

**Commerce 3FD3
Financial Modelling
Summer 2023 Course Outline**

**Finance and Business Economics Area
DeGroote School of Business
McMaster University**

COURSE OBJECTIVE

Commerce 3FD3 introduces the basics of financial modelling. Building on the understanding of financial theories, this course helps students to develop quantitative skills to address real-world financial problems.

INSTRUCTOR AND CONTACT INFORMATION

**Tuesdays & Thursdays, 02:30 PM – 05:30 PM (EST)
Location: BSB 249**

**Skylar Xinyu Wang
Instructor**
wangx342@mcmaster.ca
Office Hours: by appointment

TA: Zi Yang
yangz242@mcmaster.ca

COURSE ELEMENTS

| | | | |
|---------------------|------------------|-----------------|----------------------|
| Credit Value: 3 | Leadership: No | IT skills: Yes | Global view: Yes |
| A2L: Yes | Ethics: No | Numeracy: Yes | Written skills: No |
| Participation: Yes | Innovation: Yes | Group work: Yes | Oral skills: No |
| Evidence-based: Yes | Experiential: No | Final Exam: Yes | Guest speaker(s): No |

COURSE DESCRIPTION

This three-credit elective undergraduate course provides an introduction to financial modelling with MS-Excel and Python. The main focus is on configuring and solving real-world applications in corporate finance and investments. By the end of this course, students will be able to use quantitative tools (such

as spreadsheets and financial libraries/functions) to model problems on topics such as capital budgeting, firm valuation, portfolio management, and risk management.

Introduction to Finance (COMMERCE 2FA3 or IBH 2BB3) and registration in level III or above in any Honours Bachelor of Commerce or Engineering and Management program; or relevant minor is a prerequisite. Strong knowledge of statistics is highly recommended. Working knowledge of MS Excel is assumed, but no prior experience with Python is required.

Note: Non-Commerce students may enrol in specific upper-year Commerce courses if they have been accepted into a Specialized Minor offered by the Faculty of Business or can demonstrate that they are pursuing an interdisciplinary minor for which the specific Commerce courses are included.

LEARNING OUTCOMES

Upon successful completion of this course, students will be able to complete the following key tasks:

- Design and layout a financial model.
- Learn to use the Python programming language for financial applications.
- Learn to develop a conceptual framework to solve financial problems.
- Learn to use advanced techniques for analyzing financial data, for purposes of managerial decision-making.

COURSE MATERIALS AND READINGS

Required:

Course Materials are available on Avenue To Learn <http://avenue.mcmaster.ca>

Benninga; Financial Modeling; Fourth (4th) Edition; The MIT Press, 2014. ISBN: 978-0262027281. The textbook is a Finance-focused modelling text, also useful in other finance courses, that cover practical examples in finance in Excel.

COURSE OVERVIEW AND ASSESSMENT

Learning in this course results primarily from in-class discussions, instructor walkthroughs of sample examples, hands-on assignments, and an individual final exam. This course is delivered in-person and final grade will be calculated as follows:

| Grade Component | Description | Weight |
|----------------------------|--|-------------|
| Assignment 1 | Time Value of Money, Capital Budgeting | 10% |
| Assignment 2 | Stock Valuation, Bond Valuation, CAPM | 15% |
| Assignment 3 | WACC, Value at Risk | 10% |
| Class Participation | Active contributions to weekly discussion | 5% |
| Final Exam | Cumulative and Computer-based (in Python and Excel). Date to be determined | 60% |
| Total | | 100% |

POLICY ON MISSED ASSIGNMENTS/EXAMS:

Missed assignments/exams will receive a grade of zero unless the student has submitted and been approved for a Notification of Absence or MSAF. In that case, the weight of the missed assignment/exam will be given to the next assignment/exam. For instance, in case of an approved MSAF for Assignment 1, the weight for Assignment 2 would be 42 In case of an approved MSAF for Midterm 2 (or Assignment 5) the weight for Final exam would be 60% (or 42%). Late assignments are not acceptable.

COURSE DELIVERABLES

Assignment 1 – (group of 2)

The assignment is worth 10% of your final grade.

Assignment 2 – (group of 2)

The assignment is worth 15% of your final grade.

