

STAT 249
Probability I
Fall 2019

- Instructor:** Dr. X. Zhou, Office: LB 921-19 (SGW), Phone: 848-2424, Ext. 3220
Email: xiaowen.zhou@concordia.ca
- Text:** *Mathematical Statistics with Applications*, 7th Edition, by D. D. Wackerly, W. Mendenhall III and R. L. Scheaffer, Duxbury Press, 2008.
- Calculators:** Only calculators approved by the Department (with a sticker attached as a proof of approval), such as **Sharp EL 531** or the **Casio FX 300MS**, available at the Concordia Bookstore, are permitted for the class test and final examination. For a list of Approved and Not-Approved calculators see: <http://www.concordia.ca/artsci/math-stats/services.html#calculators>.
- Assignments:** Assignments (5 to 6) will be handed in class; students are required to submit their assignments in class. **Late assignments will not be accepted.**
- Test:** Only **one midterm** test will be held during the **7th or 8th week**.
- Final Exam:** There are no exemptions from this three-hour exam.
- Final Grade:** The final grade will be based on the following components:
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| Assignments | 10% |
| Mid-term Test | 20% |
| Final Exam | 70% |
- If the grading scheme for this course includes graded assignments, a reasonable and representative subset of each assignment may be graded. Students will not be told in advance which subset of the assigned problems will be marked and should therefore attempt all assigned problems.
- Notes:**
- (1) Please note that there is no "100% Final Exam" option in this course.**
 - Mid-term test missed for any reason, including illness, cannot be made up. If you miss a mid-term test because of illness (to be confirmed with a valid medical note), the final exam can count for 90% of your final grade.

- (3) In order to obtain a good grade, the student MUST show that she/he has a THOROUGH understanding of the subject and is good at problem solving.
- (4) The final exam will cover everything taught from beginning to end.

| Week | Sections of the Text | Topics |
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| 1 | Section: 2.3, 2.4, 2.5 | Set Notation, Discrete Probability Model, Computing Probability (Sample Point Method) |
| 2 | Section: 2.6, 2.7 | Counting Methods, Conditional Probability, Independence of Events |
| 3 | Section: 2.8, 2.9, 2.10 | Laws of Probability, Computing Probability (Event Composition Method), The Total Law of Probability and Bayes Rule |
| 4 | Section: 2.11, 3.1, 3.2 | Numerical Events and Random Variables, Discrete Random Variable, Probability Distribution of a Discrete Random Variable |
| 5 | Section: 3.3, 3.4 | Expected Value of a Random Variable or a Function of a Random Variable, The Binomial Probability Distribution |
| 6 | Section: 3.5, 3.6 | The Geometric Probability Distribution, The Negative Binomial Probability Distribution |
| 7 | Section: 3.7, 3.8, 3.9 | The Hypergeometric Probability Distribution, The Poisson Probability Distribution, Moments and Moment-Generating Functions |
| 8 | Section: 3.10, 3.11, 4.2 | Probability-Generating Functions, Tchebysheff's Theorem, The Probability Distribution for a Continuous Random Variable |
| 9 | Section: 4.3, 4.4 | Expected Values for Continuous Random Variables, The Uniform Probability Distribution |
| 10 | Section: 4.5, 4.6 | The Normal Probability Distribution, The Gamma Probability Distribution, |
| 11 | Section: 4.7, 4.9, 4.10 | The Beta Probability Distribution, Other Expected Values, Tchebysheff's Theorem |

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| 12 | Section: 4.11, 5.2, 5.3 | Expectations of Discontinuous Functions and Mixed Probability Distributions, Bivariate and Multivariate Probability Distributions, Marginal and Conditional Probability Distributions |
| 13 | Section: 5.4, 5.5 Review | Independent Random Variables, The Expected Value of a Function of Random Variables |

Academic Integrity and the Academic Code of Conduct

This course is governed by Concordia University's policies on Academic Integrity and the Academic Code of Conduct as set forth in the Undergraduate Calendar and the Graduate Calendar. Students are expected to familiarize themselves with these policies and conduct themselves accordingly. "Concordia University has several resources available to students to better understand and uphold academic integrity. Concordia's website on academic integrity can be found at the following address, which also includes links to each Faculty and the School of Graduate Studies: concordia.ca/students/academic-integrity." [*Undergraduate Calendar, Sec 17.10.2*]