

PROBABILITY (MATH 4810/5210)
A STUDY GUIDE FOR EXAM 1

1. Sample spaces, outcomes, events: unions, intersections, complements, random variables.
2. Probability, finite additivity of probability, formula of total probability, inclusion-exclusion principle.
3. Probability distributions, discrete and continuous distributions, uniform distributions, geometric probabilities.
4. Cumulative distribution functions, probability density functions, exponential density.
5. Permutations and combinations, factorials.
6. Bernoulli trials, binomial probabilities.
7. Conditional probabilities: discrete and continuous, Bayes formula.
8. Independent events.
9. Joint cumulative distribution functions, marginal distribution functions, independent random variables, joint probability density functions.