

# IB359-15 Derivatives and Risk Management

24/25

**Department**

Warwick Business School

**Level**

Undergraduate Level 3

**Module leader**

Alexander Stremme

**Credit value**

15

**Module duration**

10 weeks

**Assessment**

Multiple

**Study location**

University of Warwick main campus, Coventry

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## Description

### Introductory description

This is an elective for WBS and non-WBS students.

To build and extend students' understanding of ...

the nature and characteristics of different types of financial risks

the characteristics of different types of “derivative securities”:

- the mechanics of the markets on which they trade,
  - their usage in risk management,
  - the factors that determine their value, and
  - the risks associated with trading them.

[Module web page](#)

### Module aims

To build and extend students' understanding of ...

the nature and characteristics of different types of financial risks

the characteristics of different types of “derivative securities”:

- the mechanics of the markets on which they trade,
  - their usage in risk management,
  - the factors that determine their value, and
  - the risks associated with trading them.

## Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

A Introduction to Risk, Value-at-Risk

B Derivatives

B.1 Interest Rates and Bonds

B.2 Forwards and Futures

B.3 Options:

a) Foundations

b) Pricing

c) Advanced Topics

B.4 Interest Rate Derivatives

C Selected Advanced Topics (time permitting)

a) Current Issues

b) Credit Derivatives

c) Exotic Options

d) Term Structure Models

## Learning outcomes

By the end of the module, students should be able to:

- Define and explain the characteristics of different types of derivative securities and markets..
- Define and explain different types of financial risk and the markets on which they trade.
- Define and explain mechanics, properties and limitations of models for the dynamics of asset prices.
- Define and explain the '(no)-arbitrage principle' for derivatives pricing by replication.
- Analyse and interpret financial market data in the context of the theory developed in the module.
- Discuss and evaluate quantitative results in the context of the theory developed in the module.

## Indicative reading list

Core:

Hull, John C. (2018): "Options, Futures, and Other Derivatives", 10th ed. Pearson

Other:

Hull, John C. (2018): "Risk Management and Financial Institutions", 5th ed. Wiley

Sundaram, R. and S. Das (2016): "Derivatives", 2nd ed. McGraw-Hill

Jorion, P. (2003): "Financial Risk Manager's Handbook" Wiley

## Subject specific skills

Use a variety of quantitative and statistical methods to:

- use financial market data to estimate and validate various measures of risk;
- operationalise models to compute and analyse the value and risks of derivatives;
- propose and assess performance of strategies for risk management in practice.

## Transferable skills

- Report and present quantitative findings to specialist and lay audiences;
  - Use a variety of quantitative and statistical software;
  - Work effectively as leader or member of a team;
  - Communicate effectively and efficiently.
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## Study

### Study time

| Type          | Required                     |
|---------------|------------------------------|
| Lectures      | 10 sessions of 2 hours (26%) |
| Seminars      | 9 sessions of 1 hour (12%)   |
| Private study | 48 hours (62%)               |
| Total         | 77 hours                     |

### Private study description

Private Study.

## Costs

No further costs have been identified for this module.

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## Assessment

You do not need to pass all assessment components to pass the module.

### Assessment group D4

|               | Weighting | Study time |
|---------------|-----------|------------|
| Participation | 10%       | 7 hours    |

|                       | <b>Weighting</b> | <b>Study time</b> |
|-----------------------|------------------|-------------------|
| Group Project         | 20%              | 15 hours          |
| In-person Examination | 70%              | 51 hours          |

- Answerbook Green (8 page)
- Students may use a calculator

## **Assessment group R1**

|                       | <b>Weighting</b> | <b>Study time</b> |
|-----------------------|------------------|-------------------|
| Individual Assignment | 30%              |                   |
| In-person Examination | 70%              |                   |

- Answerbook Green (8 page)
- Students may use a calculator

## **Feedback on assessment**

my.wbs, verbal feedback in lectures/revision sessions.

