STAT 3050 Section A01
Introduction to Probability Theory and Its Applications
Winter 2018

Time	MWF 10:30 a.m. – 11:20 a.m.
Location	EITC E2 Rm 350
CRN	50090

Instructor	Dr A. Thavaneswaran
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Web Pages	UM Learn: `http://umanitoba.ca/umlearn`
	Statistics: `http://umanitoba.ca/statistics`
	R Download: `https://cran.r-project.org/mirrors.html`
	R scripts `http://www.people.carleton.edu/~rdobrow/Probability/RScripts.html`

Office Hours:	Monday 9:30 a.m. – 10:20 a.m.
	Wednesday 9:30 a.m. – 10:20 a.m.
	Friday 9:30 a.m. – 10:20 a.m.

If the above times are not convenient for you, please call, email or speak to me before or after class to arrange an alternate time to meet. I will do my best to return all email or telephone messages within 24 hours. In the event that office hours need to be cancelled please consult our course *UmLearn* page for the most up-to-date information.

Topics

The following list of topics serves only as an approximate outline and is subject to change:

- Review of random variables and probability generating functions. Branching processes and random walks.

- Markov chains (general formulation and properties; classification of states; steady state distributions and applications).

- Moment properties of discrete time processes. stationary processes and autocorrelation functions. Brownian motion, diffusion processes and geometric Brownian motion.

- Exponential random variables and their properties, Poisson processes and continuous time Markov chains.

Text

Introduction to Stochastic Process with R, by Robert P. Dobrow, Published by Wiley. ISBN-978-1-118-76065-1(not required)

Calendar Description

(Formerly 005.305) Development of the basic concepts of probability theory and application in areas of biostatistics, actuarial science, reliability theory, queuing theory. Prerequisites: STAT 3400 or the former STAT 3500 (005.350) (C); and MATH 2150 or MATH 2720 or MATH 2721 (or the former MATH 2750)(C).

Software

To apply the theory and methods taught in this course it is required that you download and install the statistical software package, R. It is a free program available at the URL at the top of the course outline. Throughout the lectures and through additional handouts you will be taught how to use the program.

Evaluation

Term Tests (each)	20%
Assignments	10%
Final Examination	50%

The two term tests will be held during class time and will be 50 mins in duration. The tentative dates of the term tests are February 5, 2018 and March 9, 2018. Should one of these dates change, you will be informed in advance.

Should you miss one test, you will be assigned a grade of zero unless you provide valid documentation. The other test and final exam would then be worth 20% and 70%, respectively.

Should you miss both tests, you be assigned a grade of zero unless you provide valid documentation. The final exam would then be worth 90%.

There are no make up tests

Students who miss both tests, with or without valid documentation, will be reported to the Dean's office as having completed no term work. This will have repercussions on their ability to write a deferred exam for the course, should such a deferral be requested.

There will be two assignments (including questions based on R) and some problems will be marked.

Grades

The following are the minimum percentage grades required to receive each of the various letter grades: A^+ (90%), A (80%), B^+ (75%), B (70%), C^+ (65%), C (60%), D (50%).

Voluntary Withdrawal

The voluntary withdrawal date is **March 16** (by which time you will have received your marks for both term tests).

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, as well as typical penalties) can be found at:

`http://umanitoba.ca/science/undergrad/resources/webdisciplinedocuments.html`

Copyrighted Material

All course notes, assignments, tests, exams, practice exams and solutions are the intellectual property of your instructor or the Department of Statistics. Reproduction or distribution of these materials is strictly forbidden without their consent.

Recording of Class Lectures

Your instructor and the University of Manitoba hold copyright over the course materials, presentations and lectures which form part of this course. No audio or video recording of lectures or presentations is allowed in any format, openly or surreptitiously, in whole or in part without permission from your instructor.

Use of Electronics in the Classroom

It is the general University of Manitoba policy that all technology resources are to be used in a responsible, efficient, ethical and legal manner. A student may use technology in the classroom setting only for educational purposes approved by the instructor and/or the University of Manitoba Accessibility Services. Students should not engage in electronic messaging/posting activities (e-mail, texting, video or voice chat, social networking (e.g. Facebook)) or electronic gaming during scheduled class time.

Class Communication

The University requires all students to activate an official University email account. Please note that all communication between your instructor and you as a student must comply with the Electronic Communication with Students Policy. Please see

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http://umanitoba.ca/admin/governance/governing_documents/community/electronic_
communication_with_students_policy.html
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You are required to obtain and use your U of M email account for all communication between yourself and the university.

Student Accessibility Services

If you are a student with a disability, please contact SAS for academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g. mental illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation.

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http://umanitoba.ca/student/saa/accessibility/
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ROASS Schedule A

Schedule A of the Responsibilities of Academic Staff with regards to Students (ROASS) policies of the University of Manitoba lists resources and policies for students. It is important that you familiarize yourself with these resources and policies. Schedule A will be posted on your instructor's UMLearn page.