

## MC-COMACTS Master of Commerce (Actuarial Science)

<b>Year and Campus:</b>	2016 - Parkville
<b>CRICOS Code:</b>	089805E
<b>Fees Information:</b>	Subject EFTSL, Level, Discipline & Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a>
<b>Level:</b>	Graduate/Postgraduate
<b>Duration &amp; Credit Points:</b>	150 credit points taken over 18 months full time. This course is available as full or part time.
<b>Coordinator:</b>	Professor Daniel Dufresne
<b>Contact:</b>	<p>Currently enrolled students:</p> <ul style="list-style-type: none"> <li># General information: <a href="https://ask.unimelb.edu.au">https://ask.unimelb.edu.au</a> (<a href="https://ask.unimelb.edu.au/">https://ask.unimelb.edu.au/</a>)</li> <li># Email: <a href="mailto:enquiries-HASS@unimelb.edu.au">enquiries-HASS@unimelb.edu.au</a> (<a href="mailto:enquiries-HASS@unimelb.edu.au">mailto:enquiries-HASS@unimelb.edu.au</a>)</li> </ul> <p>Future Students:</p> <ul style="list-style-type: none"> <li># Further information: <a href="http://mbs.unimelb.edu.au">mbs.unimelb.edu.au</a> (<a href="http://mbs.unimelb.edu.au/study/degrees">http://mbs.unimelb.edu.au/study/degrees</a>)</li> <li># <b>Submit an enquiry</b> (<a href="https://enquiry.app.unimelb.edu.au/Web3/EnquiryForm.aspx?FormType=MBSEnquiry&amp;cc=MC-COMACSC&amp;fn=MBS">https://enquiry.app.unimelb.edu.au/Web3/EnquiryForm.aspx?FormType=MBSEnquiry&amp;cc=MC-COMACSC&amp;fn=MBS</a>)</li> </ul>
<b>Course Overview:</b>	<p>The Master of Commerce (Actuarial Studies) is for students who hold an actuarial degree and wish to pursue their actuarial training further. It focuses on actuarial theory and practice, specialising in quantitative techniques for insurance, superannuation and financial risk modelling. With sufficiently high results students are able to obtain exemptions from exams of the Actuaries Institute (Australia), including the whole of Part II. The Master of Commerce (Actuarial Studies) has a 'practice' pathway, which focuses on advanced professional training, and a 'research' pathway, which prepares students for the PhD in Actuarial Studies.</p>
<b>Learning Outcomes:</b>	<p><b>1. Learning Goal</b></p> <p>Graduates of this degree will be able to critically analyse theoretical and practical problems in actuarial work.</p> <p><b>Learning objectives to achieve this goal</b></p> <ul style="list-style-type: none"> <li># On successful completion of this degree students will be able to describe, evaluate and utilize the fundamental theories underlying actuarial practice across the main areas of insurance and financial mathematics including superannuation, general insurance and the valuation of embedded derivatives contracts.</li> <li># They will also be aware of their limitations and be able to place these in context.</li> </ul> <p><b>2. Learning Goal</b></p> <p>Graduate of this degree will be able to evaluate analytically and numerically using actuarial models.</p> <p><b>Learning objectives to achieve this goal</b></p> <p>On successful completion of this degree students will be able to:</p> <ul style="list-style-type: none"> <li># Apply specialized actuarial techniques to the statistical analysis of data whilst understanding their limitations.</li> <li># Compute relevant quantities for insurance problems using actuarial techniques. These quantities will include premiums, contribution rates and risk numbers.</li> <li># Compute prices and sensitivities for a range of financial derivative products that are relevant to insurance work.</li> </ul> <p><b>3. Learning Goal</b></p> <p>Graduate of this degree will have an understanding of actuarial practice and conduct, and of how relevant the models they have studied are.</p> <p><b>Learning objectives to achieve this goal</b></p> <p>On successful completion of this degree students will be able to:</p> <ul style="list-style-type: none"> <li># Describe the core areas of actuarial practice and critically discuss the application of actuarial models to each of them.</li> </ul>

