

MACF 301
Introduction to Quantitative Finance
Fall 2023

- Instructor:** Dr. Y. Lu, Office: LB 921-21 (SGW), Phone: (514) 848-2424, Ext. 2948
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- Office Hours:** Tuesdays & Thursdays, 12:00-13:00 and 15:00-17:00.
- Class Schedule:** Tuesdays and Thursdays, 13:15-14:30. Note that there will be a mid-term break in week 6, from October 10 to October 15.
- Optional References:** *Derivatives Markets* (Third Edition), 2013, by McDonald, R.L., Pearson Education.
Corporate Finance (Fourth Edition), 2017, by Berk, J. and DeMarzo, P., Pearson.
SOA Study Note: IFM-22-18: Actuarial Applications of Options and Other Financial Derivatives
- Outline:** This course is an introduction to several topics related to quantitative finance:
- **Financial derivatives:** derivatives specification and cash flows, static no-arbitrage relationships, futures contract.
 - **Binomial option pricing models:** risk-neutral pricing, replicating portfolio.
 - **Black-Scholes option pricing model:** lognormal model, Black-Scholes formula, historical volatility.
 - **Derivatives risk management:** Greeks, hedging.
 - **Mean-variance portfolio theory:** mean-variance setting, efficient frontier, capital market line.
 - **Asset pricing models:** CAPM, factor models.
 - **Investment Risks:** risk measures.
- Evaluation:** The course mark will be determined by a mid-term exam (30%), a final exam (50%) and assignments (20%). The mid-term exam will be held after the mid-term break (Oct 10-15).

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.

CIA Accreditation: This course is accredited by the Canadian Institute of Actuaries (CIA) under the University Accreditation Program (UAP).

In addition to the university's internal policies on conduct, including academic misconduct, candidates pursuing credits for writing professional examinations shall also be subject to the [Code of Conduct and Ethics for Candidates in the CIA Education System](#) and the associated [Policy on Conduct and Ethics for Candidates in the CIA Education System](#). For more information, please visit [Obtaining UAP Credits](#) and the [CIA FAQ](#).

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