



## ECOFIN/2. Matlab for Financial Modeling

### 1. Course details

Semester: Winter semester 2022-23

Credit rating: 2 ECTS

Teaching units: 30

Pre-requisite(s): Advanced mathematics are prerequisites.

Lecturer: Dr Xisong JIN

Administrator: Roswitha Glorieux

Tutors: none

Lecture times and rooms: please see point 3

Tutorial times and rooms: None

**Communications** **Students should regularly read their University e-mails, as important information will normally be communicated this way.**

Mode of assessment: Attendance and assignments

Examination Periods: NO

Course WebPage: [Moodle.uni.lu](https://moodle.uni.lu)

## 2. Aims and objectives

### Aims

The aim of the doctoral course is to provide an introduction to MATLAB, an interactive programming environment that is widely used in both academic finance and the financial services industry. The course deepens your knowledge and understanding of finance theories by developing MATLAB applications and building financial models in areas such as portfolio management, derivatives pricing, risk management, and financial stability.

### Learning Objectives

On completion of this course unit successful students will be able to:

1. Demonstrate full knowledge and understanding of the capabilities and functioning of Matlab.
2. Provide a working understanding of MATLAB both as data analysis environment and programming language.
3. Understand fully the range of financial applications of Matlab
4. Understand the pricing of complex financial assets
5. Implement theory appropriately and effectively through computer models
6. Apply numerical methods accurately and appropriately
7. Develop your own research projects using Matlab.

## 3. Plan of semester

2020	from	to	Central Building	Deadline for students' work
November 18	9.00	18.00	D17	15 December 2021
November 19	9.00	18.00	D17	
November 20	9.00	12.00	D17	

## 4. Reference list/ Bibliography

There is no required textbook. Much of the material in the course is based on books: Elements of Financial Risk Management (Peter Christoffersen), Numerical Methods in Finance and Economics: A MATLAB-Based Introduction (Paolo Brandimarte), and Macrofinancial Risk Analysis (Dale Gray, Samuel Malone). Other material will come from the conference and journal papers that will be assigned over the course of the term.

## 5. Further information about assessment

Examination(s)		
Weighting:	40%	60%
		Assignments and projects
Length:		(10-15 pages)
Structure:	<b>Attendance</b>  Pass/Fail	<b>Paper submission</b>  Pass/Fail