

## **Introduction to Financial Markets and Quantitative Finance**

### **Fin Mod 9522A. Course Outline**

## **1. Course Information**

**Course Description:** This course introduces modern financial mathematics using basic differential equations, while developing financial modelling techniques to price fixed income and other financial engineered products. The course also develops the conceptual and practical framework for real world investment analysis and portfolio risk assessment.

**Lecture Hours:** Fridays 8:30-11:30 am (WSB248), in-person.

**Prerequisites:** Enrollment in a quantitative graduate program at UWO.

Unless you have either the requisites for this course or written special permission from your Dean's Designate (Department/Program Counsellors and Science Academic Counselling) to enroll in it, you may be removed from this course, and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

## **2. Instructor Information**

<b>Instructors</b>	<b>Email</b>	<b>Office</b>	<b>Phone</b>	<b>Office Hours</b>
Marcos Escobar-Anel	<a href="mailto:marcos.escobar@uwo.ca">marcos.escobar@uwo.ca</a>	WSC 282	84106	Wed 8-10 am, WSC 282 (in-person)

Students must use their Western (@uwo.ca) email addresses when contacting their instructors.

## **3. Course Syllabus, Schedule, Delivery Mode**

**Course Objectives and learning outcomes.** After completing this course, students will be able to:

- Repaying loans over time.
- Bond pricing with default: using difference equations.
- Evaluate tranching and collateralized debt obligations.
- Understand Forward rates, Yield curve and IR modelling
- Perform Mean-variance portfolio optimization.
- Understand Capital Asset Pricing Model.

- Perform Risk Calculations and Portfolio approximation.
- Understand Stylized facts of Stock prices and modelling.

See lecture notes for a break-down of course topics in a “table of contents” format with an approximate timeline.

Lecture Hours: Fridays 8:30-11:30 am (WSC 248), in-person.

Classes begin: September 5, 2024

Fall Reading Week: October 12-20, 2024

Classes end: December 6, 2024

Exam period: December 9 – 22, 2024

## 4. Course Materials

Textbook(s):

Quantitative Finance: A Simulation-Based Introduction Using Excel. Matt Davison. 978-1439871683

Supplemental: Instructor’s course notes.

John Hull. Options, Futures, and other Derivatives, 11th Edition. Pearson.

Note that these textbooks will only be used as a guide. The instructor will use his own set of course notes during lectures.

Students are responsible for checking the course OWL site (<https://westernu.brightspace.com/>) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class.

All course material will be posted to OWL: <https://westernu.brightspace.com/>.

If students need assistance with the course OWL site, they can seek support on the [OWL Brightspace Help](#) page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

## 5. Methods of Evaluation

Assignments and/or Quizzes: There will be 2 assignments of equal weight (15% each). Due dates: 27-Sept and 29-Nov.

Midterms or Tests: There will be one midterm (25%, combining Multiple Choice with open-Ended questions), 2 hours long on 18-October.

Final Exam: One final exam (45%), 3 hours long, 13-Dec, 9-12pm, room to be determined.

Evaluation: Students will be evaluated based on two assignments, one mid-term test, and a final examination. The final mark will be based on a weight of 30% for assignments, 25% for the mid-term test, and 45% for the final exam.

NO makeup test for evaluations. If you miss an evaluation (with a valid reason), the weight of the test (s) will be moved to the remaining exams.

When a student misses the Final Exam and their Academic Consideration has been granted, they will be allowed to write the Special Examination (the name given by the University to a makeup Final Exam). See the Academic Calendar for details (under [Special Examinations](#)), especially for those who miss multiple final exams within one examination period.

## 6. Additional Statements

### **Religious Accommodation**

When conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing to the course instructor and/or the Academic Advising office of their Faculty of Registration. This notice should be made as early as possible but not later than two weeks prior to the writing or the examination (or one week prior to the writing of the test).

Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays:

<https://www.edi.uwo.ca>.

### **Accommodation Policies**

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/Academic\\_Accommodation\\_disabilities.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf).

### **Academic Policies**

The website for Registrar Services is <https://www.registrar.uwo.ca/>.

In accordance with policy,

[https://www.uwo.ca/univsec/pdf/policies\\_procedures/section1/mapp113.pdf](https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf),

the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at their official university address is attended to in a timely manner.

**Scholastic offences** are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_undergrad.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf).