COMMERCE 4FF3
Portfolio Theory and Management
Fall 2020 Course Outline

DeGroote School of Business
McMaster University

COURSE OBJECTIVE

The course offers an advanced treatment of investment decision making. It explains in a formal and systematic fashion those concepts underlying portfolio investment decisions under risk. By using portfolio selection models, it also seeks to provide intuitive appealing criteria for such decisions. Besides covering recent research advancements in portfolio theory, the course has its emphasis on various practical and institutional issues pertaining to portfolio management as well.

INSTRUCTOR AND CONTACT INFORMATION

Instructor: Dr. Andrew Aziz, Senior Vice President & Managing Director: Financial Risk Analytics, IHS Markit; Telephone: 437-991-1876; e-mail: andyaziz@rogers.com.

The teaching assistant's contact information and office hours are to be announced in class.

Important Notice: For e-mail communications with the instructor or the teaching assistant, please always use a McMaster University e-mail account and "**Commerce 4FF3**" for the subject heading.

COURSE ELEMENTS

Avenue:	Yes	Leadership:	No	IT skills:	No	Global view:	Yes
Participation:	Yes	Ethics:	Yes	Numeracy:	Yes	Written skills:	Yes
Evidence-based:	Yes	Innovation:	Yes	Group work:	No	Oral skills:	Yes
Experiential:	No	Guest:	Yes	Final Exam:	Yes		

Algebra and general analytical skills, including those pertaining to matrix algebra, as well as fundamental statistical concepts, are important course elements.

COURSE DESCRIPTION

The course starts with an overview of the portfolio management process, along with various practical strategies for portfolio revisions. The institutional environment is described. Among various practical issues pertaining to portfolio analysis, of special interest are issues that affect the tractability of the analysis when it attempts to capture short-sale transactions.

Considered next are some basic portfolio concepts. The coverage starts with a brief review of utility theory. It then provides alternative justifications for the mean-variance approach. If neither justification is considered adequate, a simple remedy is also provided and justified.

Once the fundamental materials have been covered, the analysis begins with two-security and three-security illustrations. With equally weighted portfolios being an example, more portfolio concepts are introduced. The course then presents, in considerable detail, portfolio selection under a simplifying assumption of short sales. The assumption allows efficient allocations of investment funds to be determined directly and analytical properties of the portfolio solution to be explored.

Various empirical and analytical issues pertaining to the sample covariance matrix of security returns are considered. To complement the analytical materials involved, spreadsheet-based illustrations are provided as well.

Considered next is portfolio analysis in the presence of a risk-free security. The analysis now becomes a two-part process. The first part pertains to the determination of the optimal risky portfolio regardless of any specific risk-return preferences of the investors involved. The second part pertains to the allocation of investment funds between the risk-free security and the optimal risky portfolio. It is the second part that knowledge about the investors' risk-return preferences is required. The course then examines some analytical issues and introduces a more realistic assumption about short sales.

The course then considers portfolio selection with short sales disallowed. An algorithm for portfolio construction, called the critical line method as developed by Harry Markowitz, a 1990 Nobel Laureate, is presented. Also considered is a simpler, but analytically equivalent, version of the algorithm, as well as a numerical approach for solving directly the same portfolio selection problem with spreadsheet tools on computers.

In order to establish some intuitive appealing criteria for portfolio selection, the covariance structure of security returns is then characterized by various models. The constant correlation model is the simplest among these models. It characterizes the correlations of returns of all securities considered to be the same. The single index model considers individual security returns as driven by the return of a market index; it uses the beta coefficients of individual securities to capture their relevant risk in a portfolio context. These models are then extended to account for group effects (such as industrial effects) on the portfolio choice.

Equilibrium models, including the well-known capital asset pricing model (CAPM) and the lesser known Arbitrage Pricing Theory (APT) are then described in detail. If investors behave as portfolio theory suggests they should, then their actions can be aggregated to determine prices at which securities will sell in the market.

LEARNING OUTCOMES

Upon successful completion of the course, the student will have a solid foundation in modern portfolio theory and good understanding of portfolio management in practice. As the use of spreadsheet tools is an important course element, the student will also have acquired some practical spreadsheet skills.

REQUIRED COURSE MATERIALS AND READINGS

The required course material is contained in the following textbook:

Modern Portfolio Theory and Investment Analysis 9th Edition, E. *Elton, M. Gruber, S. Brown & W. Goetzmann,* 2014.

The textbook is available as an ebook..

EVALUATION

There are three components for evaluation

Components and Weights

Final	50%
Mid Term	25%
Assignments (3)	25%

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

www.mcmaster.ca/policy/Students-AcademicStudies/UndergraduateExaminationsPolicy.pdf

Communication and Feedback

Students that 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 are encouraged to conduct an informal course review with students by Week #4 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, located 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

Students may request relief from a regularly scheduled midterm, test, assignment or any 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/

STUDENT ACCESSIBILITY SERVICES

Students who require academic accommodation must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Academic accommodations must be arranged for each term of study. Student Accessibility Services can be contacted by phone 905-525-9140 ext. 28652 or e-mail sas@mcmaster.ca.

For further information, consult McMaster University's Policy for Academic Accommodation of Students with Disabilities:
http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicAccommodation-StudentsWithDisabilities.pdf

POTENTIAL MODIFICATION 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.

ACKNOWLEDGEMENT OF COURSE POLICIES

Your registration in Commerce 4FF3 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 4FF3
Financial Risk Management
Fall 2020 Course Schedule

WEEK	DATE	ASSIGNMENT
1	Sept. 11	Introduction and preliminary concepts: Readings: - Elton & Gruber: Chapters 1, 2, 3.
2	Sept. 18	Portfolio Risk and Return - Key Principles: Readings: - Elton & Gruber: Chapters 1, 2, 3. 11 - Supplemental article
3	Sept. 25	The Mean-Variance Approach: Core Concepts Readings: - Elton & Gruber: Chapters 4, 5, 11
4	Oct. 02	Portfolio Selection with Frictionless Short Sales Readings: - Elton & Gruber: Chapters 4, 5
5	Oct. 09	Portfolio Selection in the Presence of a Risk-Free Security Readings: - Elton & Gruber: Chapters 5, 6
6	Oct. 16	Portfolio Selection without Short Sales Readings: - Elton & Gruber: Chapters 6
7	Oct. 23	Midterm
8	Oct. 31	Index Models Readings: - Elton & Gruber: Chapters 7, 9
9	Nov. 06	Constant Correlation Model Readings: - Elton & Gruber: Chapters 7, 9
10	Nov. 13	Equilibrium models: CAPM Readings: - Elton & Gruber: Chapters 13, 14
11	Nov. 20	Equilibrium models: APT Readings: - Elton & Gruber: Chapter 16
12	Nov 27	Empirical Challenges with MPT: - TBD
13	Dec. 04	Alternative Approaches Readings: - TBD