

MSc Finance Preparatory Course - September 2019/2020
Introduction to Financial Analysis & Mathematics and Statistics for Finance
Monday 2nd - Friday 20th Sept 2019; Examinations Friday 20th Sep 2019

Summary of Course:

The course on Mathematics and Statistics for Finance is taught in early September before the formal start of the academic year. The course is composed of lectures and tutorials, concluding with a 2-hour examination. Attendance is strongly recommended since the concepts covered in the course will be assumed when you begin your programme.

The Mathematics and Statistics for Finance course presents the main ideas and methods in mathematics and statistics for financial analysis. The topics include matrix algebra, probability and random variables, univariate and multivariate distributions, statistical inference, time series, stochastic calculus, and asset pricing. The emphasis is throughout on the applications to finance. The course equips students with the main analytical tools required for the MSc in Finance.

The syllabus of the course covers the following topics:

1. Vectors, matrices, determinants, linear combinations
2. Rank, systems of linear equations, eigenvalues and eigenvectors, trace of a matrix
3. Probability, random variables and distributions
4. Univariate and multivariate distributions
5. Sample moments, sampling distributions and the law of large numbers
6. Estimation, estimators and hypothesis testing
7. Time series
8. Introduction to stochastic calculus: martingales, brownian motion
9. Notable definitions in finance, no arbitrage condition
10. Introduction to asset pricing

Objectives and Learning Outcomes of the Course:

At the end of this course students should be ready to progress onto the MSc in Finance. They will be able to:

- Demonstrate familiarity with the main concepts and definitions in financial analysis;
- Address problems in finance by using mathematical and statistical concepts and tools;
- Interpret the mathematical and statistical results in terms of financial analysis;
- Develop the analytical skills required for financial analysis;
- Solve mathematical and statistical problems in relation to financial applications.

Method of Assessment:

This course is assessed 100% by examination only.

Examinations:

On **Friday 20th September** all students will be required to complete one 2 hour examination. Although performance in the examination will not contribute to the final degree classification or affect the offer to study at SOAS, it will act as an indicator of the students' ability to complete the MSc and be used to identify areas for particular improvement. Students who fail the examination will therefore be strongly advised, in their own interests, to transfer to one of the Department's MSc International Management programmes, since these involve a lower element of finance those weak in this area are likely to perform better than they will in Finance.

Instructions on Arrival:

Students should make their way to Room B103 in the Brunei Gallery on Monday 2nd September, where they will be provided with coursework materials at 9.30am. The Introduction to the course will then start. A campus map can be located [here](#).

Enrolment Completion:

Formal Enrolment in person will take place on Monday the 2nd September between 2 & 4 pm in the Student Hub, lower ground floor, Senate House. All students are required to attend.

Suggested Reading:

- Alpha C. Chiang, Kevin Wainwright. *Fundamental Methods of Mathematical Economics*. 4th ed. New York: McGraw-Hill Irwin, 2005.
- William H. Green. *Econometric Analysis*. 2nd ed. New York: Oxford: Macmillan, 1993.
- Douglas Kennedy. *Stochastic Financial Models*. Boca Raton, FL: Chapman & Hall/CRC, 2010.
- Jeffrey M. Wooldridge. *Introductory Econometrics: A Modern Approach*. International Student Edition. 4th ed. Mason (OH): South-Western, Cengage Learning, 2009.

Schedule for MSc in Finance Preparatory Course:

DATE / TIME	ROOM	
WEEK 1		
Mon 2 nd 9.30am - 10am	B103 BGLT	Welcome Talk
Mon 2 nd 10am - 1pm	B103 BGLT	Introduction to Financial Analysis
Mon 2 nd 2pm - 4pm	Student Hub	Enrolment - Student Hub, Senate House
Tues 3 rd 10am - 1pm	S211	Introduction to Financial Analysis
Wed 4 th 10am - 1pm	S211	Introduction to Financial Analysis
Thurs 5 th 10am - 1pm	S211	Introduction to Financial Analysis
Fri 6 th 10am - 1pm	S211	Introduction to Financial Analysis
WEEK 2		
Mon 9 th 10am - 1pm	S211	Introduction to Financial Analysis
Tue 10 th 10am - 1pm	S211 S209	Introduction to Financial Analysis
Wed 11 th 10am - 1pm	B103	Mathematics and Statistics for Finance
Thu 12 th 10am - 1pm	B103	Mathematics and Statistics for Finance
Fri 13 th 10am - 1pm	B103	Mathematics and Statistics for Finance
WEEK 3		
Mon 16 th 10am - 1pm	Home Study Day	
Tues 17 th 10am - 1pm	Home Study Day	
Weds 18 th 10am - 1pm	B103	Mathematics and Statistics for Finance
Thu 19 st 10am - 1pm	B103	Mathematics and Statistics for Finance
Fri 20 st 10am - 12pm	S209	Exam - Financial Analysis/ Mathematics and Statistics for Finance

- Teaching dates are set (2nd Sep – 20th Sep), however the teaching schedule may be subject to minor time & date amendments.
- Further information will be provided online during the summer 2019.