STAT 3400
Fall Term – 2015

Course Title: Introduction to Probability II (CRN: 11714)

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Course schedule: Monday/Wednesday/Friday from 9:30 to 10:20 a.m., in 527 Buller.

Lab schedule: Monday from 2:30 to 3:45 p.m., in 527 Buller.

Office hours: Tuesday from 11:30 a.m. to 12:30 p.m.,
Wednesday from 11:30 a.m. to 12:30 p.m.,
Thursday from 11:30 a.m. to 12:30 p.m.
or by appointment.

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.

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.

Mark Breakdown:

Tests (2)	50%
Final Exam	50%

Voluntary Withdrawal: The voluntary withdrawal deadline is Wednesday, November 18.

Supplementary problems:

There are no assignments to be handed in for credit in this course. However, different lists of supplementary problems will be provided to the students. Each test/exam will include problems taken from those lists, in original or slightly modified form. 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. Note, however, that the two tests will take place during the lab time.

During labs, the teaching assistant will generally be solving selected problems (taken from the list of supplementary problems) and answering other questions that you might have.

Notes regarding tests and exam:

- There will be two 90-minute tests, tentatively scheduled for Monday, October 19 and Monday, November 16, between 2:30 and 4:00 p.m. (i.e., during the lab). 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. Make-up tests will not be scheduled.
- Should you miss the first test and provide acceptable evidence, the second test will be worth 37.5% of your final mark and the final exam will be worth 62.5%.
- Should you miss the second term test and provide acceptable evidence, the final exam will be worth 75% of your final mark.
- Should you miss both tests and provide acceptable evidence, the final exam will count for 100% of your final mark for the course.

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
- Bivariate transformations

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
- Link with the discrete case
- Moment generating functions

Other notes:

About academic dishonesty:

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.

Important note regarding course registration:

It is **your responsibility** to ensure that you are entitled to be registered in this course. This means that you:

- have the appropriate prerequisites, as noted in the calendar description, or have an appropriate permission from the instructor to waive these prerequisites;
- have not previously taken, or are concurrently registered in, this course and another that has been identified as "not to be held with" in the course description.

The registration system may have allowed you to register in this course, but it is **your responsibility** to check. If you are not entitled to be in this course, you will be withdrawn, or the course may not be used in your degree program. There will be no fee adjustment. This is not appealable. Please be sure to read the course description **for this and every course** for which you are registered.

Intellectual property of course material: