

STATISTICS 201
“Elements of Finite Probability”
Winter 2004

SYLLABUS

NOTE: All quizzes will be written in the lab. No formula sheets permitted for the Quizzes or Midterm!!

Tentative schedule for quizzes and midterm

Quiz 1 February 2nd and 3rd
Quiz 2 February 23rd and 24th
Quiz 3 March 8th and 9th
Midterm March 19th (written in class)
Quiz 4 March 29th and 20th
Quiz 5 April 12th and 13th
Final – decided by register’s office

Tentative schedule for topics covered

Lectures 1-5: (chapter 1) Introduction, sets and elements, subsets, unions, Venn diagrams, intersections complements, differences, distributive laws, countable sets, Cartesian products, product sets and classes of sets.

Lectures 6- 12: (chapter 2) counting principles: multiplication principle, combinations and permutations with and without repetitions, Binomial coefficients and theorem, order partitions and tree diagrams

Lectures 13-16: (chapter 3) axioms of probability, finite probability and infinite spaces.

Lectures 17-21: (chapter 4) conditional probability and independence, formula of total probability and Bayes’ theorem, multiplication principle for conditional probabilities and probability trees, and repeated trials.

Lecture 22-27: (chapter 5) random variables and their distribution, expectations, variances and covariances and their applications, simple continuous random variables, joint distribution, tchebychev’s inequality and the weak law of large numbers

Lecture 28-32: (chapter 6) Binomial, Normal and Poisson distribution, normal approximation the Binomial distribution, Central limit theorem

Lecture 33-36: (chapter 7) probability vectors, stochastic matrices, fixed points, Markov chain, stationary distribution of regular Markov chains and absorbing states.