651

Basic Theory of Probability and Statistics, Fall 2016, Section 2 (22296)

### SYLLABUS

Time and Place: 12:20 pm - 2:15 pm TTh (09/06 - 12/13) – Burton Hall 120  
Text: M.H. DeGroot, M.J. Schervish. Probability and Statistics.  
2012 Addison-Wesley, Fourth Edition.  
Instructor: Sergey G. Bobkov  
Office: 228 VinH ( tel: 625-1840, email: bobkov@math.umn.edu )  
Office hours: 3:35 pm - 4:25 pm T, 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	09-06 to 09-08	Introductory remarks, sections 1.4, 1.5
2	09-13 to 09-15	1.6, 1.7, 1.8
3	09-20 to 09-22	1.9, 1.10, 2.1
4	09-27 to 09-29	2.2, 2.3, 3.1
5	10-04 to 10-06	3.2, 3.3, 3.4
6	10-11 to 10-13	Tuesday: 3.5; Thursday: 1st Test
7	10-18 to 10-20	3.6, 3.7, 3.8
8	10-25 to 10-27	3.9, 4.1, 4.2, 4.3
9	11-01 to 11-03	4.4, 4.5, 4.6
10	11-08 to 11-10	4.7, 5.2, 5.3
11	11-15 to 11-17	Tuesday: 2nd Test; Thursday: 5.4, 5.5
12	11-22 to 11-24	Tuesday: 5.6, 5.7; Thursday: Thanksgiving
13	11-29 to 12-01	5.8, 5.9, 5.10, 6.2
14	12-06 to 12-08	6.3; Thursday: Review
15	12-13	Tuesday: 3rd Test

**Midterm exams:** Thursday, October 13, 2016  
Thursday, November 15, 2016  
Tuesday, December 13, 2016

**Composition of grade:** Midterm exams – 75%  
Homeworks – 25% (counting 5 best out of 6)

**Homeworks:** You will have 6 homeworks due on September 27,  
October 11, 25, November 8, 22, and December 6, 2016.  
Every homework and every midterm exam is graded in  
the range of 25 points.

## Fall 2016, Homework Assignments

1	Due on September 27	Section 1.4 Section 1.5 Section 1.6 Section 1.7 Section 1.8 Section 1.9 Section 1.10	7 3, 4, 9 1, 6 5, 7, 8 2, 4 2, 7 1, 5
2	Due on October 11	Section 2.1 Section 2.2 Section 2.3 Section 2.5 Section 3.1 Section 3.2 Section 3.3	4, 6 9, 12 3, 9 2, 3 2, 4 4, 5 4, 6
3	Due on October 25	Section 3.4 Section 3.5 Section 3.6 Section 3.7 Section 3.8	4, 5 2, 3, 10 3, 6 1 4, 8
4	Due on November 8	Section 3.9 Section 4.1 Section 4.2 Section 4.3 Section 4.4	4, 6 3, 8 3 7 3, 8
5	Due on November 22	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, 8 4 6, 8 4 8, 14
6	Due on December 6	Section 5.5 Section 5.6 Section 5.7 Section 5.8 Section 5.9 Section 6.2 Section 6.3	2, 6 1, 2, 11 2, 3, 4 5 6 6 2