

Math 351 – PROBABILITY – Syllabus – Fall 2004 – Professor Sachs

TEXT: A First Course in Probability, 6th Ed. by Ross (Prentice-Hall).

COURSE OVERVIEW: The main goals of this course are to introduce the basic ideas and techniques of probability. After a quick review of combinatorial ideas and naive probability, we will investigate the axioms of probability. The important concept of independence and the related notion of conditional probability will be developed. Then the main theoretical tools and ideas are developed: random variables, expectation, and distribution functions. We will look at moment generating functions. The course culminates with discussion and proof of the main limit theorems. As time permits, we will explore random walks, Markov processes, and other topics using supplementary material from well-known books such as Breiman, Feller, Chung. Common examples are used throughout. Links to various applications will be considered. Some visualization will use software.

GRADING: Grading will be fair and impartial. Points used as the basis of the grade will be:

Hmwk. (100 pts.); Class participation (50 pts.); Exams (300 pts.); Final exam (150 pts.).

POLICIES: The GMU Honor code is in effect at all times and students are expected to be fully aware of its requirements. Group work may be part of the course, in which case group members will truthfully report on non-contributing members. Absence from quizzes and exams must be for a valid reason and requires prior notification except in extreme circumstances.

MATERIAL COVERED

Essentially ALL of Ross book. Additional material: Markov chains, Markov processes from Breiman, Feller; proof of Shannon coding theorem from Roman.