Bachelor of Actuarial Science Honours Program

Information Booklet 2017
Program Overview

Emerging as a key growth sector of the 21st century, actuarial science applies elements of economics, finance, statistics and advanced mathematics to interpret, manage and evaluate risk. Never before have organisations had such extraordinary access to personal information, health statistics, buying habits, population movement, employment trends and much, much more. In these numbers lie the answers to the big questions that really matter.

Fully accredited by the Actuaries Institute, the Bachelor of Actuarial Science is an innovative and immersive program that combines the elements of economics, finance, statistics and advanced mathematics to develop techniques for the management of risk. Developed by Professor Terry O’Neill, one of Australia’s leading academic authorities in the field, the Bachelor of Actuarial Science delivers smaller classes for personalised attention. Students experience unparalleled access to Bond Business School’s two financial trading rooms and 40 Bloomberg terminals - the most of any university in Australia.

An integral part of the program is the development of research skills and actuarial judgement through the Actuarial Control Cycle subjects and the Actuarial Research Thesis subject.

Introduction

The Bachelor of Actuarial Science Honours program is an 80CP supervised, two-semester program of independent research and study culminating in the production of a research thesis and presentation of a research seminar. Students undertake a program of course-work and research in which they conceptualise, plan, organise, undertake and report on an independent research project, whilst being supervised by a member of academic staff.

The program is a two-semester course of study which commences either in January semester or May semester (commencing in September is only possible if students have successfully completed ACSC71-400 Actuarial Control Cycle 1 or equivalent), and concludes in December each year.

Aims of the Honours Degree

The Bachelor of Actuarial Science Honours program is designed primarily to provide graduates with the skills necessary to pursue a career in research. An Honours degree is an prerequisite for entry into postgraduate research Masters and PhD programs. Completion of an Honours year will also help graduates gain employment in their discipline. Honours graduates are highly valued by employers as they have demonstrated skills in written and oral communication, critical thinking and interpretation, and project management. Most research assistant positions require applicants to have successfully completed an Honours year.

The Honours program within the Bond Business School aims to help graduates develop skills in:

- planning and conducting research
- written and oral professional / scientific communication
- information retrieval and organisation
- project management

**Structure of the Program**

The Honours program consists of 80 credit points comprising both coursework and research components. 2017 scheduled as follows:

<table>
<thead>
<tr>
<th>Program Structure</th>
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</thead>
<tbody>
<tr>
<td><strong>Program</strong></td>
</tr>
<tr>
<td>BN-10031</td>
</tr>
<tr>
<td>Version 2 Active Sep 2016</td>
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<td></td>
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<tr>
<td><strong>Available</strong></td>
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<td>Jan/May</td>
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<thead>
<tr>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>Elective 1 Subject (10CP) - Students may choose the elective subject from any Bond University subjects.</td>
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**Sequence Plan For students Commencing January 2017**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Code</th>
<th>Title</th>
<th>Requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 171</td>
<td>ACSC71-400</td>
<td>Actuarial Control Cycle 1</td>
<td>ACSC13/71-302</td>
</tr>
<tr>
<td></td>
<td>ACSC72-403</td>
<td>Actuarial Research Thesis Part A (20cp)</td>
<td>CO-Req ACSC71-400</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
<td>Nil</td>
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</table>

**Sequence Plan For students Commencing May 2017**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Code</th>
<th>Title</th>
<th>Requisites</th>
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</thead>
<tbody>
<tr>
<td>May 172</td>
<td>ACSC71-400</td>
<td>Actuarial Control Cycle 1</td>
<td>ACSC13/71-302</td>
</tr>
<tr>
<td></td>
<td>ACSC72-403</td>
<td>Actuarial Research Thesis Part A (20cp)</td>
<td>CO-Req ACSC71-400</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
<td>Nil</td>
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</tbody>
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<th>Semester</th>
<th>Code</th>
<th>Title</th>
<th>Requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 173</td>
<td>ACSC71-401</td>
<td>Actuarial Control Cycle 2</td>
<td>ACSC13/71-301 ACSC13/71-302</td>
</tr>
<tr>
<td></td>
<td>ACSC71-402</td>
<td>Investments and Asset Modelling</td>
<td>FINC71-603 FINC13-303</td>
</tr>
<tr>
<td></td>
<td>ACSC72-404</td>
<td>Actuarial Research Thesis Part B (20cp)</td>
<td>CO-Req ACSC71-400</td>
</tr>
</tbody>
</table>

