

BUSINESS F735/V703 Financial Modelling Winter 2019 Course Outline

Finance and Business Economics Area DeGroote School of Business McMaster University

COURSE DESCRIPTION

What is the difference between making a purpose built spread sheet and financial modelling? Financial modelling is much more flexible and can be easily modified to solve a wide array of questions. This course will examine the tools built into Excel and VBA and their use in financial modelling. The tools will be introduced using concepts such as the time value of money, bond pricing, risk and return, financial planning and option pricing. Tools will include absolute cell references, names, lookup tables, formatting, spinners (and other controls), if statements, graphs, etc., as well as an introduction to VBA programming. A basic knowledge of Excel is assumed with no prior experience with VBA.

INSTRUCTOR AND CONTACT INFORMATION

Class Timing: **Wednesdays at 7:00 PM**
All times referenced in this document are Eastern.

Adeel Mahmood
Instructor
Tel: 905-525-9140 Ext 20559
Office Hours: After class or by appointment

COURSE ELEMENTS

Credit Value:	3	Leadership:	Yes	IT skills:	Yes	Global view:	Yes
Avenue:	Yes	Ethics:	No	Numeracy:	Yes	Written skills:	Yes
Participation:	Yes	Innovation:	Yes	Group Work:	Yes	Oral skills:	Yes

COURSE PREREQUISITES AND COMPLEMENTS

Students should have the academic credit of F600 or equivalent prior to the start of this course.

COURSE OVERVIEW AND OBJECTIVE

This course introduces the basics of financial modelling. It is offered as a second-year course because of the F600 prerequisite. This setup requires an understanding of finance and a basic knowledge of 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.

LEARNING OUTCOMES

Upon 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 vary them.
- Become familiar with Excel and VBA, enough to be viewed as the "resident expert" in many situations.

REQUIRED COURSE MATERIALS AND READINGS

Course content and class communication available on Avenue:

- <http://avenue.mcmaster.ca>

OPTIONAL COURSE MATERIALS AND READINGS

Benninga; Financial Modeling; *Fourth (4th) Edition*; The MIT Press, 2014:

- ISBN: 978-0262027281
- Finance-focused modelling text, also useful in other finance courses

Walkenbach; Excel 2016 Bible; *First (1st) Edition*; Wiley, 2015:

- ISBN: 978-1119067511
- Traditional-style manual for Excel, without any particular finance focus
- Helpful in gaining understanding of broader Excel usage

EVALUATION

Individual learning in this course results from in-class discussions, problem solving, and lab work. The balance of the individual learning results from lectures on specific topics, student research, and industry speakers. Team learning focus of this course is on an applied group project centred on a financial model.

The final grade will be calculated as follows:

Components and Weights

Class Participation	In-class contribution (individual)	10%
Term Tests	Written in the 6 th and 12 th classes (individual)	2 x 25%
Spreadsheet Assignment	Due after the 9 th class (group)	10%
Group Project	Due at the end of the term (group)	30%
Total		100%

Class Participation

Name cards are used to help give credit for class participation and contribution to in-class problem-solving. Students must have name cards with their full first and last names clearly written and displayed in front of them for every class. It is imperative that students prepare for every class. **Class participation marks are primarily based on the quality of contribution.** No class attendance results in zero mark.

Although class participation in this course will primarily be a function of solving the assigned problems and questions in class, participation in discussions and other class aspects will also be considered. **The determination of a student's level of participation in a class will be in the Instructor's sole discretion.** The students are, however, provided the guidelines below.

The grading for participation in each class generally follows a scheme on a scale of 0 to 3:

<i>Grade</i>	<i>Student Contribution</i>
0	Does not attend class
1	Attends class but makes no contribution during that class
2	Attends class and makes one average contribution during that class

3	<p>Attends class and makes a significant contribution to the class by making important points with elements of originality or mastery of relevant issues or concepts – as demonstrated, during that class, by:</p> <ul style="list-style-type: none"> • Making one or more excellent contributions; • Making two or more average contributions; • Solving one or more problems for the class in class; or • Providing other satisfactory evidence of significant contribution.
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Note that there is no partial (non-integer) participation grade awarded for a class.

Students may be asked to share their analysis with, or otherwise present their arguments to, the class in order for their contribution to be qualified as significant.

A student **missing a class** during the term, excluding a class where a test or an exam is held, is required to contact the ‘Student Experience – Academic (MBA) office’ and obtain an official approval of relief if he or she wishes to avoid getting a zero (0) participation grade for that class.

If the ‘Student Experience – Academic (MBA) office’ adjudicates that relief be provided, the student’s participation grade for the classes with relief requests will be re-assigned to the graded classes. See the section *Missed Academic Work* below for more details.

Notwithstanding the above, of the eight classes graded for participation, **students’ participation will be based on the best six out of eight classes**. That is, each student will be assigned a total participation grade using the six highest (out of eight total) individual class participation scores. Note that these participation marks are normally reserved for class participation during the section of the class without any tests, quizzes, or presentations.

Term Tests

Two term tests – ***open-book, open-notes*** tests – will be written in the **6th** and **12th classes** of the term. More details of the format, structure, and content coverage will be provided during the course of the term.

A student ***missing a Term Test*** is required to contact the ‘Student Experience – Academic (MBA) office’ and obtain an official approval of relief if he or she wishes to avoid getting a zero (0) grade for the test. If the ‘Student Experience – Academic (MBA) office’ adjudicates that relief be provided, the student’s grade for the test will be calculated based on the scheme outlined in the ***Missed Tests*** document available online.

Spreadsheet Assignment

In the **Spreadsheet Assignment**, each group will complete a spreadsheet assignment focused on financial modelling and using the concepts introduced in the course. More details of the format, structure, and content coverage will be provided during the course of the term.

Students will form groups for this component. Each student group will also complete the **Group Project** as described elsewhere in this document. *The group members will be assigned individual grades relative to the group grade based on the peer assessments completed towards the end of the course.*

Group Project

Students will form groups for this component. Each student group will also complete the **Spreadsheet Assignment** as described elsewhere in this document. *The group members will be assigned individual grades relative to the group grade based on the peer assessments completed towards the end of the course.*

The **Group Project** is **due at the end of the term**. The project will entail building and documenting a real-life financial model using the concepts covered in the course.

More details of the format, structure, and length of the project will be provided during the course of the term.

COMMUNICATION AND FEEDBACK

Students who are uncomfortable in directly approaching an instructor regarding a course concern may send a confidential and anonymous email to the respective Area Chair or Associate Dean:

<http://mbastudent.degroote.mcmaster.ca/contact/anonymous/>

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 Administrative Assistant.

Instructors should conduct an informal course review with students to allow time for modifications in curriculum delivery. Instructors should provide evaluation feedback for at least 10% of the final grade to students prior to Week #8 in the term.

ACADEMIC DISHONESTY

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.

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.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy at:
www.mcmaster.ca/academicintegrity

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations

MISSED ACADEMIC WORK***Missed Mid-Term Examinations / Tests / Class Participation***

Where students miss a regularly scheduled mid-term or class participation for legitimate reasons as determined by the Student Experience – Academic (MBA) office, the weight for that test/participation will be distributed across other evaluative components of the course at the discretion of the instructor. Documentation explaining such an absence must be provided to the Student Experience – Academic (MBA) office within five (5) working days upon returning to school.

To document absences for health related reasons, please provide to Student Experience – Academic (MBA) office the Petition for Relief for MBA Missed Term Work and the McMaster University Student Health Certificate which can be found on the DeGroote website at <http://mbastudent.degroote.mcmaster.ca/forms-and-applications/>. Please do not use the online McMaster Student Absence Form as this is for Undergraduate students only. University policy states that a student may submit a maximum of three (3) medical certificates per year after which the student must meet with the Director of the program.

To document absences for reasons other than health related, please provide Student Experience – Academic (MBA) office the Petition for Relief for MBA Missed Term Work and documentation supporting the reason for the absence.

Students unable to write a mid-term at the posted exam time due to the following reasons: religious; work-related (for part-time students only); representing university at an academic or varsity athletic event; conflicts between two overlapping scheduled mid-term exams; or other extenuating circumstances, have the option of applying for special exam arrangements. Such requests must be made to the Student Experience – Academic (MBA) office at least ten (10) working days before the scheduled exam along with acceptable documentation. Instructors cannot themselves allow students to unofficially write make-up exams/tests. Adjudication of the request must be handled by Student Experience – Academic (MBA).

If a mid-term exam is missed without a valid reason, students will receive a grade of zero (0) for that component.

Missed Final Examinations

A student who misses a final examination without good reason will receive a mark of 0 on the examination.

All applications for deferred and special examination arrangements must be made to the Student Experience – Academic (MBA) office. Failure to meet the stated deadlines may result in the denial of these arrangements. Deferred examination privileges, if granted, must be satisfied during the examination period at the end of the following term. There will be one common sitting for all deferred exams.

Failure to write an approved deferred examination at the pre-scheduled time will result in a failure for that examination, except in the case of exceptional circumstances where documentation has been provided and approved. Upon approval, no credit will be given for the course, and the notation N.C. (no credit) will be placed on the student's transcript. Students receiving no credit for a required course must repeat the course. Optional or elective courses for which no credit is given may be repeated or replaced with another course of equal credit value.

Requests for a second deferral or rescheduling of a deferred examination will not be considered.

Any student who is unable to write a final examination because of illness is required to submit the Application for Deferred MBA Final Examination and a statement from a doctor certifying illness on the date of the examination. The Application for Deferred MBA Final Examination and the McMaster University Student Health Certificate can be found on the DeGroote website at <http://mbastudent.degroote.mcmaster.ca/forms-and-applications/>. Please do not use the online McMaster Student Absence Form as this is for Undergraduate students only. Students who write examinations while ill will not be given special consideration after the fact.

