

STAT 311: Introductory Probability
Spring 2005
Purdue University

- **General Information**

Instructor: Professor Frederi G. VIENS
Office: MATH 504
Phone: (765) 49-46035
E-Mail: viens@purdue.edu
Office Hours: Tuesday 11:45-12:15pm in LILY 3418
or Thursday 9:35-10:20 am in MATH 504
When/Where: Tu Th 10:30-11:45 am, in LILY 3418
Textbook: Scheaffer, Richard. Introduction to Probability
and Its Applications. 2nd (1995) Edition. (Required)

- **Catalog Course Description.** Primarily probability theory, but with a short introduction to statistics. Requires a year of calculus at the MATH 161-162 level. Does not contain enough statistics to serve as preparation for second courses in statistics such as STAT 502 and 512. Intended primarily for mathematics education majors.
- **Homework.** Weekly homework assignments will be due most **Tuesdays**. Selected portions of the assignments will be graded. You are encouraged to discuss the assignments with other students but you must write up your homework independently; identical solutions are NOT acceptable. Your homework must reflect YOUR understanding of the material. See note below about **plagiarism**¹. Late homeworks will not be accepted. Your total homework grade will constitute **20 %** of your total grade in the class.
- **Exams.**

Two **Midterm Exams** will be given during the regular class period, on dates to be assigned. These exams will cover all material seen in class up to and including a week before each exam. Each midterm exam is worth **20%** of your total grade in the class.
- The **Final Exam**, in the first week of May, will be at a date and time to be decided by the university. The Final Exam will cover all material seen in class for the entire semester. The Final Exam is worth **40%** of your total grade in the class.

¹Plagiarism is the act of presenting someone else's work as your own. This includes finding the answer to a given problem in a book, in someone else's assignment, or requesting the answer from someone, and copying from it. Contrary to popular belief, a complete correct solution to a given mathematical problem is almost never unique, and plagiarism in a mathematical assignment is very easy to detect.

- **Outline (Approximate Hours)**

The following list of topics corresponds to those given on the stat department course website. The topics will not necessarily be covered in the same order as they are listed here. The number of hours spent on each topic (listed in parentheses) is only given as an indication.

- – Introduction (1):
Chapter 1 and Chapter 2, sections 2.1 and 2.2
- Sample spaces and probability axioms (2):
Chapter 2 section 2.3
- Equally likely outcomes, combinatorics, binomial probabilities (5):
Chapter 2 section 2.4
- Conditional probability, Bayes theorem and independence (3):
Chapter 2 sections 2.5 and 2.6
- Continuous sample spaces (1):
Chapter 4 section 4.1
- Random variables, density and distribution functions, uniform and exponential r.v.'s (5):
Chapter 4 sections 4.3 and 4.4
- Expected values. Mean and variance (2):
Chapter 3 section 3.2 and Chapter 4 section 4.2
- Random variables in two dimensions (2):
Chapter 5 section 5.1
- Expected values; covariances (1):
Chapter 5 sections 5.2 and 5.4
- Conditional distributions and independence (3):
Chapter 5 section 5.7
- Poisson distribution (2):
Chapter 3 section 3.7
- Normal distribution and central limit theorem (3):
Chapter 4 section 4.6 and Chapter 7 section 7.4
- Chebychev inequality, law of large numbers (1):
Chapter 3 section 3.2 and Chapter 7 section 7.2
- Short introduction to statistics and simulation techniques (12):
Chapter 4 section 4.12 and some of Chapter 8.