

**FINANCE 604**  
**Statistics for Financial Applications**  
**Fall 2024 Course Outline**

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

***COURSE OBJECTIVE***

*Statistics involves the study of collection, organization, presentation, analysis and interpretation of data. The ultimate goal of business statistics is business improvement through informed action when faced with uncertain outcomes. In this course we provide an introduction to some of the statistical analysis methods such as confidence intervals, hypothesis testing, experimental design and analysis of variance, and regression analysis to aid business decision-making. Practical experience applying these concepts will be reinforced through the use of application-based case studies, completed both individually and in groups.*

***INSTRUCTOR AND CONTACT INFORMATION***

<b>Instructor</b>	<b>Student TA</b>
William Huggins	TBA
<a href="mailto:hugginsw@mcmaster.ca">hugginsw@mcmaster.ca</a>	TBA
Office: Virtual	Office: Virtual
Office Hours: by appointment	Office Hours: TBA
Tel: (647) 289-9240	
Class Location: Virtual	

**Class meets WEDNESDAY NIGHTS from 7-10pm in BSB B156**

***COURSE ELEMENTS***

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

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## **COURSE DESCRIPTION**

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*This foundational course will to prepare students for professional work in finance, and for their later course in econometrics, by providing them with a firm foundation in the basics of hypothesis testing and regression analysis. The structure of scientific inquiry, and both the correct choice of tools and the interpretation of results will be emphasized. Topics include probability, sampling, confidence intervals, the formulation of falsifiable hypotheses, and both multiple and time series regression.*

*The primary objectives will be on understanding how and when to apply statistical techniques to managerial problems, and on the translation of statistical output into actionable recommendations. Learning is reinforced through the completion of three case studies (two in groupwork).*

*A secondary objective of the course is to improve students' ability to communicate the results of their findings to a professional audience. Assessments include solo and group presentations, with personalized coaching.*

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## **LEARNING OUTCOMES**

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

- Understand sampling distributions, with emphasis on comparing population mean and variance
- Understand the nature of statistical relationships between variables.
- Explore regression analysis, including simple linear regression, and multiple linear regression.
- Be able to identify common regression pitfalls.
- Select appropriate factors and regression models for prediction.
- Be familiar enough with Excel to perform and analyze the output of statistical tests and regression models.
- Focus presentation messaging on essential content and clearly communicate the limitations of analysis.
- Select appropriate visual aids to reinforce their primary message and highlight data trends and breaks.
- Describe their analytical approach and the implications of results in an audience-specific manner.

## **COURSE MATERIALS AND READINGS**

- Avenue registration for course materials: <http://avenue.mcmaster.ca/>
- “Stats: Data and Models 4ce”, DeVeaux et al, Pearson, 2022
- HBS Case Packs (THERE ARE TWO OF THEM):
  - GROUP CASES: <https://hbsp.harvard.edu/import/1205525>
  - FINAL EXAM: <https://hbsp.harvard.edu/import/1205526>

## **EVALUATION**

Missed tests/exams not approved by the MFIN Program Office will receive a grade of zero. Your final grade will be calculated as follows:

Finance in the News – (solo presentation 1)	(Sept 26 - Oct 17, in class)	5%
Integrative Project	(Report due Oct 11, Presentations TBA)	15%
Case #1 – (group report and presentation)	(Oct 30) at 11:59pm EST	20%
Finance in the News – (solo presentation 2)	(Nov 7- Nov 28, in class)	5%
Case #2 – (group report and presentation)	(Dec 4) at 11:59pm EST	20%
Case #3 – (individual report)	(Dec 5) at 11:59pm EST	35%
<b>Total</b>		<b>100%</b>

### **Solo Presentations (10%)**

*Each student will make two brief presentations to the class (3-4 minutes each) on scheduled dates. You will be assessed on the quality of the presentation rather than its content and given feedback on how to improve the next time. If your grade on the second solo presentation is higher than the first, the same (higher) grade will be applied to both assessments.*

### **Group and Individual Case Studies (75%)**

*Reports are to be submitted to drop boxes on Avenue by 11:59pm EST on the dates listed above. **You should attempt to form a group within the first two weeks of class so you can begin working together by early October. It is not possible to work alone.***

*During the case classes, each group will present its answers to one (or two) of the assigned questions. For group cases, reports are worth 15% and presentations 5%. There are no presentations for the final.*

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### **COMMUNICATION AND FEEDBACK**

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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.

Students who have concerns about the course content, evaluation methods, or delivery should first reach out to the course instructor. If your concern remains unresolved after speaking with the instructor, you may then reach out to the relevant Area Chair for further consideration.

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### **ACADEMIC INTEGRITY**

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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](http://www.mcmaster.ca/academicintegrity)

Students are responsible for being aware of and demonstrating behaviour that is honest and ethical in their academic work. Such behaviour includes:

- following the expectations articulated by instructors for referencing sources of information and for group work;
- asking for clarification of expectations as necessary;
- identifying testing situations that may allow copying;
- preventing their work from being used by others (e.g., protecting access to computer files); and
- adhering to the principles of academic integrity when conducting and reporting research.

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### ***AUTHENTICITY/PLAGIARISM DETECTION***

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**Some courses may** use a web-based service (Turnitin.com) to reveal authenticity and ownership of student submitted work. Students are expected to submit their work electronically 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](http://www.mcmaster.ca/academicintegrity).

