

STAT 3050 Section A01  
Introduction to Probability Theory and Its Applications  
Winter 2017

**Time** MWF 10:30 a.m. – 11:20 a.m.  
**Location** 111 Armes  
**CRN** 50090

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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>

**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:

- Probability generating functions, branching processes and random walks.
- Review of random variables and moment properties of discrete time processes, Brownian motion and diffusion processes. Stationary processes and autocorrelation functions.
- Markov chains (general formulation and properties; classification of states; steady state distributions and applications).
- Exponential random variables and their properties; the Poisson process 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).

## Evaluation

Term Tests (each)	25%
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 15, 2017 and March 20, 2017. 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 25% and 75%, 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 100%.

### **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.

## Grades

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

## **Voluntary Withdrawal**

The voluntary withdrawal date is **March 31** (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

[http://umanitoba.ca/admin/governance/governing\\_documents/community/electronic\\_communication\\_with\\_students\\_policy.html](http://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html)

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.

<http://umanitoba.ca/student/saa/accessibility/>

## **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.