Department of Mathematics
Pomona College

Math 151. Probability Fall 2014

Course Outline

Time and Place:	MWF 9:00 am – 9:50 am Seaver Commons 102
Instructor:	Dr. Adolfo J. Rumbos
Office:	Mudd Science Library 106
Phone/e-mail:	ext. 18713 / arumbos@pomona.edu
Office Hours:	MWF 10:05 am-10:55 am, TR 10:30 am – 11:30am, or by appointment
Text:	*Probability and Statistics,* by Morris H. DeGroot and Mark J. Schervish, Adison Wesley
Course Website:	**http://pages.pomona.edu/~ajr04747/**
Prerequisites:	Multivariable Calculus or Vector Calculus, and Linear Algebra.

Course Description. This course is an introduction to the theory and applications of Probability; special attention will be given to applications relevant to statistical inference. A solid knowledge of multivariable calculus and linear algebra will be assumed. The course topics are listed in the attached tentative schedule of lectures and examinations.

Assigned Readings and Problems. Readings and problem sets will be assigned at every lecture and collected on al alternate basis. Students are strongly encouraged to work on every assigned problem. **Late homework assignments will not be graded**.

Grading Policy. Grades will be based on the homework, three 50-minute examinations, plus a comprehensive final examination. The overall score will be computed as follows:

homework	20%
three 50-minute exams	50%
final examination	30%

Final Examination.

Time: Thursday, December 18, 2014 9:00 am – 11:00 am.
Place: Seaver Commons 102

Math 151. Probability **Fall 2014**

Tentative Schedule of Lectures and Examinations

Date		Topic
W	Sep. 3	Introduction: A problem from statistical inference
F	Sep. 5	Sample Spaces
M	Sep. 8	σ-fields
W	Sep. 10	Probability function
F	Sep. 12	Probability function (continued)
M	Sep. 15	Independent events
W	Sep. 17	Conditional probability
F	Sep. 19	Continuous and discrete random variables
M	Sep. 22	Cumulative distribution function (cdf)
W	Sep. 24	Probability density function (pdf)
F	Sep. 26	Probability mass function (pmf)
M	Sep. 29	Continuous random variable and probability density function (pdf)
W	Oct. 1	Review
F	Oct. 3	**Exam 1**
M	Oct. 6	Expectation of a random variable
W	Oct. 8	Expectation of a function of a random variable
F	Oct. 10	Expectation of a function of a random variable (continued)
M	Oct. 13	Moments, variance and moment generation function
W	Oct. 15	Joint distribution functions
F	Oct. 17	Joint distribution functions (continued)
M	Oct. 20	*Fall Recess*
W	Oct. 22	Marginal distributions
F	Oct. 24	Independent random variables
M	Oct. 27	Independent random variables (continued)
W	Oct. 29	The Poisson Distribution
F	Oct. 31	Limiting distributions
M	Nov. 3	Limiting distributions (continued)
W	Nov. 5	Review
F	Nov. 7	**Exam 2**

Date		Topic
M	Nov. 10	mgf convergence theorem
W	Nov. 12	Convergence in distribution
F	Nov. 14	Convergence in Probability
M	Nov. 17	The Central Limit Theorem
W	Nov. 19	Applications of the Central Limit Theorem
F	Nov. 21	Applications of the Central Limit Theorem (continued)
M	Nov. 24	Random samples
W	Nov. 26	Sampling distributions
F	Nov. 28	Estimation
M	Dec. 1	Estimation (continued)
W	Dec. 3	Review
F	Dec. 5	**Exam 3**
M	Dec. 8	Review
W	Dec. 10	Review
Th	Dec. 18	**Final Examination**