Assignment 3 – (group of 2)

The assignment is worth 10% of your final grade.

Participation

This class is full of class activities and student participation is an important component of this course. Class participation is graded by the following rubric. Passive attendance does NOT contribute to students' participation marks.

| Criteria | Excellent 5% | Average 3% | Unacceptable 1% |
|--|--|---|---|
| Verbal Contribution (Comments, Questions, explaining to classmates) | Exhibited all sub-criteria in a respectful manner, in small and large group discussions | Exhibited most of sub-criteria in a respectful manner, but more so in small than in large groups or vice versa. | Verbalized rarely and only when solicited. |
| Focus and Attentiveness | Always aware of the topic or issue being discussed, consistently engaged in active listening strategies, and never engaged in activity that distracted others. | Almost always aware of topic or issue being discussed and often engaged in active listening strategies. May have been distracted once or twice (bad day). | Always distracted or distracting (e.g., on the computer, talking to others, or doing work for other classes). |

| Criteria | Excellent 5% | Average 3% | Unacceptable 1% |
|--|---|--|---|
| Level of engagement in our class learning community (Discussions, Group Activities, Paired Activities) | Always assumes shared responsibility for the quality of class activities. Advances the class by posting ideas about the readings and course materials. Engages other students in discussions by commenting on classmates' postings and/or asking for clarification. | Appears to be somewhat indifferent to the topics under discussion. Participates in an aloof way. | Occasionally engages others and/or responds to others in the class. |

Final Exam

The final exam will be cumulative, computer-based, and in-person. Students are required to make sure that MS-Excel and Python is running properly on their devices.

COMMUNICATION AND FEEDBACK

Students who wish to correspond with instructors or TAs directly via email must send messages that originate from their official McMaster University email account. This protects the confidentiality and sensitivity of information as well as confirms the identity of the student. Emails regarding course issues should NOT be sent to the Area Administrative Assistants.

REQUESTING RELIEF FOR MISSED ACADEMIC WORK

In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar [“Requests for Relief for Missed Academic Term Work”](#) and the link below;

<http://ug.degroote.mcmaster.ca/forms-and-resources/missed-course-work-policy/>

ACADEMIC INTEGRITY

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. **It is your responsibility to understand what constitutes academic dishonesty.**

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned

academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university.

For information on the various types of academic dishonesty please refer to the [Academic Integrity Policy](https://secretariat.mcmaster.ca/university-policies-procedures-guidelines/), located at <https://secretariat.mcmaster.ca/university-policies-procedures-guidelines/>

The following illustrates only three forms of academic dishonesty:

- plagiarism, e.g. the submission of work that is not one’s own or for which other credit has been obtained.
- improper collaboration in group work.
- copying or using unauthorized aids in tests and examinations.

AUTHENTICITY/PLAGIARISM DETECTION

Some courses may use a web-based service (Turnitin.com) to reveal authenticity and ownership of student submitted work. For courses using such software, students will be expected to submit their work electronically either directly to Turnitin.com or via an online learning platform (e.g. A2L, etc.) using plagiarism detection (a service supported by Turnitin.com) so it can be checked for academic dishonesty.

Students who do not wish their work to be submitted through the plagiarism detection software must inform the Instructor before the assignment is due. No penalty will be assigned to a student who does not submit work to the plagiarism detection software.

All submitted work is subject to normal verification that standards of academic integrity have been upheld (e.g., on-line search, other software, etc.). For more details about McMaster’s use of Turnitin.com please go to www.mcmaster.ca/academicintegrity.

COURSES WITH AN ON-LINE ELEMENT

Some courses may use on-line elements (e.g. email, Avenue to Learn (A2L), web pages, TopHat, MS Teams, etc.). Students should be aware that, when they access the electronic components of a course using these elements, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course.

The available information is dependent on the technology used. Continuation in a course that uses on-line elements will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure please discuss this with the course instructor.

ONLINE PROCTORING

Some courses may use online proctoring software for tests and exams. This software may require students to turn on their video camera, present identification, monitor and record their computer activities, and/or lock/restrict their browser or other applications/software during tests or exams. This software may be required to be installed before the test/exam begins.

