MATH 2030 3.0 SUMMER 2025
Elementary Probability

Course Description: Introduction to the theory of probability as preparation for further study in either mathematical or applied probability and statistics. Topics include probability spaces, conditional probability, independence, random variables, distribution functions, expectations, Chebyshev's inequality, common distributions, and limit theorems. Prerequisites: One of MATH 1014, MATH 1310.

Course Webpage: eClass (Moodle). https://eClass.yorku.ca will be used for the online course website. Test and assignment solution, announcements etc. will be posted on the course website. For technical assistance related to eClass use the link
https://eClass.yorku.ca/students/contact/index.html

Course Instructor: Jason Chin-Tiong Chan
Email: jchan21@yorku.ca
Office hours: Tuesday, 4:15 P.M to 5:15 P.M (Ross building, 610N)
Time of classes: Tuesday and Thursday 2:30 P.M to 4:00 P.M

Technical requirements: There are technical requirements for students to be able to participate in this course. A reliable high-speed internet connection is needed to submit assignment using Crowdmark. For more information, see:
https://yorku.zoom.us/ (see the guides at the bottom)
https://uit.yorku.ca/students-getting-started/ and Student Guide to eLearning.
To check your internet connection, you can run tests like Speed test.

Textbook:

A First Course in Probability By Ross, 10 edition, Pearson

Lectures will not always follow the content in the textbook identically or in the same order as presented in the textbook.

Syllabus
Tentatively the lectures will cover **Chapters 1 - 8**.

Part One:
Probability model and Counting Technique

Part Two:
Independence, Conditional Probability and Bayes rule

Part Three:
Discrete and continuous distributions

Cumulative Distribution functions, their relation with densities and discrete distributions
Using cdf's to compute distributions of transformed random variables

Part Four:
Binomial and Normal distributions,
Normal approximations to the binomial distribution
Expectations for discrete and continuous random variables,
Variances,
Expectations and variances for Binomial distribution, Normal distribution and
hypergeometric distribution

Part Five
Independence of random variables, and its consequences for expectations and variances.
The law of large numbers, Chebyshev's inequality, and the Central Limit Theorem
Normal approximations to more general sums of independent random variables.

Part Six
The Poisson distribution and Poisson approximation
The geometric distribution
The exponential distribution and relation to the Poisson
The negative binomial and gamma distributions

Part Seven
Joint and marginal distributions, correlation and covariance (for discrete r.v. only)

EVALUATION:
The grade for this course is composed of the mark received for each of the following
components:

Component	Percent/Weight	Time	Coverage	Date
Assignments	3 assignments: (10% total)			June 2nd,2025 July 7th,2025 July 30th,2025
Test 1	20%	80 minutes	Part 1 to 3	June 10th,2025
Test 2	20%	80 minutes	Part 3 to 4	July 15th,2025
Final Exam	50%	TBA	All the material covered in this course	Scheduled by the university
TOTAL	100%			

* No late assignment will be accepted.

* No makeup test will be given. Contact your instructor within 48 hours of the missed
evaluation. If a valid explanation is provided for your absence, the weight of the test will
be transferred to the final exam. You also have to submit the supporting documentation.
Otherwise, a grade of zero will be given for the test.

* Do not write the test or exam, if you do not feel well. Once you wrote the test or exam, your paper will be graded and the grade will be recorded.

Communications: Make sure you are subscribed to Course Announcements in eClass (Moodle). You are responsible for being actively and regularly on Moodle to ensure that you have up-to-date course info.

The subject field of each **York email** should be carefully completed and should contain the course code "**MATH2030**", your **name**, and your **student ID number** and your section number. It is requested that emails be sent to the instructor ONLY if the question(s) being asked cannot wait to be answered in the next scheduled lecture. I will check email during normal business hours and will respond within **five business days**. Please send me a reminder if I did not respond to your email after five business days.

Technology use and Privacy: Several platforms will be used in the course (e.g. eClass/ Moodle, Zoom etc,) through which students will interact with the course material, the course instructor and TAs, and with one another. Students shall note the following:
1. Zoom is hosted on servers in the US: This includes recordings done through Zoom.
2. If you have privacy concerns about your data when you join a Zoom session, provide only your first name or a nickname.
The system is configured in a way that all participants are automatically notified when a session is being recorded. In other words, a session cannot be recorded without you knowing about it.
Technology requirements and FAQs for eClass can be found here:
http://www.yorku.ca/moodle/students/faq/index.html.

Student Accessibility Services: Student Accessibility Services provides academic accommodation and support to students with disabilities in accordance with the Ontario Human Rights Commission's Policy on accessible education for students with disabilities and York University Senate Policy on Academic Accommodation for Students with Disabilities. Contact Student Accessibility Services for more information.

Lecture/ Exam Rules:
Students are responsible for familiarizing themselves with York University policies and regulations concerning academic conduct. These can be found in the Undergraduate Program Calendar. Take special note of the Senate policies on student conduct and academic honesty.

Important Dates: check https://registrar.yorku.ca/enrol/dates