[Past exam papers for IB359](#)

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## **Availability**

### **Courses**

This module is Optional for:

- UIBA-MN34 Law and Business Four Year (Qualifying Degree)
  - Year 3 of MN34 Law and Business Studies Four Year (Qualifying Degree)
  - Year 4 of MN34 Law and Business Studies Four Year (Qualifying Degree)
- UECA-3 Undergraduate Economics 3 Year Variants
  - Year 3 of L100 Economics
  - Year 3 of L100 Economics
  - Year 3 of L100 Economics
  - Year 3 of L116 Economics and Industrial Organization
  - Year 3 of L116 Economics and Industrial Organization
- UECA-4 Undergraduate Economics 4 Year Variants
  - Year 4 of L103 Economics with Study Abroad
  - Year 4 of LM1H Economics, Politics & International Studies with Study Abroad
  - Year 4 of LM1H Economics, Politics & International Studies with Study Abroad
  - Year 4 of L114 Industrial Economics with Study in Europe
- UECA-LM1D Undergraduate Economics, Politics and International Studies

- Year 3 of LM1D Economics, Politics and International Studies
- Year 3 of LM1D Economics, Politics and International Studies
- UPHA-L1CA Undergraduate Economics, Psychology and Philosophy
  - Year 3 of L1CA Economics, Psychology and Philosophy
  - Year 3 of L1CC Economics, Psychology and Philosophy (Behavioural Economics Pathway)
  - Year 3 of L1CD Economics, Psychology and Philosophy (Economics with Philosophy Pathway)
  - Year 3 of L1CE Economics, Psychology and Philosophy (Philosophy and Psychology Pathway)
- UPHA-L1CB Undergraduate Economics, Psychology and Philosophy (with Intercalated Year)
  - Year 4 of L1CG Economics, Psychology and Philosophy (Behavioural Economics Pathway) (with Intercalated Year)
  - Year 4 of L1CH Economics, Psychology and Philosophy (Economics with Philosophy Pathway) (with Intercalated Year)
  - Year 4 of L1CJ Economics, Psychology and Philosophy (Philosophy and Psychology Pathway) (with Intercalated Year)
  - Year 4 of L1CB Economics, Psychology and Philosophy (with Intercalated Year)
  - Year 4 of L1CB Economics, Psychology and Philosophy (with Intercalated Year)
- Year 3 of UIBA-MN31 Undergraduate Law and Business Studies
- UIBA-MN32 Undergraduate Law and Business Studies
  - Year 3 of MN32 Law and Business Studies (Four-Year)
  - Year 4 of MN32 Law and Business Studies (Four-Year)
- Year 5 of UIBA-MN37 Undergraduate Law and Business Studies (Qualifying Degree) with Intercalated Year
- UIBA-MN35 Undergraduate Law and Business Studies with Intercalated Year (3+1)
  - Year 3 of MN35 Law and Business Studies with Intercalated Year (3+1)
  - Year 4 of MN35 Law and Business Studies with Intercalated Year (3+1)
- Year 5 of UIBA-MN36 Undergraduate Law and Business Studies with Intercalated Year (4+1)
- USTA-G300 Undergraduate Master of Mathematics, Operational Research, Statistics and Economics
  - Year 3 of G300 Mathematics, Operational Research, Statistics and Economics
  - Year 4 of G300 Mathematics, Operational Research, Statistics and Economics
- Year 3 of UMAA-GL11 Undergraduate Mathematics and Economics
- Year 4 of UECA-GL12 Undergraduate Mathematics and Economics (with Intercalated Year)

This module is Unusual option for:

- UPHA-L1CA Undergraduate Economics, Psychology and Philosophy
  - Year 2 of L1CA Economics, Psychology and Philosophy
  - Year 3 of L1CA Economics, Psychology and Philosophy
- UPHA-V7ML Undergraduate Philosophy, Politics and Economics
  - Year 3 of V7ML Philosophy, Politics and Economics (Tripartite)
  - Year 3 of V7ML Philosophy, Politics and Economics (Tripartite)
  - Year 3 of V7ML Philosophy, Politics and Economics (Tripartite)

This module is Option list A for:

- Year 4 of USTA-G300 Undergraduate Master of Mathematics, Operational Research, Statistics and Economics
- Year 5 of USTA-G301 Undergraduate Master of Mathematics, Operational Research, Statistics and Economics (with Intercalated

This module is Option list B for:

- USTA-Y602 Undergraduate Mathematics, Operational Research, Statistics and Economics
  - Year 3 of Y602 Mathematics, Operational Research, Stats, Economics
  - Year 3 of Y602 Mathematics, Operational Research, Stats, Economics

This module is Option list G for:

- UPHA-V7ML Undergraduate Philosophy, Politics and Economics
  - Year 2 of V7ML Philosophy, Politics and Economics (Tripartite)
  - Year 2 of V7ML Philosophy, Politics and Economics (Tripartite)
  - Year 2 of V7ML Philosophy, Politics and Economics (Tripartite)