CONDUCT EXPECTATIONS

As a McMaster student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all of our living, learning and working communities. These expectations are described in the [Code of Student Rights & Responsibilities](#) (the “Code”). All students share the responsibility of maintaining a positive environment for the academic and personal growth of all McMaster community members, **whether in person or online**.

It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere with reasonable participation in University activities. Student disruptions or behaviours that interfere with university functions on online platforms (e.g. use of Avenue 2 Learn, WebEx or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students’ access to these platforms.

ACADEMIC ACCOMMODATION OF STUDENTS WITH DISABILITIES

Students with disabilities who require academic accommodation must contact [Student Accessibility Services](#) (SAS) at 905-525-9140 ext. 28652 or sas@mcmaster.ca to make arrangements with a Program Coordinator. For further information, consult McMaster University’s [Academic Accommodation of Students with Disabilities](#) policy.

ACADEMIC ACCOMMODATION FOR RELIGIOUS, INDIGENOUS OR SPIRITUAL OBSERVANCES (RISO)

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the [RISO](#) policy. Students should submit their request to their Faculty Office **normally within 10 working days** of the beginning of term in which they anticipate a need for accommodation or to the Registrar's Office prior to their examinations. Students should also

contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

COPYRIGHT AND RECORDING

Students are advised that lectures, demonstrations, performances, and any other course material provided by an instructor include copyright protected works. The Copyright Act and copyright law protect every original literary, dramatic, musical and artistic work, **including lectures** by University instructors.

The recording of lectures, tutorials, or other methods of instruction may occur during a course. Recording may be done by either the instructor for the purpose of authorized distribution, or by a student for the purpose of personal study. Students should be aware that their voice and/or image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.

EXTREME CIRCUMSTANCES

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.

RESEARCH USING HUMAN SUBJECTS

All researchers conducting research that involves human participants, their records or their biological material are required to receive approval from one of McMaster's Research Ethics Boards before (a) they can recruit participants and (b) collect or access their data. Failure to comply with relevant policies is a research misconduct matter. Contact these boards for further information about your requirements and the application process.

McMaster Research Ethics Board (General board): <https://reo.mcmaster.ca/>

Hamilton Integrated Research Ethics Board (Medical board): <http://www.hireb.ca/>

ACKNOWLEDGEMENT OF COURSE POLICIES

Your enrolment in Commerce 3FD3 will be considered to be an implicit acknowledgement of the course policies outlined above, or of any other that may be announced during lecture and/or on A2L. **It is your responsibility to read this course outline, to familiarize yourself with the course policies and to act accordingly.**

Lack of awareness of the course policies **cannot be invoked** at any point during this course for failure to meet them. It is your responsibility to ask for clarification on any policies that you do not understand.

COURSE SCHEDULE

Commerce 3FD3: Section C01

| Week | Date | Topics | Readings | Due Dates |
|-------------|-------------|--|-------------------|------------------|
| 1 | 20-Jun | Introduction to Financial Modeling | Chapters 31-35 | |
| 2 | 22-Jun | Introduction to Python | Teaching Notes | |
| 3 | 27-Jun | Time Value of Money | Chapters 1, 7 | |
| 4 | 29-Jun | Financial Statements & Capital Budgeting | Chapters 1, 7 | |
| 5 | 04-Jul | Stock Valuation | Chapters 2,4,5,6 | Assignment 1 |
| 6 | 06-Jul | Bond Valuation | Chapters 20 to 23 | |
| 7 | 11-Jul | Risk and Return | Chapters 8 to12 | |
| 8 | 13-Jul | Capital Asset Pricing Model | Chapters 8 to12 | |
| 9 | 18-Jul | Extension of CAPM | Teaching Notes | Assignment 2 |
| 10 | 20-Jul | WACC | Chapters 3, 28 | |
| 11 | 25-Jul | Value at Risk | Teaching Notes | |
| 12 | 27-Jul | Monte Carlo Simulation | Chapter 24-27 | |
| 13 | 01-Aug | Wrap-up & Q&A | | Assignment 3 |
| 14 | 03-Aug | Final Exam | | |

*The topics covered in each session might be adjusted with the speed of class progress.