Syllabus for Math 411 Mathematical Probability Summer 2014

Section 100

Instructor: Volodymyr Nekrashevych
Office: BLOC 513c
Office hours: Office hours: Monday and Wednesday 2:00 to 3:00 PM or by appointment.
e-mail: nekrash@math.tamu.edu
Home-page: http://www.math.tamu.edu/~nekrash

Class hours:

10:00–11:35 BLOC 164

MATH 411 web page: The web page of the course is

http://www.math.tamu.edu/~nekrash/teaching/14E/M411.html

Text. Durrett, Elementary Probability for Applications, Cambridge University, ISBN 9780521867566.

Topics covered. Probability spaces, discrete and continuous random variables, special distributions, joint distributions, expectations, law of large numbers, the central limit theorem. Prerequisite: MATH 221 or equivalent.

Grading. Your grade will be determined by homework, two midterm exams and a *cumulative* final exam. The weights of each of these are as follows.

Homework	Exam I	Exam II	Final Exam	Total
20 pt	25 pt	25 pt	30 pt	100
weekly	June 12	June 24	July 7, 10:30–12:30	

I may curve any grade and will then compute the course grade by the following rule: A for at least 90 points, B for at least 80 points, C for at least 70 points, D for at least 60 points and F for less than 60 points.

Plan of lectures.

- 6/2 1.1. Outcomes, events, and probability. 1.2. Flipping coins and the World Series. 1.3. Independence.
- 6/3 1.4. Random variables and distributions.
- 6/4 1.5. Expected value. 1.6. Moments and variance.
- 6/5 2.1. Permutations and combinations.
- 6/6 2.2. Binomial and multinomial distributions. 2.3. Poisson approximation to the binomial.
- 6/9 2.4. Card games and other urn problems.
- 6/10 2.5. Probabilities of unions. Review
- 6/11 3.1. Conditional probability: Definition.
- 6/12 Exam I
- 6/13 3.2. Two-stage experiments.
- 6/16 3.3. Bayes' formula.
- 6/17 3.4. Discrete joint distributions.
- 6/18 5.1. Continuous distributions: Density functions.
- 6/19 5.2. Distribution function.
- 6/20 5.3. Functions of random variables.
- 6/23 5.4. Joint distributions.
- 6/24 Exam II
- 6/25 5.5 Marginal and conditional distributions.
- 6/26 6.1. Limit theorems: Sums of independent random variables.
- 6/27 6.2. Mean and variance of sums.
- 6/30 6.3. Laws of large numbers.
- 7/1 6.4. Normal distribution.

- 7/2 6.5. Central limit theorem.
- 7/3 6.6. Applications to statistics. Review

Make-up policy: Make-ups for missed quizzes and exams will only be allowed for a university approved excuse in writing. Wherever possible, students should inform the instructor before an exam or quiz is missed. Consistent with University Student Rules, students are required to notify an instructor by the end of the next working day after missing an exam or quiz. Otherwise, they forfeit their rights to a make-up.

Scholastic dishonesty: Copying work done by others, either in-class or out of class, is an act of scholastic dishonesty and will be prosecuted to the full extent allowed by University policy. Collaboration on assignments, either in-class or out-of-class, is forbidden unless permission to do so is granted by your instructor. For more information on university policies regarding scholastic dishonesty, see University Student Rules.

Remember the Aggie Code of Honor: "An Aggie does not lie, cheat, or steal or tolerate those who do."

Copyright policy: All printed materials disseminated in class or on the web are protected by Copyright laws. One xerox copy (or download from the web) is allowed for personal use. Multiple copies or sale of any of these materials is strictly prohibited.

Americans with Disabilities Act (ADA) Policy Statement: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu.