STAT 3400

Winter Term - 2016

Course Title: Introduction to Probability 2 (CRN 21617)

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Lecture hours and location: Monday, Wednesday, and Friday: 9:30am-10:20am, 111 Armes.

Lab schedule: Monday from 2:30 to 3:45 p.m., in 111 Armes.

Office hours: Monday and Wednesday: 10:30am-11:30am, or by appointment.

Course web: All course materials will be posted to Desire2Learn.

Calendar description: Continuous distributions, properties of common distributions, distributions of functions of random variables.

Prerequisites: Stat 2400(C), Prerequisite or Corequisite: one of MATH 2150, MATH 2720, MATH 2721 (or the former MATH 2750) (C), or the former MATH 2730, or MATH 2731.

Textbook: Weiss, N.A. (2006), *A course in Probability*, Pearson Ed. (Addison-Wesley).
A copy of the textbook should be available on four-hour reserve at the Science Library.

Mark breakdown:

Term Test 1	25%
Term Test 2	25%
Final Examination	50%

- The two tests are tentatively scheduled for Wednesday, February 24 and Wednesday, March 23, during the class times. The location for the tests will be announced in class.
- The final exam will be held on a date to be determined later by the Registrar's office and will be 3 hours in duration.
- If you miss a test, you will be assigned a mark of zero, unless reasons and acceptable evidence are provided. If you miss a test for an acceptable evidence, your final exam will be worth 75%. Make-up tests will not be scheduled.

Practice problems:

There are no assignments to be handed in for credit in this course. However, lists of practice problems will be provided to the students. *It is very important* to do the practice problems on a regular basis to help you learn the course material and prepare for tests and the exam.

Labs:

There is a 75 minute lab every week. Attendance is not obligatory, but is very strongly suggested. During labs, the teaching assistant will generally be solving selected problems (taken from the list of practice problems) and answering other questions that you might have.

Important dates:

There is no lecture on Friday, March 25. The deadline to voluntarily withdraw is Friday, March 18th.

Outline of the covered topics:

1. CONTINUOUS RANDOM VARIABLES AND THEIR DISTRIBUTIONS (Weiss, Chap. 8)
   - Continuous random variables, cumulative distribution functions, and probability density functions
   - Uniform, exponential and normal random variables
   - Other continuous random variables
   - Functions of a continuous random variable
2. JOINTLY CONTINUOUS RANDOM VARIABLES (Weiss, Chap. 9)
   - Joint cumulative distribution functions
   - Joint and marginal probability density functions
   - Conditional density functions
   - Independence of continuous random variables
   - Functions of many continuous random variables (If time allows)
   - Bivariate transformations (If time allows)
3. EXPECTED VALUES OF CONTINUOUS RANDOM VARIABLES (Weiss, Chap. 10-11)
   - Basic properties
   - Mean, variance, covariance and correlation of continuous random variables
   - Conditional expectation
   - Laws of total expectation and variance
   - Moment generating functions

Academic Integrity Policy:

It is important that you understand what constitutes academic dishonesty and that you are familiar with the very serious consequences. Links to resources that describe academic dishonesty (including plagiarism, cheating, inappropriate collaboration and examination impersonation) can be found at:

http://www.umanitoba.ca/faculties/science/undergrad/resources/webdisciplinedocuments.html

Typical penalties imposed within the Faculty of Science for academic dishonesty are also described.