**Sequence Plan For students Commencing September 2017**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Code</th>
<th>Title</th>
<th>Requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 173</td>
<td>ACSC71-401</td>
<td>Actuarial Control Cycle 2</td>
<td>ACSC13/71-301 ACSC13/71-302</td>
</tr>
<tr>
<td></td>
<td>ACSC71-402</td>
<td>Investments and Asset Modelling</td>
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<td></td>
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<th>Semester</th>
<th>Code</th>
<th>Title</th>
<th>Requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 181</td>
<td>ACSC71-400</td>
<td>Actuarial Control Cycle 1*</td>
<td>ACSC13/71-302</td>
</tr>
<tr>
<td></td>
<td>ACSC72-404</td>
<td>Actuarial Research Thesis Part B (20cp)</td>
<td>CO-Req ACSC71-400</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td></td>
<td>Nil</td>
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</table>
COURSEWORK COMPONENTS

ACSC71-400: Actuarial Control Cycle 1 (10 CP) January, May semester

The aim of the Actuarial Control Cycle 1 and 2 is to provide students with an understanding of how the underlying actuarial principles can be applied to a range of problems and issues in commercial and business environments. The Actuarial Control Cycle forms a 'bridge' between Part I, where students learn specific technical skills in a well-defined environment, and Part III, where students are taught to apply these skills in less well-defined business and commercial environments. During Part II students are expected to develop a holistic approach to practical problem solving, and develop a level of judgement and professional skills required to successfully apply actuarial principles to real-world problems. The Actuarial Control Cycle demonstrates a holistic approach to understanding how actuarial principles relate to actuarial practice in the financial services and other industries. It is presented in general terms to highlight its application beyond financial services. Examples will be drawn from traditional and non-traditional areas to illustrate and establish the underlying actuarial principles in a problem-based learning approach, using case studies and business-based examples.

**Prerequisites**

Admission into BN-10031 - Bachelor of Actuarial Science (Honours) OR Admission into BN-13120 - Master of Actuarial Practice AND ACSC71-302 - Advanced Modelling OR ACSC13-302 - Advanced Modelling

ACSC71-401: Actuarial Control Cycle 2 (10 CP) September semester

The successful conduct of research requires advanced abilities in analysis and interpretation of data, critical thinking and written and oral presentation. This subject will build on skills developed in the subject ACSC71-400 Actuarial Control Cycle 1 to support Actuarial Sciences Honours students as they progress into the second semester of their program. A thorough coverage of mathematical and statistical procedures required to support both the project design and data analysis will be provided. Parametric and non-parametric statistical methods will be examined including t-tests, analysis of variance (ANOVA), correlation and regression. Workshops will actively develop students' skills in a variety of communication formats including the writing of discipline-specific journal articles, short abstracts and funding proposals. Students will also participate in regular presentation sessions including 3-minute thesis presentations, and oral and poster presentations.

**Prerequisites**

Admission into BN-10031 - Bachelor of Actuarial Science (Honours) OR Admission into BN-13120 - Master of Actuarial Practice AND ACSC71-301 - Contingencies OR ACSC13-301 – Contingencies
ACSC71-402: Investments and Asset Modelling (10 CP) all semester

This subject covers aspects of finance theory and practice that are particularly relevant to actuarial science and are used to manage liability portfolios in industries such as life insurance, pensions, superannuation and general insurance. The relationship between the liability portfolio and investment decision making is considered, taking into account government regulation. Stochastic modelling of both assets and liabilities will be used to assess investment strategies. Methods of developing, assessing and recognising limitations of investment strategies will also be developed and illustrated.

Prerequisites
Admission into BN-10031 - Bachelor of Actuarial Science (Honours) OR Admission into BN-13120 - Master of Actuarial Practice AND FINC71-603 - Investments OR FINC13-303 - Portfolio Analysis and Investment Management

RESEARCH / DISSERTATION COMPONENT

ACSC72-403: Actuarial Research Thesis Part A (20CP) – All semester

This subject provides an opportunity for students to work on an applied research project in actuarial science or a related field. Students will work on a topic motivated by recent developments and innovations in actuarial industries or more generally in the financial services markets. Students need to approach potential supervisors before semester starts to discuss supervision and possible research topics. Once the supervisor(s) has/have confirmed the willingness to supervise and the research topic has been confirmed by the Honours program coordinator, a formal written agreement should be signed by the student, the supervisor(s) and the Honours program coordinator. In Week 5 of the semester, students need to give an oral presentation to briefly describe the plan/outline and timeframe of their research.

Prerequisites
Admission into BN-10031 - Bachelor of Actuarial Science (Honours)
Co-Requisite: ACSC71-400 Actuarial Control Cycle 1

ACSC72-404: Actuarial Research Thesis Part B (20CP) – All semester

This subject provides an opportunity for students to work on an applied research project in actuarial science. Students will work on a topic motivated by recent developments and innovations in actuarial industries or more generally in the financial services markets. In Week 10 of the
semester, students are required to give an oral presentation on their results and findings, and therefore receive feedback from audience before submitting the final written thesis. The presentation is worth 10% towards the final grade. In early Week 12, students are required to submit a professionally written thesis which is worth 90% towards the final grade.

