University of Pretoria Yearbook 2016

BScHons Actuarial Science (02240275)

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 Insurance and 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 modules

Research project 780 (NPN 780)

Module credits	30.00
Prerequisites	No prerequisites.
Language of tuition	Both Afr and Eng
Academic organisation	Actuarial Science
Period of presentation	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.

Core modules

Actuarial mathematics 705 (AKM 705)

Module credits	18.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Actuarial Science
Period of presentation	Semester 1

Module content

The stochastic approach to annuities and assurances involving one of two lives. Definitions, estimation and use of select mortality functions. Multiple decrements and pension funds. Variable benefit, disability, long-term care contracts. Life insurance contracts: expenses and bonuses. Net and gross premiums and reserves for fixed and variable benefit contracts. Discounted emerging cost techniques. Profit testing. Asset shares for life insurance contracts. Alterations to contracts. Costs of guarantees under life insurance contracts. Factors affecting mortality, selection, standardisation. The process of population projection and its main determinants. Valuation of benefits under a disability insurance contract.

Investments 700 (BNG 700)

Module credits	27.00
Prerequisites	No prerequisites.
Language of tuition	English
Academic organisation	Actuarial Science
Period of presentation	Year

Module content
The module covers a whole range of finance and investment related topics within the framework of the actuarial control cycle: principles and objectives of investment management and analysis of investors' needs. Principal investment assets and the markets in such assets as well as the economic influences on these. Asset modelling. The underlying legislative, taxation and regulatory framework for investment management and the securities industry. Actuarial techniques for assessing capital investment projects. Constructing investment indices. Developing appropriate investment strategies. Valuing individual investments and portfolios and understanding its appropriateness in different situations. Portfolio management (including risk control techniques) and performance appraisal of investment portfolios. Project management. Credit risk and credit ratings.

Liabilities 712 (IAS 712)

Module credits	30.00
Prerequisites	IAS 361
Contact time	4 lectures per week, 2 practicals per week
Language of tuition	English
Academic organisation	Actuarial Science
Period of presentation	Year

Module content

Professionalism. Stakeholders and providers of benefits. Risks and uncertainties. Risk management and monitoring. Marketing. Life insurance products. General insurance products. Reinsurance. Regulation, regulatory regimes and the external environment. Capital management. Introduction to contract design. Valuation of benefits and the discount rate. Input validation. Valuation assumption setting. Provisioning. Product design: costing, pricing and funding. The relationship between assets and liabilities. Development of expected values. Reporting of actual results. Maintaining profitability. Asset management. Surplus management. Mergers, acquisitions, insolvency and closure. Options and guarantees.

Elective modules

Finance and investment 700 (FNI 700)

Module credits	30.00
Prerequisites	BNG 700 #
Contact time	2 practicals per week, 2 lectures per week
Language of tuition	English
Academic organisation	Actuarial Science
Period of presentation	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)

Module credits	30.00
Prerequisites	No prerequisites.
Contact time	2 lectures per week, 2 practicals per week
Language of tuition	English
Academic organisation	Actuarial Science
Period of presentation	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.

Actuarial communication 722 (IAS 722)

Module credits	8.00
Prerequisites	No prerequisites.
Contact time	2 lectures per week
Language of tuition	English
Academic organisation	Actuarial Science
Period of presentation	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).