



Module Specification

Financial Mathematics

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Part 1: Information

Module title: Financial Mathematics

Module code: UFMFUG-15-3

Level: Level 6

For implementation from: 2028-29

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Arts, Technology and Environment

School: CATE School of Computing and Creative Technologies

Partner institutions: None

Field: Computer Science and Creative Technologies

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: Applications of Computational Mathematics 2028-29

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Building on the student's knowledge of probability theory, simulation and modelling, which have been acquired during the first two years of the programme, this module develops a selection of topics from financial mathematics. The focus is on areas that are essential to quantitative finance theory and practice, thereby providing a foundation for the professional mathematical scientist who is interested in the modelling of modern financial markets.

Features: Not applicable

Educational aims: The ideas and methods developed in this module provide the basic background for a student who is contemplating postgraduate study or employment in the area of financial mathematics. Within the context of the important area of quantitative finance, the module provides a space to apply several areas of knowledge and techniques from earlier in the programme, including probability theory, calculus, simulation, interpretation, modelling and technical communication.

Outline syllabus: Topics are likely to include but are not limited to:

Review and development of key ideas from probability theory, including conditional expectation and stochastic processes.

Basic financial concepts.

Securities and interest rates.

Discrete and continuous-time stochastic processes in finance.

Simulation and computational methods in finance.

Part 3: Teaching and learning methods

Teaching and learning methods: Teaching and learning take place in workshops, including a blend of lecture-style delivery, consolidation via worksheets, feedback, problem solving and computer simulation activities. The emphasis throughout is on theoretical understanding, authentic modelling, interpretation, and communication. The physical spaces used are an appropriate mix of technology-enhanced active learning rooms and computer laboratories. The methods help to ensure that, by the conclusion of the module, students are able to demonstrate proficiency in the mathematical methods and computational techniques essential for modelling financial markets.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Select and apply appropriate mathematical and computational techniques to model problems in financial mathematics.

MO2 Communicate the outcome of a mathematical and computational analysis of a financial problem via a written technical report.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/ufmfug-15-3.html) via the following link <https://uwe.rl.talis.com/modules/ufmfug-15-3.html>

Part 4: Assessment

Assessment strategy: There is one summative assessment task, which is an individual report, not under controlled conditions. The task assesses the student's ability to apply the knowledge and techniques developed in the module to the pricing of financial derivatives and the analysis of trading strategies. Students are encouraged to compare different approaches to the given scenario. The submitted report comprises a structured combination of theoretical calculations, simulations and technical summary.

The resit assessment has the same format as that of the sit, but involves a different trading scenario or dataset.

Formative assessment will be conducted via weekly tasks that provide ongoing feedback both to students and to module teams, thereby allowing for timely adjustments to teaching strategies, and enabling students to monitor their progress and to address learning gaps before summative assessments take place.

Assessment tasks:

Report (First Sit)

Description: Report (max 10 pages)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2

Report (Resit)

Description: Report (max 10 pages)

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Mathematics {Foundation} [Frenchay] - WITHDRAWN BSc (Hons) 2024-25

Mathematics [Frenchay] BSc (Hons) 2025-26

Mathematics [Frenchay] BSc (Hons) 2026-27

Mathematics [Frenchay] BSc (Hons) 2026-27