The aim of the module is to introduce students to the actuarial techniques available to manage financial guarantees arising in life insurance companies in the course of their business operations.

**LEARNING OUTCOMES – SUBJECT MASTERY**

After completing this module students should be able to:

- Describe the asset types held by life companies and discuss their suitability to back different types of contract
- Calculate the value of an insurer's liabilities using net and gross premium prospective valuations
- Calculate the surplus arising on a portfolio of insurance contracts
- Calculate non-profit premium rates using the traditional and risk discount rate methods
- Discuss the ownership of surplus and the different types of bonus system which can be used to return surplus on with profits contracts
- Calculate asset shares and describe their uses
- Discuss how an actuary determines an appropriate level of reversionary and terminal bonuses for with profits contracts
- Describe how unitised with profits contracts work
- Perform a simple analysis of surplus
- Discuss the concept of solvency for a life insurance company and describe mechanical and model-based solvency margins
- Calculate the fair value of life insurance liabilities
- Discuss the concept of mismatching reserves
- Discuss capital requirements for life insurance companies
- Compare and contrast the lognormal and Wilkie models of equity returns
- Carry out a simple asset/liability investigation of a life insurance company

**LEARNING OUTCOMES – PERSONAL ABILITIES**

After completing this module, students will be able to:
F70LP Life Office Practice

- Demonstrate a good understanding of the actuarial issues involved in the management of life insurance companies
- Demonstrate use of Excel for solving technical problems
- Demonstrate high levels of numeracy as required by the actuarial profession

Students will also gain practice in working both autonomously and within groups and have the opportunity (through project work and presentations) to develop better communication skills.

SYLLABUS

- Life insurance company assets
- Prospective reserves
- Surplus
- Pricing of non-profit contracts
- Asset shares
- UK bonus systems
- Unitised with profits contracts
- Analysis of surplus
- Life insurance company solvency
- Capital requirements
- Wilkie model
- Asset/liability projections

COURSE RELATIONSHIPS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Level</th>
<th>Title</th>
<th>School</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>F70LA</td>
<td>10</td>
<td>Life Insurance mathematics A</td>
<td>School of Math and Comp Sci.</td>
<td>Pre-Requisite</td>
</tr>
<tr>
<td>F70LB</td>
<td>10</td>
<td>Life Insurance Mathematics B</td>
<td>School of Math and Comp Sci.</td>
<td>Pre-Requisite</td>
</tr>
<tr>
<td>F70PE</td>
<td>10</td>
<td>Pensions</td>
<td>School of Math and Comp Sci.</td>
<td>Assessed Synoptic</td>
</tr>
</tbody>
</table>

LOCATION AND ASSESSMENT METHODS

<table>
<thead>
<tr>
<th>Edi</th>
<th>SBC</th>
<th>Ork</th>
<th>Dub</th>
<th>Malay</th>
<th>IDL</th>
<th>COLL</th>
<th>ALP</th>
<th>OTH</th>
<th>Method</th>
<th>Weight</th>
<th>Exam Mins</th>
<th>Type</th>
<th>Diet</th>
<th>Synoptic Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Examination</td>
<td>80</td>
<td>180</td>
<td>Assessment</td>
<td>Semester 2</td>
<td>F70PE</td>
</tr>
<tr>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Coursework</td>
<td>20</td>
<td></td>
<td>Assessment</td>
<td>Semester 2</td>
<td></td>
</tr>
</tbody>
</table>