

Winter Term – 2016

STAT 3050

Course Title: Introduction to Probability Theory and Its Applications (CRN: 20092)

Instructor: Alexandre Leblanc
Office: 324 Machray Hall
Phone: 204-474-6273
E-mail: alex_leblanc@umanitoba.ca

Course Schedule: Monday/Wednesday/Friday from 10:30 to 11:30 am, in 111 Armes.
(See course calendar on p. 4.)

Office Hours: Monday from 1:00 to 2:30 pm,
Thursday from 9:30 to 11:00 am,
or by appointment.

Textbook: I will mostly follow *Introduction to Probability Models* (S.M. Ross, Academic Press).

Another interesting textbook is *Essentials of Stochastic Processes* (R. Durrett, Springer, available for free on Springer online through the library).

Copies of the textbook and of the following other interesting references,

- *A First Course in Probability* (S.M. Ross),
 - *An Introduction to Stochastic Modeling* (H.M. Taylor and S. Karlin),
 - *Stochastic Processes* (S.M. Ross),
 - *Fundamentals of Probability with Stochastic Processes* (S. Ghahramani),
- will be available on four-hour reserve at the Science Library.

Prerequisites: STAT 3400, MATH 2720 (or 2721) and MATH 2730 (or 2731) with a grade of C or better.

Brief outline of the covered topics:

A solid knowledge of the material covered in STAT 2400 and STAT 3400 is crucial to be successful in STAT 3050. Time permitting, the units covered in this course will be:

1. Conditional Probabilities, Distributions and Expectations
2. Discrete Time Markov Chains
3. Poisson Processes
4. Birth and Death Processes
5. Brownian Motion

Course Material Available Online:

Course material, including course notes, assignments and practice problems will be posted on UM Learn. Specific information related to tests and exams will also be posted there.

Breakdown of the Marks:	Assignments (4)	15%	
	Tests (3)	45%	(15% each)
	Final Exam	40%	

I normally follow the following cutoffs when assigning letter grades: A+ for 90-100; A for 80-90; B+ for 75-80; B for 70-75; C+ for 65-70; C for 60-65; D for 50-60; F below 50. However, I might elect to use different cutoffs if I think they are more appropriate.

Notes about Tests and Exam:

- There will be three 50-minute in-class tests, currently scheduled for January 27, February 24, and March 16 (these dates could change). All tests are currently scheduled to take place in 111 and 115 Armes.
- The final exam will be held on a date to be selected later by the Registrar's office and will be 3 hours in duration. The exam will be scheduled between April 11 and 25 (inclusive).
- Should you miss a test, you will be assigned a mark of zero unless you
 1. provide a valid excuse with acceptable documentation,
 2. notify me within 48 hours of the scheduled test (phone and e-mail are fine).The weight (15%) of a missed test would then be added on to the final exam for the purpose of obtaining the final mark for the course.
- Make-up tests will not be scheduled.
- Students who miss one or more test(s), with or without valid documentation, will be reported to the Dean's office as having incomplete term work. This could have repercussions on their ability to write a deferred exam for the course, should such a deferral be requested.

Assignments and Practice Problems:

Assignments will be handed out at a rate of about one assignment per two or three weeks of class, for a total of 4 assignments. You will also be required to do some reading/homework (not to be turned in for marking), normally in the form of practice problems. It is expected that some of the practice problems will appear on the tests/exam.

Collaboration, Copying, and Plagiarism:

Students are encouraged to discuss course material, including assignments. However, each student must hand in his or her own copy of each assignment with personalized solutions, including comments, discussions, explanations and interpretations. Copying from anywhere, including other students, books and the web,

1. does not help you to learn the course material,
2. constitutes a case of academic dishonesty and could have serious consequences.

If you are unclear on what is acceptable, please ask the instructor.

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>

or through the Faculty of Science home page at:

<http://www.umanitoba.ca/faculties/science>

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 materials:

All course notes, lists of problems, tests, exams, practice exams and solutions are the intellectual property of your instructor. Reproduction or distribution of these materials is strictly forbidden without prior consent from your instructor.

Tentative calendar for the course:

Note the first lecture is on Wednesday, January 6 and the last is on Friday, April 8. There are no labs in this course.

January 2016:

Monday	Tuesday	Wednesday	Thursday	Friday
				1
4	5	6 Lecture First Day of Classes	7	8 Lecture
11 Lecture	12	13 Lecture	14	15 Lecture
18 Lecture	19	20 Lecture	21	22 Lecture
25 Lecture	26	27 Test 1	28	29 Lecture
				11

February 2016:

Monday	Tuesday	Wednesday	Thursday	Friday
1 Lecture	2	3 Lecture	4	5 Lecture
8 Lecture	9	10 Lecture	11	12 Lecture
15 Louis Riel Day NO CLASSES	16 Reading Week NO CLASSES	17 Reading Week NO CLASSES	18 Reading Week NO CLASSES	19 Reading Week NO CLASSES
22 Lecture	23	24 Test 2	25	26 Lecture
29 Lecture				
				10

March 2016:

Monday	Tuesday	Wednesday	Thursday	Friday
	1	2 Lecture	3	4 Lecture
7 Lecture	8	9 Lecture	10	11 Lecture
14 Lecture	15	16 Test 3	17	18 Lecture Last Day for VW's
21 Lecture	22	23 Lecture	24	25 Good Friday NO CLASSES
28 Lecture	29	30 Lecture	31	12

April 2016:

Monday	Tuesday	Wednesday	Thursday	Friday
				1 Lecture
4 Lecture	5	6 Lecture	7	8 Lecture Last Day of Classes
11 Examination Period	12 Examination Period	13 Examination Period	14 Examination Period	15 Examination Period
18 Examination Period	19 Examination Period	20 Examination Period	21 Examination Period	22 Examination Period
25 Examination Period	29	30	31	4

This document is dated January 5, 2016.