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.
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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


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.

<table>
<thead>
<tr>
<th>Homework</th>
<th>Exam I</th>
<th>Exam II</th>
<th>Final Exam</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 pt</td>
<td>25 pt</td>
<td>25 pt</td>
<td>30 pt</td>
<td>100 pt</td>
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<tr>
<td>weekly</td>
<td>June 12</td>
<td>June 24</td>
<td>July 7, 10:30–12:30</td>
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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


6/12 Exam I

6/13 3.2. Two-stage experiments.

6/16 3.3. Bayes’ formula.

6/17 3.4. Discrete joint distributions.


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.


6/30 6.3. Laws of large numbers.

7/1 6.4. Normal distribution.
6.5. Central limit theorem.

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.”

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