University of Stellenbosch

Postgraduate Programmes in Actuarial Science

2021

Actuarial Science Honours Programme

B.Com.Hons. (Actuarial Science)

Admission

For admission to the one-year Honours programme applicants should have:

- A BCom (Actuarial Science) or equivalent degree with Actuarial Science and Mathematical Statistics as majors;
- Passes in university modules equivalent to at least six of the seven foundation and intermediate technical subjects of the Actuarial Society of South Africa (or core principles subjects of the Institute and Faculty of Actuaries); and
- Exemptions from (or passes in the profession's examinations for) at least five of the foundation technical and intermediate technical examinations of the Actuarial Society of South Africa (or core principles examinations of the Institute and Faculty of Actuaries).
  Your five subjects must include at least A211 or A213 (CM1).

Please note:

1. If you did not complete your bachelor's degree in the minimum time of three years, you must have an additional exemption for each additional year.
2. If you only have 4 exemptions (after a three-year Bachelors) or 5 exemptions (after a four-year Bachelors) you may be considered for an extended (two-year) honours programme.
3. It is expected that you should have an average mark for both third year Actuarial Science and third year Mathematical Statistics of at least 60%.

Curriculum

Students will be required to pass modules totalling at least 120 credits made up as follows:

Compulsory Actuarial Science modules (90 credits)

Module	Code	Semester	Credits
Actuarial Risk Management (A311)	774	1 & 2	60
Research Assignment: Actuarial Science	791	1 & 2	30

Compulsory R programming module

The Introduction to R Programming module (723) consists of two components:

- A **compulsory** block module which runs for 1½ weeks prior to the official start of the semester. All actuarial science students need to take this part of the R programming module – in the year in which they will first be taking a non-actuarial elective module.

  Students do not need to formally register for this part of the module, and no fees will be charged for it. While there will be assignments to be completed during the module (until the first day of the new term) no further assignments will need to be handed in afterwards and there will be no final assessment. However, attendance, participation and homework assignments will be recorded and assessed in order to demonstrate that students have successfully completed this compulsory part of the module.

- An **elective** component which follows on from the block module above, and will be completed during the first semester. This will entail attendance of some further lectures and the completion of further assignments. Students wishing to take this part of the module will need to register for the (6 credit) elective module Introduction to R Programming (723) indicated below.

Elective Actuarial Science modules (at least 6 credits) may include

Module	Code	Semester	Credits
Communications (N211)	773	2	6
Capita Selecta: Actuarial Principles – A	741	1	6
Capita Selecta: Actuarial Principles – B	742	1	15

Elective (non-Actuarial) modules (to a total of at least 24 credits):

Modules totalling at least 24 credits (as approved by the Head of Actuarial Science from time to time) must be selected from topics offered in the Mathematical Statistics or Financial Risk Management Honours programmes.

Topics available include:

Mathematical Statistics Modules	Code	Semester	Credits
Data Mining *	741	1	12
Introduction to R programming	723	1	6
Multivariate Statistical Analysis A *	715	1	12
Multivariate Statistical Analysis B *	745	2	12
Statistical Learning Theory *	771	2	12
Stochastic Simulation	718	1	12
Survival Analysis	746	2	12
Time Series Analysis	747	1	12

Financial Risk Management Modules			
Financial Mathematical Statistics A (Extreme Values & Stochastic Calculus)	732	2	12
Practical Financial Modelling	736	1	6

Note:

- Modules denoted by * require students to complete the full Introduction to R Programming (723) module, whereas the other mathematical statistics modules only require students to have completed the compulsory portion of the module described earlier.
- Data Mining is a pre-requisite for Statistical Learning Theory.
- Multivariate Statistical Analysis A is a pre-requisite for Multivariate Statistical Analysis B.
- Students wishing to take Financial Mathematical Statistics should ideally (although not essentially) have completed the Financial Mathematics 378 (Maths Dept.) module.
- It may be that certain of the elective modules listed above may not be available or may be offered during a different semester.
- Students may be able to include Actuarial Science undergraduate (Technical) modules. Such modules however will carry no credit towards the Honours degree.

