

**York University**  
**Department of Economics**  
**Faculty of Liberal Arts and Professional Studies**  
**Winter 2020**  
**AP/ECON 4140M 3.0**  
**“Financial Econometrics”**

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- Instructor:** Shervan Vafa
- Office:** TBA
- Contact:** E-mail: [svafa@yorku.ca](mailto:svafa@yorku.ca)
- Office Hours:** TBA
- Lecture Time:** Tuesdays 7:00-10:00PM
- Lecture Location:** ACW 303
- Course Webpage:** Students MUST check the course website for regular announcements: <http://moodle.yorku.ca>. All lecture notes will be posted to the website before the lecture for students to print out and bring to class with them.
- Teaching Assistant:** TBA
- Course Description:** This course is an introduction to financial econometrics for students who have taken Econ 3210 or Econ 3500. Background knowledge of finance is not required. The objective of the course is to explain, in simple terms, the use of selected statistical methods and econometric models in finance. The content of the course includes simple static and dynamic models of financial returns, elements of portfolio theory, the Sharpe ratio, the CAPM regression model, elements of option pricing, the Value-at-Risk (VaR), and the ARCH model. All theoretical concepts introduced in this course will be illustrated in class by various empirical examples. Additional examples will be assigned as homework. Students are encouraged to work and submit their assignments in groups of no more than 3 participants. The assignments will require only basic programming skills in R.
- Textbook:** **Required:** David Ruppert, “Statistics and Finance: An Introduction”, 2004, Springer Texts in Statistics, ISBN: 978 – 0 – 387 – 20270 – 9.  
**Recommended:** Ruey S. Tsay, “Analysis of Financial Time Series”, 2010, Wiley, ISBN:978 – 0470414354.

**Evaluations:**

There will be one mid-term test worth 40% and one major assignment worth 20% and the exam is worth 40% of the final grade.

There will be a presentation component to the assignment. Worth 5 percentage points of the 20% total presentation grade.

Mid-term	40%
Assignment	15%
Assignment presentation	5%
Exam	40%
Total	100

Assignment/Presentations due on:

- Tuesday March 31<sup>st</sup>, 2019

Mid-term Test will be held during the lecture:

- Tuesday February 11<sup>th</sup>, 2019

**Important notes regarding the tests and assignments:**

Mid-term test will be 120 minutes.

- A grade of zero will be awarded to students who do not write the test, unless an appropriate and convincing note is received within one week of the missed test (explaining why the test was missed).
- Only original notes will be accepted; photocopies or emailed certificates will not be accepted.
- The note must clearly state that on the date of the test, the student was too sick to write the test. Illness before the test is not sufficient grounds for missing the test.
- I will review each sick note to determine whether there are sufficient grounds for a student to be excused from a test. Part of this review process may include meeting with the student, and/or following up with the physician.
- If a student has been excused from the mid-term exam on medical grounds, he or she will be permitted to write the make-up test. The date and time will be decided at a later time and could be AFTER the drop date.
- If a student wishes to appeal a grade, he/she must provide a written explanation of why they believe their grade is mistaken, and submit it to the TA within one week of the test being returned to the class. Note that the entire test will likely be re-graded, and the appealed grade can be lower or higher than the original grade.
- The assignment is due within the first 10 minutes of the lecture. Late assignments for the day will be penalized by 10%. No assignments will be accepted once the lecture is over and a mark of zero will be awarded. If a medical note explaining why you missed the lecture on the deadline date is provided within 2 days of the deadline then the assignment will be received and marked accordingly.

**Important Dates:**

- Last date to enroll in the course without the instructor's permission: **January 19<sup>th</sup>**
- Last date to announce components of final grades: **January 20<sup>th</sup>**
- Last date to enroll in the course with the permission of the instructor: **February 3<sup>rd</sup>**
- Reading week: **February 17<sup>th</sup> – 21<sup>st</sup>**
- Last date to drop the course without receiving a grade: **March 13<sup>th</sup>**
- Last date to submit winter term work: **April 6<sup>th</sup>**
- Examination period: **April 7<sup>th</sup> – 25<sup>th</sup>**

**Misc.:**

Please try and be on time for the lecture out of respect for your classmates. Also, electronic gadgets (tablets, smartphones, laptops etc.) are allowed and can be used for taking/reading notes or any other activity you deem relevant to the course as long as there are no ringtones or vibrations going off during the lecture.

IMPORTANT: I take your feedbacks very very seriously and look forward to your suggestions for improving the course. Please do not hesitate to come forward with criticism and new ideas. I would like you to “enjoy” the course first and foremost, to have a pleasant learning experience and get a good mark at the same time.

**R Lab:**

You may complete your assignment in any software that you desire (EViews, STATA, or Gauss, etc.) but the primary language I will use will be R.

**Important Policies:**

Students must familiarize themselves with:

- York's Senate Policy on Academic Honesty:  
<http://www.yorku.ca/secretariat/policies/document.php?document=69>
- Code of Student Rights and Responsibilities:  
<https://oscr.students.yorku.ca/student-conduct>

## Tentative Course Outline

<b>Date</b>	<b>Topic</b>	<b>Textbook</b>
Jan 7 <sup>th</sup>	- Mathematical Statistics/Intro to R	Ch.1-2
Jan 14 <sup>th</sup>	- Mathematical Statistics	Ch.2
Jan 21 <sup>st</sup>	- Returns	Ch.3
Jan 28 <sup>th</sup>	- Time Series Models	Ch.4
Feb 4 <sup>th</sup>	- Time Series Models	Ch.4
Feb 11 <sup>th</sup>	<b>Mid-term</b>	
Feb 18 <sup>th</sup>	*** Reading Week	
Feb 25 <sup>th</sup>	- Portfolio theory	Ch.5
Mar 3 <sup>rd</sup>	- Regression	Ch.6
Mar 10 <sup>th</sup>	- Capital Asset Pricing Model	Ch.7
Mar 17 <sup>th</sup>	- ARCH Model	Ch.12
Mar 24 <sup>th</sup>	- Option Pricing	Ch.8
Mar 31 <sup>st</sup>	- Presentations <b>Assignment Due</b>	