MiF Program
Fall 2021
MFIN860 – Quantitative Methods

Instructor: Bünyamin Önal
Office: SBS 1176
Phone: (0216) 483-9660
Fax: (0216) 483-9699
E-mail: bunyamin.onal@sabanciuniv.edu
Web: SUcourse
Office Hours: Wednesdays 17:00-18:00. Also, by appointment.

Type	Time	Day	Where
MiF	18:00 - 21:00	Friday	Hybrid
MiF	9:30 - 12:30 & 13:30-17:30	Saturday	Hybrid

Course Objectives:
Financial markets are characterized by uncertainty. Finance specialists therefore need to have a very good command of the tools that are necessary for making sound decisions under uncertainty. This course will introduce the fundamental set of quantitative methods to extract and summarize relevant information from large datasets and to make estimations and forecasts about all members of a specified group from a sample drawn from it. The course is designed so that theoretical foundations of the concepts typically appear first and the relevant applications (mostly in finance) the second. The prerequisites of the course are undergraduate level calculus and some familiarity with Excel.

Learning Outcomes:
Upon successful completion of the course, the student should be able to:
1. Demonstrate knowledge of probability laws and conditional probability,
2. Demonstrate knowledge of properties of well-known distributions such as normal, uniform and binomial,
3. Calculate the mean and variance of random variables,
4. Demonstrate knowledge of the law of large numbers and the central limit theorem,
5. Setup hypothesis tests and interpret the results.
6. Run single and multivariate regressions and interpret the regression coefficients,
7. Estimate the statistical significance of the coefficient estimates, perform t- and F-tests.

Reading Material:

Quantitative Investment Analysis, 3rd Ed., Richard DeFusco, Dennis McLeavey, Jerald Pinto, David Runkle, Mark Anson, 2015, Wiley.

Statistics for Business and Economics, 8th Ed., Paul Newbold, William Carlson, Betty Thorne, 2012, Pearson. (Optional)

Introductory Econometrics for Finance, 3rd Ed., Chris Brooks, 2014 Cambridge University Press. (Optional)

Grading:

Participation	: 10%
Assignments	: 30%
Midterm	: 30%
Final	: 30%

Requirements:

Classes & Attendance
All classes will take place synchronously online and at one of the campuses. Students are expected to attend them all and participate in discussions. The general MiF program attendance policy applies (no-shows limited to one). Classes start right on time. If you arrive late, please join quietly without distracting others. Anything you miss throughout the classes are at your own responsibility.

Assignments
There will be three assignments each worth 10 points. You may collaborate with your class mates doing the assignments. However, you must submit your own work. See the course schedule at the end for due dates and times. Deadlines are strictly enforced: late submissions will be subject to point reductions.

Software
Excel and Stata are the software programs that will be used in the course. Both can be downloaded from https://mysu.sabanciuniv.edu/it/en/software and accessed off-campus via VPN client software (https://mysu.sabanciuniv.edu/it/en/openvpn-access).

Make-up Exam
If you miss the midterm (or final) exam due to an unexpected problem (e.g., serious illness, traffic accident) or unavoidable conflict (e.g., urgent business trip), there will be no make-up exams. Your final (or midterm) exam will be given 60% weight. If you miss both exams due to acceptable reasons, you can take a make-up exam within three days after the final exam and it will have 60% weight in your course grade. Relevant documentation in each case (e.g., official doctor's report in case of health problems, a letter from your supervisor and boarding passes in case of business trips) must be submitted directly to me as soon as soon possible.

Objections to Grading
Students must submit any objections to a grade in writing and within two days after receiving the grade. This note should clearly explain the basis of objection. Verbal objection is acceptable only for minor grading errors.

Special Needs
Any student who, because of a disability, requires some special arrangements in order to meet course requirements should contact me as soon as possible to make the necessary accommodations.

Academic Honesty:
Learning is enhanced through cooperation. That is why you are encouraged to work in groups, ask for and give help freely in all appropriate settings. However, as a matter of academic honesty, you must submit only your own work as yours. Any work to be considered for evaluation in this course must be original. Anecdotes from books, articles, or websites are acceptable as long as they are properly cited. Although you are encouraged to discuss the course material with others (including your class mates), it is important that you do not share your files (MS Excel files, assignment or exam solutions). Presenting ideas, text and other intellectual property developed by someone else as your original work is *plagiarism*. Copying from others or providing answers, written or oral, to others is *cheating*. Coming together with a class mate or hiring a third party to write your report is *collusion*. Cheating, plagiarism and collusion are all serious offenses that will result in an F grade and disciplinary action. Hence, avoid such offenses for your own sake.

Classroom policies and conduct:
Sabancı MiF Program values participatory learning. Establishing the necessary social order for a participatory learning environment requires that we all:
- Come prepared to make helpful comments and ask questions that facilitate your own understanding and that of your classmates. This requires that you complete the assigned readings for each session before class starts.
- Listen to the person who has the floor.
- Come to every session on time.
- As a Sabanci University student, your use of CAFE constitutes your agreement to abide by the policies and rules set forth for users of the facility and your acknowledgment that policy violations may result in disciplinary action.

Updates
Changes or additions to any course material and schedule will be announced on SUCourse+.

Course Schedule (*Tentative*)

Day 1	**November 6 (9:30-17:30)**
	Statistical Concepts
	Basic Concepts in Probability
	Readings: Chapters 3 and 4, DeFusco et al.
Day 2	**November 12 (18:00-21:00)**
	Assignment 1 (Due at 18:00)
	Common Probability Distributions (Ch. 5, DeFusco et al.)
	Readings: Chapter 5, DeFusco et al.
Day 3	**November 13 (9:30-17:30)**
	Common Probability Distributions (Continued)
	Sampling and Estimation
	Readings: Chapter 6, DeFusco et al.
Day 4	**November 19 (18:00-21:00)**
	Assignment 2 (Due at 18:00)
	Review
Day 5	**November 20 (10:00-17:30)**
	Midterm Exam
	Hypothesis Testing
	Readings: Chapter 7, DeFusco et al.
Day 6	**November 26 (18:00-21:00)**
	Assignment 3 (Due at 18:00)
	Correlation and Regression
	Readings: Chapter 8, DeFusco et al.
Day 7	**November 27 (9:30-17:30)**
	Correlation and Regression (Continued)
	Multiple Regression Analysis & Review
	Readings: Chapter 9, DeFusco et al.
Day 8	**December 3 (18:00-20:00)**
	Final Exam