Module Specification

Financial Engineering

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Contents

Part 1: Information

Module title: Financial Engineering

Module code: UMADHY-15-M

Level: Level 7

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Business & Law

Department: FBL Dept of Accounting Economics & Finance

Partner institutions: None

Field: Accounting and Finance

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Not applicable

Features: Not applicable

Educational aims: See Learning Outcomes.

Outline syllabus: The syllabus includes:
Introduction to Options
The Binomial Option Pricing Model

The Black-Scholes Model
The Greeks
Portfolio Insurance
Introduction to Monte Carlo Methods
Option Pricing with Monte Carlo Methods
Exotic Options
Calculating Default-Adjusted Expected Bond Returns
Volatility and Volatility Smiles
Credit Derivatives
Training in VBA and Excel

Part 3: Teaching and learning methods

Teaching and learning methods: This module will utilise a variety of approaches including lectures, workshops, case studies, problem solving exercises, individual and group reflection and feedback.

Students will be confronted with a series of practical exercises and will be actively required to use Excel modelling and VBA programming techniques.

The contact sessions are supported by further materials, Bloomberg activities and other activities provided on Blackboard.

Module delivery will be face to face for 3 hours per week over a 12 week term time.

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

MO1 Understand the basic approaches to asset allocation and asset management, including how to combine various asset classes into portfolios in a real-world setting

MO2 Apply techniques to value financial instruments, especially derivatives and their use hedging purposes

MO3 Apply quantitative skills to synthetically replicate financial instruments and price options, including the Binomial Model and Black-Scholes

MO4 Apply replication of cash flows and asset valuation under no-arbitrage assumptions and the law of one price

MO5 Manipulate the characteristics of different options with Excel. Display advanced spreadsheet skills and data manipulation techniques especially in Excel and VBA

MO6 Apply a range of valuation techniques to derivative instruments and credit risk-adjusted bonds

MO7 Understand, discuss and critically evaluate the theoretical underpinning of investment management and its institutional context and consider how investment theory can be applied to improve financial investment decisions in the real world

MO8 Communicate information, ideas, arguments, concepts, theories and develop an argument in a clearly and effectively organised essay or report

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Total = 150

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com/modules/umadhy-15-m.html

Part 4: Assessment

Assessment strategy: Formative assessment is provided from the start of the module though tutorials, during which students will work through group work, case studies and computational problems, with feedback from the tutor.

Summative assessment will take place during and at the end of the module, and comprises two tasks:

The first task is a 2,000 word Individual Assignment. The students will be required to apply appropriate tools and techniques in a case study, including demonstrating use of Excel modelling and VBA skills. The students will then discuss their results and approach in an accompanying report. (30% of module mark).

The second task is a two hour closed book exam.
This will amount to 70% of the module mark.

Assessment tasks:

Written Assignment (First Sit)
Description: Individual assignment (2000 words)
Weighting: 30 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7, MO8

Examination (First Sit)
Description: Examination 2 hours
Weighting: 70 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7

Written Assignment (Resit)
Description: Individual assignment (2000 words)
Weighting: 30 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7, MO8

Examination (Resit)

Description: Examination 2 hours

Weighting: 70 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Financial Technology [Frenchay] MSc 2023-24

Financial Technology [NepalBrit] MSc 2023-24

Finance and Investment [Sep][PT][Frenchay][3yrs] - Withdrawn MSc 2022-23