

**STAT 7060 (CRN: 22104)**  
**ADVANCED THEORY OF PROBABILITY**  
**FALL 2022**

**Prerequisites:** consent of the instructor

**Lectures:** Tuesday and Thursday, 8:30 am -- 9:45 am, in 315 Machray Hall

**Office Hours:** Tuesday and Thursday, 9:45 am -- 10:15 am, in 336 Machray Hall, or by appointment

**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 60-minute closed-book paper-and-pencil term tests will be held during the regular class time. The tentative date of the first test is October 6, 2022. 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%=Two Best of Term Tests 1, 2, 3 (2x25%) + Final Exam (50%, two-hour closed-book paper-and-pencil test based on the whole term)

**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:** November 22, 2022

**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.