**Prerequisites**

Admission into BN-10031 - Bachelor of Actuarial Science (Honours) and ACSC72-403: Actuarial Research Thesis Part A (20CP)

**Application for admission**

The program is available to students who have completed a relevant Bachelor’s degree. An application for admission to the Honours program and all relevant supporting documentation must be submitted online to Bond University at https://apply.bond.edu.au/.

Applications close on Wednesday in Week 12 of Semester 163 for Semester 171 intake, of Semester 171 for Semester 172 intake.

**Entry requirement**

All students (internal and external) interested in completing Actuarial Science Honours program should indicate their interest to the Honours Convenor no later than the application closing date.

1. **Internal applicant**
   (a) have completed the Bachelor of Actuarial Science
   (b) minimum overall Grade Point Average (GPA): 2/4 for Year 2017 intake; 2.5/4 for Year 2018 intake onwards

2. **External applicant**
   (a) have completed a Bachelor’s degree in a discipline that is related to the Actuarial Science Honours program
   (b) minimum overall Grade Point Average (GPA): 2.5/4 for Year 2017 intake; 3/4 for Year 2018 intake onwards

From Year 2018 onwards, all applicants (internal and external) must have passed at least 6 out of 8 Institute of Actuaries of Australia Part 1 exams or equivalent.

For applicants who fail to meet the minimum requirement on GPA, they must contact the Honours Convenor and have at least one supervisor who agrees to provide supervision on an approved research topic.

**Approval of dissertation topic and supervision**

All Honours dissertation topics and Supervisor(s) are approved by the Faculty prior to being
offered to students.

It is essential that students discuss advertised projects with potential supervisors prior to the application deadline:

1. A student must find a supervisor or supervisors by the end of the orientation week.

2. A student/supervisor agreement must be signed by both parties and submitted by e-mail to the Honours Convenor by the application deadline. Applicants who do not have the agreement of the project supervisors will NOT be considered.

3. Students and their supervisors should agree on the research topic by the end of Week 2 in the first semester.

Requirements on supervisors:

1. There can be more than one supervisor for one student, for example, one student can have a principal and a co-supervisor.

2. The supervisor must have a Ph.D. in a related discipline or hold a professional qualification (for example, FIAA for actuarial science research)

Fees & Scholarships

There are no specific scholarships for students undertaking the Actuarial Honours program. Details of the general Bond University scholarships are available here: https://bond.edu.au/future-students/study-bond/how-apply/scholarships

Fees for the Bond Business School Honours Program 2016: $35,240
Fees for the Bond Business School Honours Program 2017: $36,472

<table>
<thead>
<tr>
<th>Year</th>
<th>Subject Costs</th>
<th>No. of subjects</th>
<th>Total Degree Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>2 x 20cpt thesis at $8,810 + 4 x 10cpt subjects at 4,405</td>
<td>6</td>
<td>$35,240</td>
</tr>
<tr>
<td>2017</td>
<td>2 x 20cpt thesis at $9,118 + 4 x 10cpt subjects at 4,559</td>
<td>6</td>
<td>$36,472</td>
</tr>
</tbody>
</table>

FEE-HELP

Fee-help may be used to off-set the costs of fees associated with the Honours program. FEE-HELP is an interest-free loan scheme administered by the Australian Taxation Office and available to Australian citizens and those holding a permanent humanitarian visa to help pay tuition fees. For more details of the loans available, visit: www.goingtouni.gov.au.
Grades Awarded
The degree with Honours is awarded in the following classes: Honours Class 1 (85-100%), Honours Class 2 Division A (75-84%), Honours Class 2 Division B (65-74%), Honours Class 3 (50-64%), Fail (below 50%).

Study Load & enrolment status
The HSM Honours program comprises 80CP over two semesters. Each semester has an enrolment of 40CP.

