ST334-15 Actuarial Methods

23/24

Department
> Statistics

Level
> Undergraduate Level 3

Module leader
> Vicky Henderson

Credit value
> 15

Module duration
> 10 weeks

Assessment
> Multiple

Study location
> University of Warwick main campus, Coventry

Description

Introductory description

This module is available for students on a course where it is a listed option and as an Unusual Option to students who have completed the prerequisite modules.

Results from this module may be partly used to determine exemption eligibility in the Institute and Faculty of Actuaries module CM1. (Independent application with the IFoA may be required to receive the exemption.)

Pre-requisites:
Statistics Students: ST218 Mathematical Statistics A AND ST219 Mathematical Statistics B
Non-Statistics Students: ST220 Introduction to Mathematical Statistics

[Module web page](#)

Module aims

To cover part of the syllabus for CM1 Actuarial Mathematics.

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.

- Interest rates and discount rates.
- Equations of value and compound interest calculations.
- Discounted cash flow.
- Types of investment.
- Concept of arbitrage.
- Introduction to the term structure of interest rates.
- Stochastic interest rate models.

Learning outcomes

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

- be familiar with basic financial terminology and be able to understand the financial press.
- be able to carry out basic financial calculations.
- understand the basics of life tables

Indicative reading list

[View reading list on Talis Aspire](#)

Subject specific skills

- Demonstrate facility with rigorousactuarial and statistical methods.

- Evaluate, select and apply appropriate mathematical and/or actuarial techniques.

- Demonstrate knowledge of and facility with actuarial methods, both explicitly and by applying them to the solution of actuarial problems.

- Create structured and coherent arguments communicating them in written form.

- Construct logical arguments with clear identification of assumptions and conclusions.

- Reason critically, carefully, and logically.

Transferable skills

- Problem solving: Use rational and logical reasoning to deduce appropriate and well-reasoned conclusions. Retain an open mind, optimistic of finding solutions, thinking laterally and creatively to look beyond the obvious. Know how to learn from failure.

- Self awareness: Reflect on learning, seeking feedback on and evaluating personal practices, strengths and opportunities for personal growth.

- Communication: Present arguments, knowledge and ideas, in a range of formats.

- Professionalism: Prepared to operate autonomously. Aware of how to be efficient and

resilient. Manage priorities and time. Self-motivated, setting and achieving goals, prioritising tasks. Acknowledge and adhere to the requirements of the professional standards of the IFoA.

Study

Study time

Type	Required
Lectures	30 sessions of 1 hour (20%)
Private study	90 hours (60%)
Assessment	30 hours (20%)
Total	150 hours

Private study description

Weekly revision of lecture notes and materials, wider reading of actuarial syllabus, practice exercises and preparing for class tests and the examination.

Costs

No further costs have been identified for this module.

Assessment

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

Students can register for this module without taking any assessment.

Assessment group D4

	Weighting	Study time	Eligible for self-certification
Computer Based Assessment 1	10%	15 hours	No
Multiple choice quiz which will take place during the term that the module is delivered.			
Computer Based Assessment 2	10%	15 hours	No
Multiple choice quiz which will take place during the term that the module is delivered.			
In-person Examination	80%		No
You will be required to answer all questions on this examination paper.			

	Weighting	**Study time**	**Eligible for self-certification**

- Answerbook Pink (12 page)
- Students may use a calculator
- Cambridge Statistical Tables (blue)

Assessment group R3

	Weighting	**Study time**	**Eligible for self-certification**
In-person Examination - Resit	100%		No

You will be required to answer all questions on this examination paper.

- Answerbook Pink (12 page)
- Students may use a calculator
- Cambridge Statistical Tables (blue)

Feedback on assessment

As individualised feedback is difficult to arrange for larger modules with more than 30 registered students, model solutions should be provided online within 24 hours of the test and augmented by cohort level feedback within the usual deadlines

Your paper will not be returned as it must be retained for the external examiners but you may make an appointment with the module leader to view your script and receive individual feedback on the first two class tests.

Solutions and cohort level feedback will be provided for the January examination and provisional results will be available by week 10 of term 2.

[Past exam papers for ST334](#)

Availability

Post-requisite modules

If you pass this module, you can take:

- ST345-15 Life Contingencies

Courses

This module is Optional for:

- 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
- USTA-G1G3 Undergraduate Mathematics and Statistics (BSc MMathStat)
  - Year 3 of G1G3 Mathematics and Statistics (BSc MMathStat)
  - Year 4 of G1G3 Mathematics and Statistics (BSc MMathStat)
- USTA-G1G4 Undergraduate Mathematics and Statistics (BSc MMathStat) (with Intercalated Year)
  - Year 4 of G1G4 Mathematics and Statistics (BSc MMathStat) (with Intercalated Year)
  - Year 5 of G1G4 Mathematics and Statistics (BSc MMathStat) (with Intercalated Year)

This module is Option list A for:

- Year 3 of USTA-G300 Undergraduate Master of Mathematics,Operational Research,Statistics and Economics
- USTA-G301 Undergraduate Master of Mathematics,Operational Research,Statistics and Economics (with Intercalated
  - Year 3 of G30E Master of Maths, Op.Res, Stats & Economics (Actuarial and Financial Mathematics Stream) Int
  - Year 4 of G30E Master of Maths, Op.Res, Stats & Economics (Actuarial and Financial Mathematics Stream) Int

This module is Option list B for:

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