

**FINANCE 705
Financial Econometrics II
Winter 2022 Course Outline**

**Master of Finance
DeGroote School of Business
McMaster University**

COURSE OBJECTIVE

This course covers econometric techniques that are required for empirical finance with an emphasis on time series analysis. Topics include panel data analysis, simultaneous equations, and volatility measures. The course emphasizes hands-on experience through learning computer-based applications in estimation and inference. Students are expected to acquire programming techniques working with econometric and statistical software packages in this course.

INSTRUCTOR AND CONTACT INFORMATION

Sections 1 & 2:

Instructor: Dr. Bijan Alagheband, CFA
alagheb@mcmaster.ca
Office: BSB 105 or virtual *
Office Hours: After Class
Tel: (905) 525-9140 x
Class Location: BSB 105 or virtual *

- Depending on Faculty policy

Student TA
Laite Guo
guol12@mcmaster.ca
Office: TBA
Office Hours: TBA
Section: TBA

Student TA
Lulu Zhang
zhangl40@mcmaster.ca
Office: TBA
Office Hours: TBA
Section: TBA

COURSE ELEMENTS

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

COURSE DESCRIPTION

This course is taught primarily through lectures and assignments. Lectures may include additional material compared to the textbooks for this course so that class notes are important. The course is essential for financial/market analysis and, thereby, for planning and business decision making processes.

LEARNING OUTCOMES

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

- Develop distributed lag models,
 - Estimate models of qualitative choice,
 - Estimate simultaneous equations,
 - Perform simulation,
 - Estimate models using panel data,
 - Analyze dynamic response path of a system of equations,
 - Estimate vector autoregressive models,
 - Develop time series models,
 - Measure and model volatility.
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COURSE MATERIALS AND READINGS

“Analysis of Financial Time Series”, by Ruey S. Tsay, third edition, published by Wiley

“Econometric Analysis”, by William H. Greene, eight (or seventh) edition, published by Prentice Hall (Pearson)

Lecture notes are also based on various articles and other texts such as:

“Econometric Models and Economic Forecasts”, by Robert S. Pindyck, and Daniel L. Rubinfeld, fourth edition, published by Irwin/McGraw-Hill

“Financial Econometrics, Problems, Models and Methods”, by C. Gouriéroux and J. Jasiak, Published by Princeton University Press

“Econometrics of Financial Markets” by John Y. Campbell, Andrew W. Lo, and A. Craig Mackilay, published by Princeton University Press.

Software:

EViews 12 Student Version Lite (free)

R (free)

COURSE OVERVIEW AND ASSESSMENT

ACTIVITY	DELIVERY	DESCRIPTION	TOOL(S)
Lecture Core Content	Asynch	Recorded lecture	Voiceover PPT
Readings	Asynch	Tied to weekly discussion prompts	Readings in assigned textbook
Discussions	Both	Group or individual discussions with instructor or TA	In-person, email, WebEx, Zoom *
Live Lectures	Synch	3hr. live session; opportunity to elaborate on content, present challenges, engage discussion	In-person, Zoom or WebEx *

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Depending on Faculty policy.

GRADE COMPONENT	WEIGHT	DESCRIPTION
Engagement	15%	Attendance & Individual / Group Contributions
Assignments	30%	2 Assignments 15% each.
Project	55%	Term project

COURSE DELIVERABLES

Assignments

Assignments are totally worth 30% of your final grade and will be marked individually.

Project

Project is worth 55% of your final grade and will be marked individually.

GRADE CONVERSION

At the end of the course your overall percentage grade will be converted to your letter grade in accordance with the following conversion scheme:

LETTER GRADE	PERCENT	POINTS
A+	90-100	12
A	85-89	11
A-	80-84	10
B+	75-79	9
B	70-74	8
B-	60-69	7
F	00-59	0

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. All students must receive feedback regarding their progress prior to the final date by which a student may cancel the course without failure by default.

- *For Level 1 and Level 2 courses, this feedback must equal a minimum of 20% of the final grade.*
- *For Level 3 courses and above, this feedback must equal a minimum of 10% of the final grade.*

Instructors may solicit feedback via an informal course review with students by Week #4 to allow time for modifications in curriculum delivery.

REQUESTING RELIEF FOR MISSED ACADEMIC WORK

In the event of an absence for medical or other reasons, students should review and follow the Missed Term Work regulations that are outlined on the Master of Finance website;

<https://mfin.degroote.mcmaster.ca/current-students/missed-term-work/>

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. e-mail, Avenue to Learn (A2L), LearnLink, web pages, capa, Moodle, ThinkingCap, 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 Finance 705 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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WEEK	DATE	TOPIC
1	January 10	Distributed Lag Models, Greene Ch. 5.5 (5.7 in 7 th ed.), Pindyck et al. Ch. 9.1-9.2
2	January 17	Models of Qualitative Choice, Greene Ch. 17.1-17.4, Pindyck et al. Ch. 11.1-11.2
3	January 24	Simultaneous Equations, Greene Ch. 8.4, 10.4-10.5 (8.3.4, 10.5-10.6 in 7 th edition), Pindyck et al. Ch. 12.1-12.5
4	January 31	Simulation and Evaluation, Pindyck et al. Ch. 12.6, 13.1-13.4
5	February 7	Econometric Modelling in Practice, various sources
6	February 14	Panel Data Analysis and Dynamic Response Path, Greene Ch. 11.1-11.5, Pindyck et al. Ch. 9.4, 14.1-14.5
7	February 28	VAR Models and Characteristics of Financial Time Series, Pindyck et al. Ch. 13.2, 13.5, Tsay Ch.1
8	March 7	Linear Time Series Models, Tsay Ch.2.1-2.4.3
9	March 14	Parametric Measures of Volatility, GARCH and Stochastic Volatility, Tsay Ch.2.4.4-2.7.5
10	March 21	Multivariate GARCH and Factor Models, Tsay Ch.2.8, 3.1-3.10.1
11	March 28	Non-parametric Measures of Volatility, various articles
12	April 4	Non-linear Models, Tsay Ch.4.1-4.1.8
13	April 11	Non-linear Models: Part 2, Tsay Ch.4.1.9, 4.2.1-4.2.2