

**STAT 7060 (CRN: 60146)**  
**ADVANCED THEORY OF PROBABILITY**  
**WINTER 2021**

**Prerequisites:** consent of the instructor

**Minimum technological requirements:** a computing device where one can create and edit documents; a stable and secure internet connection capable of streaming videos and downloading software; access to a webcam and microphone.

**Lectures:** Monday, Wednesday and Friday, 12:30 pm -- 1:20 pm, held over Cisco WebEx

**Office Hours:** Wednesday, 1:30 pm – 3:00 pm, booked and held over Cisco WebEx

**Note:** Live lectures and office hours will be conducted over Cisco WebEx (can be accessed from the course UM Learn webpage). The instructions on how to use Cisco WebEx, in particular on how to book office hours, can be found under Support in your UM Learn account.

**Instructor:** Dr. Yuliya V. Martsynyuk  
E-mail: Yuliya.Martsynyuk@UManitoba.CA

**Textbook:** Resnick, S.I. 2005. *A Probability Path*. Springer Science+Business Media, New York, 1<sup>st</sup> edition. (Available in an electronic format through SpringerLink of UM Libraries).

**Homework:** Selected practice problems will be assigned as no-credit homework.

**Term Tests:** Three live 50-minute closed-book paper-and-pencil term tests will be held and invigilated over Cisco WebEx during the regular class time. The tentative date of the first test is February 10, 2021. The test problems will be related to the homework and the problems solved in class. There are no early and deferred term tests in this course.

**Grading Scheme:** 100%=Term Tests 1, 2, 3 (3x20%) + Final Exam (40%, live two-hour closed-book paper-and-pencil test based on the whole term, held and invigilated over Cisco WebEx)

**Course Topics:** sets and events; probability spaces; random variables, elements, and measurable maps; independence; integration and expectation; convergence concepts; laws of large numbers and sums of independent random variables; convergence in distribution; characteristic functions and the Central Limit Theorem.

**Note:** If any changes to this course outline become necessary, the students will be given as much notice as possible.

**Voluntary Withdrawal Deadline:** March 31, 2021

**Academic Integrity:** 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:

<https://sci.umanitoba.ca/students/undergraduate-students/academic-resources/academic-integrity/>  
<https://umanitoba.ca/student-supports/academic-supports/academic-integrity>

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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 is posted on the Department of Statistics webpage.