Extended Honours Programme

For students wishing to extend their honours programme (either because they were not accepted onto the one-year programme, or in order to give them time to catch up missing exemptions or maximize their chances of getting exemptions in the Honours degree) at least one of the compulsory modules would be left until a second year of study.

During the first year the main goal would be to complete as many of the Foundation and Intermediate Technical subjects as possible.

Grading and Regulations

The final honours grading will be the weighted average of the marks obtained for each module (based on module credits) as follows:

- 80% based on the actuarial science modules; and
- 20% based on the best 24 credits of non-actuarial science modules.

Students are expected to pass (i.e. with a mark of not less than 50%) modules totalling at least 120 credits (as outlined above).
N.B. There are no rewrite/supplementary examinations for students failing modules.

Credit may be awarded for at most one (narrowly) failed module (to a maximum of 60 credits) in respect of equivalent subjects which students subsequently pass through the Actuarial Society of South Africa.

The calculation of the final mark for each module may differ by module, but for the Actuarial Science modules it will typically be an average of the class mark (based on all relevant tests and assignments) and examination mark. For the

Actuarial Science modules students will be required to have a class mark of at least 45% (based on class tests and possibly other hand-in work as specified) in order to be given entry to the final examination for that module.

Exemptions from the professional examinations

The university has an Exemption Recognition Agreement with ASSA in respect of all of the subjects: A111-A113, A211-A214, A311, N111, N211 and F101-105.

On completion of the honours degree an appropriate exemption recommendation letter will be prepared for each student. As is the case with the undergraduate degree, no exemption recommendation letter will be issued if the student does not complete the degree.

Postgraduate Diploma in Actuarial Science

P.G.Dip. (Actuarial Science)

Admission

For admission to the Postgraduate Diploma programme applicants should have:

- A BCom (Actuarial Science) or equivalent degree with Actuarial Science and Mathematical Statistics as majors, and Mathematics to at least second year level; and
- Exemptions from (or passes in the profession's examinations for) all eight of the Foundation and Intermediate Technical examinations of the Actuarial Society of South Africa (or Core Technical examinations (CT1-CT8) of the Institute and Faculty of Actuaries).

The Diploma will be best suited to students who have completed an Honours degree in Actuarial Science and who wish to study further towards an actuarial qualification but who do not want, at this stage, to undertake a Master's degree (which has a significant research component).

Curriculum

A student will be required to pass modules totalling at least 120 credits selected from the Core Applications, Specialist Technical and Specialist Applications subjects of the Institute and Faculty of Actuaries (from those which the university may offer from time to time).

The following modules may be available:

Module	Code	Semester	Credits
Actuarial Risk Management (A301/CA1)	774	1 & 2	60
Health and Care Technical (F101)	811	1	45
Life Insurance Technical (F102)	812	1	45
General Insurance (F103)	843	2	45
Pensions Technical (F104)	814	1	45
Finance and Investment Technical (F105)	845	2	45
Capita Selecta: Actuarial Applications – A	811	1	60
Capita Selecta: Actuarial Applications – B	841	2	60

Modules totalling up to 30 credits (as approved by the Head of Actuarial Science from time to time) may be selected from topics offered in the Mathematical Statistics or Financial Risk Management postgraduate programmes.

Note:

- F101, F104 and F105 will be hosted by the University of Cape Town.
- In certain circumstances students may include Actuarial Science Honours modules. Such modules however will carry no credit towards the Diploma.

Grading and Regulations

The final grade will be a weighted average of the marks obtained for each module (with weights based on the module credits as given above).

Students are expected to pass (i.e. with a mark of not less than 50%) modules totalling at least 120 credits (as outlined above).
N.B. There are no rewrite/supplementary examinations for students failing modules.

Credit may be awarded for at most one module (to a maximum of 60 credits) in respect of an equivalent subject which students have passed through the Actuarial Society of South Africa or Institute and Faculty of Actuaries.

The calculation of the final mark for each module may differ by module, but is typically the average of the class mark (based on all relevant tests and assignments) and examination mark.

Students will be required to have a class mark of at least 45% for a module (based on class tests and possibly other hand-in work as specified) in order to be given entry to the final examination for that module.

