Department of Mathematics
Pomona College

Math 151. Probability Fall 2013

Course Outline

Time and Place:	MWF 11:00 am – 11:50 am Seaver North Auditorium
Instructor:	Dr. Adolfo J. Rumbos
Office:	Mudd Science Library 106
Phone/e-mail:	ext. 18713 / arumbos@pomona.edu
Office Hours:	MWF 8:05 am-8:55 am, TR 9:00 am – 10:00am, 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 presupposed. 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 19, 2013 9:00 am.
Place: Seaver North Auditorium

Math 151. Probability **Fall 2013**

Tentative Schedule of Lectures and Examinations

Date		Topic
W	Sep. 4	Introduction: A problem from statistical inference
F	Sep. 6	Sample Spaces
M	Sep. 9	σ-fields
W	Sep. 11	Probability function
F	Sep. 13	Probability function (continued)
M	Sep. 16	Independent events
W	Sep. 18	Conditional probability
F	Sep. 20	Continuous and discrete random variables
M	Sep. 23	Cumulative distribution function (cdf)
W	Sep. 25	Probability density function (pdf)
F	Sep. 27	Probability mass function (pmf)
M	Sep. 30	Review
W	Oct. 2	Review
F	Oct. 4	**Exam 1**
M	Oct. 7	Continuous random variable and probability density function (pdf)
W	Oct. 9	Expectation of a random variable
F	Oct. 11	Expectation of a function of a random variable
M	Oct. 14	Expectation of a function of a random variable (continued)
W	Oct. 16	Examples of random variables
F	Oct. 18	Moments, variance and moment generation function
M	Oct. 21	*Fall Recess (No Class)*
W	Oct. 23	Joint distribution functions
F	Oct. 25	Joint distribution functions (continued)
M	Oct. 28	Marginal distributions
W	Oct. 30	Marginal distributions (continued)
F	Nov. 1	Problems
M	Nov. 4	Review
W	Nov. 6	**Exam 2**
F	Nov. 8	Independent random variables

Date		Topic
M	Nov. 11	mgf convergence theorem
W	Nov. 13	The Central Limit Theorem
F	Nov. 15	Simple random samples
M	Nov. 18	Mean and variance of random samples
W	Nov. 20	Sampling distribution
F	Nov. 22	Conditional distribution
M	Nov. 25	Conditional expectation
W	Nov. 27	Problems
F	Nov. 29	*Thanksgiving Recess*
M	Dec. 2	Covariance and correlation
W	Dec. 4	Review
F	Dec. 6	**Exam 3**
M	Dec. 9	Review
W	Dec. 11	Review
Th	Dec 19	**Final Examination**