**COURSE DETAILS**

**Course Code:** F78AA  
**Full Course Title:** Actuarial and Financial Mathematics A  
**SCQF Level:** 8  
**SCAF Credits:** 15  
**Available as Elective:** No

**DELIVERY LEVEL**

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<tr>
<th>Undergraduate:</th>
<th>Yes</th>
<th>Postgraduate Taught:</th>
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<th>Postgraduate Research:</th>
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**Additional Information:**

**COURSE AIMS**

To introduce the student to simple mathematical models of cashflows accumulated or discounted at interest, and to develop skill in applying these models to real financial contracts and transactions.

**LEARNING OUTCOMES – SUBJECT MASTERY**

On completion of this course the student should be able to:

- Describe the basic concepts of simple and compound interest.
- Calculate the present value or accumulation of any set of discrete-time cashflows, at constant or varying rates of interest.
- Derive and use simple formulae for values of level and increasing annuities-certain.
- Explain the concept of the yield on a series of cashflows, and its limitations.
- Calculate time-weighted, money-weighted and internal linked rates of return.
- Analyse loan schedules, including simple alterations.
- Describe basic fixed-interest securities, and calculate prices and yields allowing for tax.
- Understand the discounted cash flow model and know what are internal rates of return (IRR), net present values (NPV) and break-even durations.
- Use an appropriate computer package to apply the methods introduced in this course.

**LEARNING OUTCOMES – PERSONAL ABILITIES**

- Interpreting problems from commercial practice in terms of relevant mathematical models.
- Independently recognizing and applying appropriate mathematical techniques to solve problems.
- Interpreting solutions expressed mathematically in terms of the original problem.
- Communicating the solutions to complex problems in the financial services sector.

**SYLLABUS**

- Simple interest
- Compound interest and discount
- Time units and effective rates of interest
F78AA Actuarial and Financial Mathematics A

- Accumulations and present values of discrete-time cashflows
- Varying rates of interest
- Annuities
- Yields
- Measuring rates of return
- Loan schedules
- Fixed-interest securities
- Discounted Cash Flows

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<tr>
<th>COURSE RELATIONSHIPS</th>
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Page 2 of 2