In such cases, the request for a deferred examination privilege must be made in writing to the Student Experience – Academic (MBA) office within five business days of the missed examination.

Special examination arrangements may be made for students unable to write at the posted exam time due to compelling reasons (for example religious, or for part-time students only, work-related reasons):

Students who have religious obligations which make it impossible to write examinations at the times posted are required to produce a letter from their religious leader stating that they are unable to be present owing to a religious obligation.

Part-time students who have business commitments which make it impossible to write examinations at the times posted are required to produce a letter on company letterhead from the student's immediate supervisor stating that they are unable to be present owing to a specific job commitment.

In such cases, applications must be made in writing to the Student Experience – Academic (MBA) office at least ten business days before the scheduled examination date and acceptable documentation must be supplied.

If a student is representing the University at an academic or athletic event and is available at an overlapping scheduled time of the test/examination, the student may write the test/examination at an approved location with an approved invigilator, as determined by the Student Experience – Academic (MBA) office.

In such cases, the request for a deferred examination privilege must be made in writing to the Student Experience – Academic (MBA) office within ten business days of the end of the examination period.

Note: A fee of \$50 will be charged for a deferred exam written on campus and a fee of \$100 for deferred exams written elsewhere. In cases where the student's standing is in doubt, the Graduate Admissions and Study Committee may require that the student with one or more deferred examination privileges refrain from re-registering until the examination(s) have been cleared.

STUDENT ACCESSIBILITY SERVICES

Student Accessibility Services (SAS) offers various support services for students with disabilities. Students are required to inform SAS of accommodation needs for course work at the outset of term. Students must forward a copy of such SAS accommodation to the instructor normally, within the first three (3) weeks of classes by setting up an appointment with the instructor. If a student with a disability chooses NOT to take advantage of an SAS accommodation and chooses to sit for a regular exam, a petition for relief may not be filed after the examination is complete. The SAS website is:

<http://sas.mcmaster.ca>

ACKNOWLEDGEMENT OF COURSE POLICIES

Your registration and continuous participation (e.g. on A2L, in the classroom, etc.) to the various learning activities of this course 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.

POTENTIAL MODIFICATIONS TO THE COURSE

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

COURSE SCHEDULE

CL.	DATE	FINANCE CONTENT	EXCEL TOPIC
1	Wed. Jan 9	Introduction Intro to Financial Modelling	-
2	Wed. Jan 16	Financial Statement Modelling I Forecasting financial statements using spreadsheets	<ul style="list-style-type: none"> Various Excel functions / tools
3	Wed. Jan 23	Financial Statement Modelling II Integrating financial statement worksheets, completing valuations	<ul style="list-style-type: none"> Various Excel functions / tools
4	Wed. Jan 30	Portfolio Modelling Investment portfolios, betas, variances, performance measurement	<ul style="list-style-type: none"> Datatables, arrays, pivot tables Matrix operations
5	Wed. Feb 6	Forecasting and Optimization Macro forecasting, optimization techniques, predictive analytics	<ul style="list-style-type: none"> Solver, Analysis Toolkit, Regression, Scenario analysis
6	Wed. Feb 13	<i>Term Test 1 – To Be Written in Class</i>	
-	Wed. Feb 20	<i>Midterm Recess (No Class)</i>	
7	Wed. Feb 27	VBA / Programming I Intro to VBA / programming	<ul style="list-style-type: none"> VBA, macros
8	Wed. Mar 6	VBA / Programming II Working with custom functions	<ul style="list-style-type: none"> VBA, custom functions
9	Wed. Mar 13	Financial Software Integration Use with Bloomberg and third-party software <i>Spreadsheet Assignment due online by 11.00 AM on the following Monday</i>	<ul style="list-style-type: none"> (To Be Announced)
10	Wed. Mar 20	VBA / Programming III Interaction with users and external data	<ul style="list-style-type: none"> VBA, user forms

CL.	DATE	FINANCE CONTENT	EXCEL TOPIC
11	Wed. Mar 27	Data Science Applications to data analytics <i>Project Proposal</i> due online by 11.59 PM	<ul style="list-style-type: none"> (To Be Announced)
12	Wed. Apr 3	<i>Term Test 2 – To Be Written in Class</i>	
13	Wed. Apr 10	Review Course wrap-up, final modelling tips	-
-	Mon. Apr 15	<i>Group Project – Due by 11.00 AM</i>	

RESEARCH DATA

Any research data obtained by a student from publicly available sources for the purposes of completing term work (including data used in assignments, projects, and tests) are the joint property of the student, the instructor, and the university. All parties are free to use the research data subject to the original copyright of such data. Students hereby agree not to use in their term work any proprietary data or data subject to copyright protection without the prior written approvals of the instructor and the owner of any such copyright.