Specific information about the Bachelor of Actuarial Science Honours program can be obtained from:

Honours Convenor
Senior Teaching Fellow Can Jin
Office: BLD02_04_50
Phone: +61 (7) 5595 1457
E-mail: cjin@bond.edu.au

Honours Administration
Research Development Manager Emma Hunt
Office: BLD02_02_08
Phone: +61 (7) 5595 4133
E-mail: ehunt@bond.edu.au
HONOURS RESEARCH PROJECTS AVAILABLE 2016

DISCIPLINE:

ACTUARIAL SCIENCE

EXAMPLE of Past Thesis:
<table>
<thead>
<tr>
<th><strong>Project Title</strong></th>
<th>Capturing and Trading on Market Sentiment via News Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Supervisors</strong></td>
<td>Dr Bruce Vanstone</td>
</tr>
<tr>
<td><strong>Project Summary</strong></td>
<td>This thesis focuses on analysing sentiment in newspaper articles, using it to predict financial markets index data and forming a trading strategy around these predictions. The project can be broken down into five stages. First, newspaper articles from the Guardian Media Group/NY Times over the last ten years will be downloaded. Next, these articles will be analysed to create metrics measuring sentiment. Following this, initial testing will be performed to ascertain if there is a potential relationship between the metrics and index market data (e.g. FTSE 100). Any identified relationships will be further refined using machine learning techniques (e.g. neural networks). Finally, a trading strategy will be formed, back-tested and analysed using the predictions from the machine learning stage. It should be noted that the purpose of this presentation is to provide an overview of what the actual thesis project will entail and to gather feedback accordingly. It is not presenting any findings/conclusions.</td>
</tr>
</tbody>
</table>
Bond University Handbook

Division 7 - Bachelor Degree with Honours Regulations

There shall be a Bachelor Degree with Honours in each of the fields of study. There are specific provisions for the degree of Bachelor of Laws with Honours.

1. Admission

(1) To be eligible for admission to honours in degree programs other than the Bachelor of Laws, a candidate must meet the prevailing requirements as stipulated by the admissions criteria from the Faculty for which the candidate is seeking admission and:
   (a) have completed, at the University, the requirements for the relevant pass degree with:
       (i) at least credit grade in subjects taken in the final two semesters of Bachelor Degree candidacy within the major area of study which is the proposed honours study; and
       (ii) have completed at least a major study in the proposed area of honours study; OR
   (b) have completed the requirements for a Bachelor Degree at another approved tertiary institution which, in the opinion of the Academic Senate, on the recommendation of the Executive Dean of the Faculty of enrolment, is a suitable preparation for admission to Honours candidacy in the proposed area of study.

(2) In the first instance, candidates should discuss their plans with prospective supervisor(s) within the relevant Faculty. The program of study is approved by the Executive Dean of the Faculty.

2. Program of Study and Time Limits

Except in the case of the degree of Bachelor of Laws, a candidate for the Degree with Honours, shall:

(1) pursue a full-time program of study comprising a minimum of two semesters and not more than three semesters, or an equivalent period of part-time candidature; and
(2) complete a program of study, comprising such coursework, research and/or projects as have been prescribed by the Executive Dean of the Faculty concerned in the outline of studies for the relevant area of study; and fulfill such other requirements as are prescribed by the Executive Dean of the Faculty of enrolment.

3. Part-time Candidature

The Executive Dean of the Faculty of enrolment may permit a student to enrol as an honours candidate on a part-time basis provided that, at the beginning of each semester, the candidate provides evidence of inability, through employment or other commitments, to proceed on a full-time basis.
4. **Classes of Honours**

The following classes will apply to Honours Degrees other than those awarded in the Faculty of Law:

1. First Class Honours
2. Upper Second Class Honours
3. Lower Second Class Honours
4. Third Class Honours
5. Fail

5. **Bachelor of Laws with Honours**

1. A candidate for the Bachelor of Laws with Honours Degree shall:
   - (a) fulfil the requirements for the Bachelor Degree; and
   - (b) achieve such overall standard of proficiency as the Executive Dean of the Faculty of Law may from time-to-time determine; and
   - (c) if the student commenced their degree in or after 2015, complete as one of the elective subjects in their program the subject *Legal Research Project* and achieve such result for the subject as the Executive Dean of the Faculty of Law may from time-to-time determine.

2. The following classes will apply to Bachelor of Laws with Honours Degrees:
   - (a) If the student commenced their degree prior to 2015:
     - Honours Class 1
     - Honours Class 2 Division A
     - Honours Class 2 Division B
   - (b) If the student commenced their degree in or after 2015:
     - Honours Class 1
     - Honours Class 2

3. To be eligible for a Bachelor of Laws with Honours degree:
   - (a) At least sixteen of the subjects comprising the candidate’s degree must be law subjects undertaken at Bond University; and
   - (b) At least ten of the subjects making up the candidate’s degree must be compulsory law subjects undertaken at Bond University.

A candidate who has completed fewer law subjects or fewer compulsory law subjects at Bond University may still be eligible for the Bachelor of Laws with Honours degree if the Executive Dean of the Faculty of Law determines this is appropriate in light of the candidate’s performance in law subjects completed at another institution.

4. Eligibility for Honours and the relevant class of Honours will be calculated on the basis of the candidate’s results in all attempts at law subjects undertaken at Bond University.