Department of Mathematics
Pomona College

Math 151. Probability Spring 2014

Course Outline

Time and Place:	MWF 9:00 am – 9:50 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 11:05 am-11:55 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: Wednesday, May 14, 2014 9:00 am.
Place: Seaver North Auditorium

Math 151. Probability **Spring 2014**

Tentative Schedule of Lectures and Examinations

Date		Topic
W	Jan 22	Introduction: A problem from statistical inference
F	Jan 24	Sample Spaces
M	Jan 27	σ-fields
W	Jan 29	Probability function
F	Jan 31	Probability function (continued)
M	Feb 3	Independent events
W	Feb 5	Conditional probability
F	Feb 7	Continuous and discrete random variables
M	Feb 10	Cumulative distribution function (cdf)
W	Feb 12	Probability density function (pdf)
F	Feb 14	Probability mass function (pmf)
M	Feb 17	Continuous random variable and probability density function (pdf)
W	Feb 19	Review
F	Feb 21	**Exam 1**
M	Feb 24	Expectation of a random variable
W	Feb 26	Expectation of a function of a random variable
F	Feb 28	Expectation of a function of a random variable (continued)
M	Mar 3	Moments, variance and moment generation function
W	Mar 5	Joint distribution functions
F	Mar 7	Joint distribution functions (continued)
M	Mar 10	Marginal distributions
W	Mar 12	Independent random variables
F	Mar 14	Independent random variables (continued)
M	Mar 17	*Spring Recess*
W	Mar 19	*Spring Recess*
F	Mar 21	*Spring Recess*
M	Mar 24	Review
W	Mar 26	**Exam 2**
F	Mar 28	*César Chávez Day*

Date		Topic
M	Mar 31	The Poisson Distribution
W	Apr 2	Limiting distributions
F	Apr 4	mgf convergence theorem
M	Apr 7	Convergence in distribution
W	Apr 9	Convergence in Probability
F	Apr 11	The Central Limit Theorem
M	Apr 14	Applications of the Central Limit Theorem
W	Apr 16	Applications of the Central Limit Theorem (continued)
F	Apr 18	Random samples
M	Apr 21	Sampling distributions
W	Apr 23	Estimation
F	Apr 25	Estimation (continued)
M	Apr 28	Review
W	Apr 30	Review
F	May 2	**Exam 3**
M	May 5	Review
W	May 7	Review
W	May 14	**Final Examination**