Actuarial Science Master's Programme

M.Com. (Actuarial Science)

Admission

For admission to the Master's programme applicants should have:

- An Honours degree in Actuarial Science or Mathematical Statistics;
- Passes in university modules equivalent to all eight of the Foundation and Intermediate Technical subjects of the Actuarial Society of South Africa (or the Core Technical subjects CT1-CT8 of the Institute and Faculty of Actuaries); and
- Exemptions from (or passes in the profession's examinations for):
  - at least seven of the eight Foundation and Intermediate Technical examinations of the Actuarial Society of South Africa (or Core Technical examinations (CT1-CT8) of the Institute and Faculty of Actuaries), and
  - the Actuarial Risk Management (A311) examination or one of the Fellowship Principles examinations of the Actuarial Society of South Africa (or one of the Specialist examinations of the Institute and Faculty of Actuaries).

Curriculum

Two programmes are available:

- Coursework option (Actuarial Science 889); and
- Thesis option (Actuarial Science 879).

A student will be required to pass modules totalling at least 180 credits as follows:

- Coursework option: A 60-credit research module and at least 120 credits of coursework modules.
- Thesis option: A 120-credit research module and at least 60 credits of coursework modules.

The following coursework modules may be available:

Module	Code	Semester	Credits
Health and Care Technical (F101)	811	1	45
Life Insurance Technical (F102)	812	1	45
General Insurance (F103)	843	2	45
Pensions Technical (F104)	814	1	45
Finance and Investment Technical (F105)	845	2	45
Capita Selecta: Actuarial Applications – A	811	1	60
Capita Selecta: Actuarial Applications – B	841	2	60

Modules totalling up to 30 credits (as approved by the Head of Actuarial Science from time to time) may be selected from topics offered in the Mathematical Statistics or Financial Risk Management postgraduate programmes.

Research modules:

Module	Code	Credits
Actuarial Science Research Project	895	60
Actuarial Science Thesis	896	120

Note:

- F101, F104 and F105 will be hosted by the University of Cape Town.
- In certain circumstances students may include Actuarial Science Honours modules. Such modules however will carry no credit towards the Master's degree.

Grading and Regulations

The final grade will be a weighted average of the marks obtained for each module (with weights based on the module credits as given above).

Students are expected to pass (i.e. with a mark of not less than 50%) modules totalling at least 180 credits (as outlined above).
N.B. There are no rewrite/supplementary examinations for students failing modules.

Credit may be awarded for at most one module (to a maximum of 60 credits) in respect of an equivalent subject which students have passed through the Actuarial Society of South Africa or Institute and Faculty of Actuaries.

The calculation of the final mark for each module may differ by module, but is typically the average of the class mark (based on all relevant tests and assignments) and examination mark.

Students will be required to have a class mark of at least 45% for a module (based on class tests and possibly other hand-in work as specified) in order to be given entry to the final examination for that module.

Further Information

Exemptions from the Professional Examinations

The university has an Exemption Recognition Agreement with the Actuarial Society of South Africa in respect of:

- All of the Foundation and Intermediate Technical subjects, A101-103 & A201-205;
- Actuarial Risk Management (A301);
- Communications (A302);
- Fellowship Principles subjects, F101-105.

Equivalent exemptions are currently also available from the Institute and Faculty of Actuaries examinations. However, owing to syllabus differences at the Fellowship Principles (Specialist Technical) level IFoA exemptions may only be possible from certain ST subjects (e.g. ST2 & ST5). No IFoA exemption is available for CA3.

On completion of the university degree an appropriate exemption recommendation letter will be prepared for each student.

Applications

Applications must be submitted in writing, before the end of October, to:
The Registrar, University of Stellenbosch, Private Bag X1, matieland, 7602.

Further information on the registration process can be obtained from Ms. Nazli Daniels, ndaniels@sun.ac.za or on tel: +27 21 808-4837.

Further enquiries

For further information please e-mail the Postgraduate Programme Convenor on actuarial@sun.ac.za

Prof. G Slattery
Head of Actuarial Science
Dept. of Statistics and Actuarial Science
February 2021