MAT 521 FALL 2009

Course Description: Topics to be covered include introduction to probability and statistics, algebra of sets, probability in finite sample spaces, binomial and multinomial coefficients, continuous and discrete random variables, distribution functions, expected value and standard deviation, statistical applications.

Prerequisite: 12 credit hours of calculus. (Students must be able to take partial derivatives, set up and evaluate multiple integrals, evaluate integrals, and work with elementary infinite series.)

Note: Mathematics graduate students should consider taking MAT 625 rather than MAT 521.

Textbook: Probability and Statistics, Third Edition, by Morris H. DeGroot and Mark Schervish. The course covers sections 1.1-1.10, 2.1-2.3, 3.1-3.9, 4.1-4.6, 4.8, 5.1-5.4, 5.6, 5.7.

Attendance: You are expected to attend every class, both midterm exams, and the final exam. If you must miss a class, it is your responsibility to obtain a copy of the lecture notes for that class from another student. **You are also responsible for any announcements that were made during that class.**

Examinations: There will be two in-class exams during the semester as announced by your instructor. In addition there will be a **Final Exam,** scheduled in accordance with the standard time table. See http://registrar.syr.edu/students/finalexams/index.html

Make-up exams: There will be **NO MAKE-UP EXAMS**. A missed examination counts as a zero unless you present a valid excuse, for example a physician's note. With the excuse, you may use your score on the relevant portion of the final exam to replace the missed exam.

Grading: Each of the in-class exams counts for 25%, while the final exam makes up 30%. The remaining 20% will be based on section work and may include homework or quizzes at your instructor's discretion.

Academic Integrity: The Syracuse University Academic Integrity Policy holds students accountable for the integrity of the work they submit. Students should be familiar with the Policy and know that it is their responsibility to learn about instructor and general academic expectations with regard to proper citation of sources in written work. The policy also governs the integrity of work submitted in exams and assignments as well as the veracity of signatures on attendance sheets and other verifications of participation in class activities. Serious sanctions can result from academic dishonesty of any sort.

Course supervisor: Prof. D. Quinn, 229D Physics building, dpquinn@syr.edu, 443-1484. Any problems should be brought to the attention of your instructor first.

Academic Accommodations for Students with Disabilities: If you believe that you need accommodations for a disability, please contact the Office of Disability Services (ODS), http://disabilityservices.syr.edu, located in Room 309 of 804 University Avenue, or call (315) 443-4498 for an appointment to discuss your needs and the process for requesting accommodations. ODS is responsible for coordinating disability-related accommodations and will issue students with documented disabilities Accommodation Authorization Letters, as appropriate. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

Learning Outcomes: The goals of this course are as follows

- Learn and apply elementary counting techniques.
- Learn and apply elementary probability techniques.
- Apply integral and differential calculus to the study of probability.
- Develop your mathematical sophistication and your ability to give basic proofs.
- Develop an appreciation for the correct application of probability and learn to spot its incorrect application.

MAT 521 **Assignments** **Fall 2009**

This is a tentative list of the problems that should be done for each section of the book. Your instructor may make changes to this list.

I.4: 6, 7.
1.5: 1 - 8.
1.6: 1 - 6, 8.
1.7: 1 - 10.
1.8: 1, 4, 9 - 13, 16 - 18.
1.9: 1-4, 6-10.
1.10: 2 - 4, 6 - 8,10,11.
2.1: 1-4, 6-9.
2.2: 1, 4 - 10, 12 - 18.
2.3: 1, 3, 4, 6-9.
3.1: 1 - 8.
3.2: 1 -4, 7, 8.
3.3: 1, 2, 4-8.
3.4: 1 -6, 8.
3.5: 1 -8, 10, 11.
3.6: 1, 2, 4, 6-8.
3.7: 1, 5-7.
3.8: 1, 2, 4, 6-8.
3.9: 1-7.
4.1: 1-9.
4.2: 2-4, 6, 8, 9.
4.3: 1-4, 6, 7.
4.4: 1 - 3, 6 - 8, 10 - 12.
4.5: 2 - 4, 6, 9, 12.
4.6: 1, 3, 5, 10, 12 -14.
4.8: 2, 5, 6, 8.
5.2: 1, 3 - 7.
5.3: 2 - 5.
5.4: 2 - 4, 6, 7, 12 - 14.
5.6: 2, 3, 5 - 7, 9 - 11, 13, 14.
5.7: 1 - 3, 5, 8, 9, 11.