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# University of Pretoria Yearbook 2017

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## BScHons Actuarial Science (02240278)

**Duration of study** 1 year

**Total credits** 135

### Programme information

#### Renewal of registration

- i. Subject to exceptions approved by the Dean, on the recommendation of the head of department, and in the case of distance education where the Dean formulates the stipulations that will apply, a student may not sit for an examination for the honours degree more than twice in the same module.
- ii. A student for an honours degree must complete his or her study, in the case of full-time students, within two years and, in the case of after-hours students, within three years of first registering for the degree and, in the case of distance education students, within the period stipulated by the Dean. Under special circumstances, the Dean, on the recommendation of the head of department, may give approval for a limited extension of this period.

In calculating marks, General Regulation G.12.2 applies.

Apart from the prescribed coursework, a research project is an integral part of the study.

### Admission requirements

- i) A relevant bachelor's degree with Mathematical Statistics and Actuarial Science at 300 level.
- (ii) An average of 60% for all modules at third-year level.
- (iii) Exemption recommendations for at least five of the A100- and A200-level subjects of the Actuarial Society of South Africa.
- (iv) IAS 361 Insurance and actuarial applications and IAS 353 Contingencies.
- (v) Students from other accredited institutions must comply with the same requirements based on equivalent modules at their institutions. In addition, students from other accredited institutions might also be required to pass an entrance evaluation.
- (vi) Student numbers are limited. Selection is based on performance in the prior degree, on condition that the minimum requirements are met as set out in (i) to (iv) above.
- (vii) Historical performance during prior studies will also be considered in selecting students. Specific attention will be given to modules repeated and duration of study.
- (viii) Any additional entrance requirements as specified by the head of department in consultation with the departmental postgraduate selection committee.

### Other programme-specific information

To qualify for this degree, the candidate must successfully complete a total of at least 135 credits, made up from



modules from the curriculum in collaboration with, and subject to, the approval of the Head of the Department of Actuarial Science.

## Promotion to next study year

The progress of all honours candidates is monitored biannually by the head of department. A candidate's study may be terminated if the progress is unsatisfactory or if the candidate is unable to finish his/her studies during the prescribed period.

## Pass with distinction

The BScHons degree is awarded with distinction to a candidate who obtains a weighted average of at least 75% in all the prescribed modules and a minimum of 65% in any one module.



## Curriculum: Final year

### Minimum credits: 135

Fundamental credits: 30

Core credits: 75

Elective credit: 30

### Core modules

#### Actuarial risk management 712 (IAS 712)

<b>Module credits</b>	50.00
<b>Contact time</b>	4 lectures per week, 2 practicals per week
<b>Language of tuition</b>	Module is presented in English
<b>Academic organisation</b>	Actuarial Science
<b>Period of presentation</b>	Year

#### Module content

Surplus management. Mergers, acquisitions, insolvency and closure. Options and guarantees. Stakeholders. External environment. Regulation. Introduction to financial products and customer needs. Benefits overview and providers of benefits. Life insurance overview and life products. General insurance overview and products. Cash flows of simple products. Contract design. Project management. Capital project appraisal. Money markets. Bond markets. Equity markets. Property markets. Futures and options. Collective investment schemes. Overseas markets. Economic influences on investment markets. Other influences on investment markets. Relationship between returns on asset classes. Valuation of individual investments. Valuation of asset classes and portfolios. Investment strategy – institutions. Investment strategy – individuals. Developing an investment strategy. Modelling. Data. Setting assumptions. Expenses. Pricing and financing strategies. Discontinuance. Valuing liabilities. Accounting and disclosure. Surplus and surplus management. Sources of risk. Risks in benefit schemes. Pricing and insuring risks. The risk Management process. Risk management tools. Capital management. Monitoring.

#### Research project 780 (NPN 780)

<b>Module credits</b>	30.00
<b>Prerequisites</b>	No prerequisites.
<b>Language of tuition</b>	Separate classes for Afrikaans and English
<b>Academic organisation</b>	Actuarial Science
<b>Period of presentation</b>	Year

#### Module content

The research project is compulsory. A detailed project proposal should be submitted to the head of department by a prescribed date for approval, as described in the departmental document in this regard.

#### Actuarial communication 722 (IAS 722)

<b>Module credits</b>	15.00
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<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	2 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Academic organisation</b>	Actuarial Science
<b>Period of presentation</b>	Semester 2

### Module content

Communicating technical actuarial concepts effectively, the drafting process of a document, planning and structure of a document or presentation, style and tone of a document or presentation. Drafting documents (letters, reports, discussion documents, memos, emails). Presentations (preparation and delivery, follow up, designing visual aids).

## Elective modules

### Finance and investment 700 (FNI 700)

<b>Module credits</b>	40.00
<b>Contact time</b>	2 practicals per week, 2 lectures per week
<b>Language of tuition</b>	Module is presented in English
<b>Academic organisation</b>	Actuarial Science
<b>Period of presentation</b>	Semester 2

### Module content

The application of modern techniques in financial management to the financing of corporate entities and the management of assets. Topics include: the theory of finance, valuation of investments, asset modelling, capital structure and the cost of capital, portfolio management, capital project appraisal and performance management.

### Life assurance 700 (LEW 700)

<b>Module credits</b>	40.00
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	2 lectures per week, 2 practicals per week
<b>Language of tuition</b>	Module is presented in English
<b>Academic organisation</b>	Actuarial Science
<b>Period of presentation</b>	Semester 2

### Module content

The following aspects of the operation of a life insurance company are covered: General business environment; products offered; asset shares for life insurance contracts; with-profits surplus distribution; actuarial funding; models; setting of assumptions; aspects of products design; alterations to contracts; development and maintenance; investment; risk management procedures including reinsurance and underwriting; cost of guarantees; policy data checks; capital management and the actuarial control cycle. Modelling and monitoring policy cashflows for purposes of pricing, profit analysis, statutory valuation reserves and ongoing solvency.



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## Enterprise risk management 721 (IAS 721)

<b>Module credits</b>	40.00
<b>Contact time</b>	2 lectures per week, 2 practicals per week
<b>Language of tuition</b>	Module is presented in English
<b>Academic organisation</b>	Actuarial Science
<b>Period of presentation</b>	Semester 2

### Module content

ERM framework. External risk frameworks. Stakeholders. Risk appetite. The risk management function. Risk management processes. Risk identification and assessment. Risk classification. Risk Measurement. Risk modelling. Analysis of data. Copulas. Fitting models. Extreme Value Theory. The use of models in ERM. Analysis of selected risks. Risk optimisation and risk responses. Risk management of selected risks. Economic Capital.

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The information published here is subject to change and may be amended after the publication of this information. The [General Regulations \(G Regulations\)](#) apply to all faculties of the University of Pretoria. It is expected of students to familiarise themselves well with these regulations as well as with the information contained in the [General Rules](#) section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.