Commerce 3FD3
Financial Modelling
Winter 2021 Course Outline

Finance and Business Economics Area
DeGroote School of Business
McMaster University

COURSE OBJECTIVE

This course introduces the basics of financial modelling. This requires some understanding of finance and a basic knowledge of MS Excel. We will build on this knowledge to develop a more complete understanding of what makes for a good financial model, and how to go about building one.

INSTRUCTOR AND CONTACT INFORMATION

C01: Fri 14:30–17:20	**CO2: Thu 08:30-11:20**	**CO3: Tue 08:30-11:20**
Martin Butcher	**Martin Butcher**	**Martin Butcher**
Instructor	Instructor	Instructor
butchm1@mcmaster.ca	butchm1@mcmaster.ca	butchm1@mcmaster.ca
Tel: (905) 403-8286	Tel: (905) 403-8286	Tel: (905) 403-8286
Class Location: **Virtual**	Class Location: **Virtual**	Class Location: **Virtual**

COURSE ELEMENTS

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

COURSE DESCRIPTION

Financial modelling involves the creation of tools that someone, other than the writer, can use to answer "what if" questions in finance. The course will examine the tools built into MS Excel and VBA and their use in financial modelling, with an emphasis on documentation and industry best practices. The models used for this purpose include the yield curve, the efficient frontier, various asset pricing models (such as the CAPM and the APT), portfolio management (fixed income and equity), and option pricing.

A working knowledge of MS Excel is assumed, but no prior experience with VBA is required.

LEARNING OUTCOMES

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

- ➢ Design and layout a financial model.
- ➢ Decide on which variables are independent and how to value them.
- ➢ Become sufficiently familiar with MS Excel and VBA, to be viewed as the "resident expert" in many situations.

COURSE MATERIALS AND READINGS

Required:

Course Materials are available on Avenue To Learn
- ➢ http://avenue.mcmaster.ca

Optional Textbook:

Financial Analysis and Modelling Using MS Excel and VBA, 2nd Edition, Chandan Sengupta, Wiley, 2009. The textbook is the source of the course examples, provides granular model instruction, and is organized into 2 parts; MS Excel and using MS Excel, VBA and using VBA.

COURSE OVERVIEW AND ASSESSMENT

Learning in this course results primarily from in-class discussions, instructor walkthroughs of sample 'good' assignment examples, hands-on 'group' assignments building spread sheets in both MS Excel, and Visual Basic, and an individual final exam. The majority of learning is via guided group work, building spread-sheets to answer specific problems.

Missed assignments and exams will receive a grade of zero unless the group, or individuals within the group, have submitted and been approved for a Notification of Absence or MSAF. Assignments should be submitted in groups of 6.

As this is a purely virtual course, course content will be delivered as per the below:

ACTIVITY	DELIVERY	DESCRIPTION	TOOL(S)
Lecture Core Content	Asynch	Recorded lecture vids (~10min. each)	Voiceover PPT in Echo360
Group Discussions	Both	Synch: Breakout rooms during lecture Asynch: Microsoft Teams private groups	Synch: Zoom or WebEx Asynch: Microsoft Teams
Live Lectures	Synch	1hr. live session; opportunity to elaborate on content, present challenges, engage discussion	Zoom or WebEx

Your final grade will be calculated as follows:

Assignment 1 (week 03)	New Product Model	10%
Assignment 2 (week 05)	New Car Lease	10%
Assignment 3 (week 08)	Fixed Income Management	10%
Assignment 4 (week 09)	Yield Curves and Forward Rates	10%
Assignment 5 (week 11)	Options R Us	10%
Engagement	Contributions to weekly discussion	10%
Final Exam	Date to be determined	40%
Total		**100%**

NOTE: The use of a McMaster standard calculator is allowed during examinations in this course. See McMaster calculator policy.

COURSE DELIVERABLES

Assignment #1 – New Product Model
This assignment is worth 10**%** of your final grade and will be marked as a group effort. Students will produce a 3rd party financial model that explains a new loan product.

Assignment #2 – New Car Lease
This assignment is worth 10**%** of your final grade and will be marked as a group effort. Students will produce a 3rd party financial model that explains a new car lease.

Assignment #3 – Fixed Income Management
This assignment is worth 10**%** of your final grade and will be marked as a group effort. Students will produce a fixed income portfolio optimization model.

Assignment #4 – Yield Curves and Forward Rates
This assignment is worth 10**%** of your final grade and will be marked as a group effort. Students will produce and graph a yield curve. and a forward rate curve, from a list of bond quotes.

Assignment #5 – Options R Us
This assignment is worth 10**%** of your final grade and will be marked as a group effort. Students will produce a 3rd party option package model.

Engagement
10 weeks of high-quality two-part student engagement. In part 1, the instructor will post a question to the class, that each student will post a chat reply to. In part 2, each student will post a chat response to the chat reply of one other student. 1% of your final grade per complete part 1 and part 2 response.10 instructor questions.

Final Exam
This exam is worth 40% of your final grade, it is cumulative, it will cover only the theory taught in the course, and will be short answer format. The date of the final exam to be set by the registrar's office.

COMMUNICATION AND FEEDBACK

Students who wish to correspond with instructors or class mates 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

Students may request relief from a regularly scheduled midterm, test, assignment or other course components. Please refer to the policy and procedure on the DeGroote website at 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 behavior 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 behavior 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,* 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.

COURSES WITH AN ONLINE ELEMENT

Students should be aware that, when they access the electronic components of a course, 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

This course may use online proctoring software for the final exam. This software may require a student 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 the exam. 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 behavior's 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 <u>or</u> 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, labor disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.

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

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Meeting	Week of	Topics	Excel
1	Jan 11	Course Outline. Financial Modelling Using Excel, Ch 12, 13. Financial Modelling In The Investment World	Preview of topics
2	Jan 18	Time Value of Money, Ch 14 The annuity	Functions, Goal Seek Optimization.
3	Jan 25	Time Value of Money, Ch 14 Amortization Tables. [Assignment 1 posted]	Data validation, spinner control
4	Feb 01	How to build good VBA Models, Ch 25 Introduction to VBA, Ch 21	Introduction to VBA
5	Feb 08	VBA Essentials, Ch 22 [Assignment 2 posted]	More VBA. *Assignment #1 due midnight, Feb 13.*
6	Feb 15	**MID-TERM RECESS**	
7	Feb 22	Sub and Function Procedures, Ch 23 Debugging VBA Codes, Ch 24	VBA Tools, Sub Procedures & Functions. *Assignment #2 due midnight, Feb 27.*
8	Mar 01	Bond Pricing and Duration, Ch 17 [Assignment 3 posted]	Data tables, Graphs, Scroll bar
9	Mar 08	Bond Pricing and Duration, Ch 17 [Assignment 4 posted]	*Assignment #3 due midnight, Mar 13.*
10	Mar 15	Risk & Return	Arrays, solver. *Assignment #4 due midnight Mar 20.*
11	Mar 22	Options [Assignment 5 posted]	
12	Mar 29	Capital Market Simulation	Random numbers, Time, Speeding up VBA. *Assignment #5 due midnight Apr 03.*
13	Apr 05	Modelling Review	Final exam review.
14	TBD	Final Exam.	