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### ***COURSES WITH AN ONLINE ELEMENT***

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**All courses** use some online 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.

Students may be required to use the Respondus LockDown Browser and Respondus Monitor. The Respondus LockDown Browser is a downloadable program that allows a student to take an Avenue to Learn quiz in a secure environment. Quizzes can be set to use LockDown Browser or LockDown Browser.

For more details about McMaster's use of Respondus Lockdown Browser please go to <https://avenuehelp.mcmaster.ca/exec/respondus-lockdown-browser-and-respondus-monitor/>

The available information is dependent on the technology used. Continuation in a course that uses online 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.

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## ***CONDUCT EXPECTATIONS***

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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, Teams, 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.

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## ***ATTENDANCE***

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Arriving late or missing class disrupts the learning experience for both you and your peers. Punctuality and attendance are crucial to maintaining a respectful, professional and productive environment for everyone, including our faculty.

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## ***MISSED ACADEMIC WORK***

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### **Missed Examinations / Tests / Class Participation**

Students can apply for relief from missed term work if they have or are going to miss an evaluated portion of their course. Please contact the Program Administrator for more information.

Reasons for missing course work can include:

- Health-related or extenuating circumstances
- Work-related commitments (for part-time students only)
- Representing the University at an academic or varsity event
- Religious obligations
- Conflicts between two (or more) overlapping scheduled mid-term exams.

### Requesting Relief for Missed Term Work

When students miss regularly scheduled term work which contributes 10% or less to the final grade, the activity necessary to compensate for the missed work will be determined by the course instructor. The compensatory activities assigned will vary with the nature of the course and the missed requirement. They include, but are not restricted to, an alternative assignment, a rescheduled midterm exam, or re-weighting the marks for the missed component to other mark components. For missed work which exceeds 10% of the course grade, [Petition For Relief For MFin Missed Term Work](#) and [McMaster University Student Health Certificate](#) or other supporting documentation must be submitted to the Program Administrator at [mfin@mcmaster.ca](mailto:mfin@mcmaster.ca) within five (5) business days of missing the work or mid-term exam.

### Missed Final Examinations

Students must be available for the duration of the posted exam period regardless of their personal exam schedule. This is to ensure student availability throughout the entire exam period in the event that an exam must be rescheduled due to unforeseen circumstances (university closure, power outage, storm policy, etc.). A student who misses a final examination without valid reason will receive a mark of 0 on the examination.

Students who have missed a final exam for a valid reason can apply to the Program Office to write a deferred examination by submitting an [Application for Deferring a Final Exam](#) and [McMaster University Student Health Certificate](#) or other supporting documentation. The application must be made within five days of the scheduled exam.

Deferred examination privileges, if granted, are normally satisfied during the examination period at the end of the following semester. In select cases, the deferred examination may be written at a time facilitated by the Program Office and agreed to by the course instructor.

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

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## **ACADEMIC ACCOMMODATION FOR STUDENTS WITH DISABILITIES**

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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>

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

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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 the Program Office ***normally within 10 working days*** of the beginning of term in which they anticipate a need for accommodation. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

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## ***COPYRIGHT AND RECORDING***

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Students are advised that lectures, demonstrations, 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/ image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.

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## ***POTENTIAL MODIFICATION TO THE COURSE***

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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 A2L weekly during the term and to note any changes.

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## ***ACKNOWLEDGEMENT OF COURSE POLICIES***

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Your registration and continuous participation to the various learning activities of MFIN604 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.



**ARTIFICIAL INTELLIGENCE**

Students are **not** permitted to use generative AI in this course – you are expected to conduct INDEPENDENT analysis and produce personal insights regarding the case data.

In alignment with [McMaster academic integrity policy](#), it “shall be an offence knowingly to ... submit academic work for assessment that was purchased or acquired from another source”. This includes work created by generative AI tools. Also state in the policy is the following, “Contract Cheating is the act of “outsourcing of student work to third parties” (Lancaster & Clarke, 2016, p. 639) with or without payment.” Using Generative AI tools is a form of contract cheating. Charges of academic dishonesty will be brought forward to the Office of Academic Integrity.

**COURSE SCHEDULE**

**FINANCE 604**  
**Statistics for Financial Applications**  
**Fall 2024 Course Schedule**

Date	Topics	Reference List (chapters)	Deliverables
S12	Introduction to the Course	Class notes	
S19	Visualizing Data	2, 3, 4	
S26	Probability	11, 12	Finance in the News 1
O3	Sampling Distributions	5, 13, 14	Finance in the News 1
O10	Confidence and Hypotheses	15, 17, 18	Finance in the News 1
O17	T-Tests for Means	16, 19, 20, 21	<b>Integrative Project</b>
O24	<b>Case #1</b>		<b>Report Oct 24/Pres Oct 25</b>
O31	F & Chi Tests	22, 24, 25	
N7	Correlation and Regression	6, 7	Finance in the News 2
N14	Building Regression Models	8	Finance in the News 2
N21	Multiple Regression	26, 27	Finance in the News 2
N28	Time Series	Class notes	Finance in the News 2
D5	<b>Case #2</b>		<b>Report Dec 5/Pres Dec 6</b>