	<ul style="list-style-type: none"> <li># Evaluate and solve practical problems using the actuarial control cycle.</li> <li># Analyze possible conduct/misconduct using tests of professionalism.</li> <li># Assess and contrast product characteristics from the point of view of both providers and consumers.</li> </ul>																																																									
<b>Course Structure &amp; Available Subjects:</b>	<p>The degree is designed to be completed in one and a half years of full time study and requires completion of 150 points, comprised of 87.5 points of core actuarial subjects and 62.5 points of elective subjects. Students can elect to follow one of two pathways: the practice pathway or the research pathway.</p>																																																									
<b>Subject Options:</b>	<p><b>PRACTICE PATHWAY</b></p> <p><b>Core subjects</b></p> <p>Students must take the following subjects:</p> <table border="1" data-bbox="387 577 1485 840"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>ACTL90003 Mathematics of Finance III</td> <td>Semester 1</td> <td>12.5</td> </tr> <tr> <td>ACTL90004 Insurance Risk Models</td> <td>Semester 1</td> <td>12.5</td> </tr> <tr> <td>ACTL90010 Actuarial Practice And Control I</td> <td>Semester 1</td> <td>12.5</td> </tr> </tbody> </table> <p>Students must take 25 points of constrained choice core actuarial subjects, selected from the following subjects:</p> <table border="1" data-bbox="387 922 1485 1240"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>ACTL90012 Actuarial Science Research Report</td> <td>Semester 1, Semester 2</td> <td>12.5</td> </tr> <tr> <td>ACTL90013 Actuarial Studies Projects</td> <td>Semester 1, Semester 2</td> <td>12.5</td> </tr> <tr> <td>ACTL90014 Insurance Risk Models II</td> <td>Semester 2</td> <td>12.5</td> </tr> <tr> <td>ACTL90015 Mathematics of Finance IV</td> <td>Semester 2</td> <td>12.5</td> </tr> </tbody> </table> <p><b>Capstone subjects</b></p> <p>Students must take the following subjects:</p> <table border="1" data-bbox="387 1339 1485 1541"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>ACTL90009 Actuarial Practice and Control III</td> <td>Semester 2</td> <td>12.5</td> </tr> <tr> <td>ACTL90011 Actuarial Practice and Control II</td> <td>Semester 2</td> <td>12.5</td> </tr> </tbody> </table> <p><b>Elective subjects</b></p> <p>Students must take 62.5 points of elective subjects, selected from the following subjects and core actuarial subjects:</p> <table border="1" data-bbox="387 1653 1485 2080"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>ECOM90004 Time Series Analysis and Forecasting</td> <td>Semester 2</td> <td>12.5</td> </tr> <tr> <td>ECOM90010 Bayesian Econometrics</td> <td>Not offered 2016</td> <td>12.5</td> </tr> <tr> <td>FNCE40003 Numerical Techniques in Finance</td> <td>Semester 1</td> <td>12.5</td> </tr> <tr> <td>MAST90045 Systems Modelling and Simulation</td> <td>Semester 1</td> <td>12.5</td> </tr> <tr> <td>MAST90082 Mathematical Statistics</td> <td>Semester 1</td> <td>12.5</td> </tr> <tr> <td>MULT90014 Business Risk Management</td> <td>June, Semester 1</td> <td>12.5</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	ACTL90003 Mathematics of Finance III	Semester 1	12.5	ACTL90004 Insurance Risk Models	Semester 1	12.5	ACTL90010 Actuarial Practice And Control I	Semester 1	12.5	Subject	Study Period Commencement:	Credit Points:	ACTL90012 Actuarial Science Research Report	Semester 1, Semester 2	12.5	ACTL90013 Actuarial Studies Projects	Semester 1, Semester 2	12.5	ACTL90014 Insurance Risk Models II	Semester 2	12.5	ACTL90015 Mathematics of Finance IV	Semester 2	12.5	Subject	Study Period Commencement:	Credit Points:	ACTL90009 Actuarial Practice and Control III	Semester 2	12.5	ACTL90011 Actuarial Practice and Control II	Semester 2	12.5	Subject	Study Period Commencement:	Credit Points:	ECOM90004 Time Series Analysis and Forecasting	Semester 2	12.5	ECOM90010 Bayesian Econometrics	Not offered 2016	12.5	FNCE40003 Numerical Techniques in Finance	Semester 1	12.5	MAST90045 Systems Modelling and Simulation	Semester 1	12.5	MAST90082 Mathematical Statistics	Semester 1	12.5	MULT90014 Business Risk Management	June, Semester 1	12.5
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## RESEARCH PATHWAY

### Core subjects

Students must take the following subjects:

Subject	Study Period Commencement:	Credit Points:
ACTL90003 Mathematics of Finance III	Semester 1	12.5
ACTL90004 Insurance Risk Models	Semester 1	12.5
ACTL90010 Actuarial Practice And Control I	Semester 1	12.5

Students must take 25 points of core actuarial subjects, selected from the following subjects:

Subject	Study Period Commencement:	Credit Points:
ACTL90009 Actuarial Practice and Control III	Semester 2	12.5
ACTL90011 Actuarial Practice and Control II	Semester 2	12.5
ACTL90013 Actuarial Studies Projects	Semester 1, Semester 2	12.5
ACTL90014 Insurance Risk Models II	Semester 2	12.5
ACTL90015 Mathematics of Finance IV	Semester 2	12.5

### Capstone subjects

ACTL90012 Actuarial Science Research Report (12.5 points, to be taken twice over last two semesters or twice in final semester)

Subject	Study Period Commencement:	Credit Points:
ACTL90012 Actuarial Science Research Report	Semester 1, Semester 2	12.5

### Elective subjects

Students must take 62.5 points of elective subjects, selected from the following subjects and core actuarial subjects:

Subject	Study Period Commencement:	Credit Points:
ECOM90004 Time Series Analysis and Forecasting	Semester 2	12.5
ECOM90010 Bayesian Econometrics	Not offered 2016	12.5
FNCE40003 Numerical Techniques in Finance	Semester 1	12.5
MAST90045 Systems Modelling and Simulation	Semester 1	12.5
MAST90082 Mathematical Statistics	Semester 1	12.5
MULT90014 Business Risk Management	June, Semester 1	12.5

and other Masters level electives in actuarial studies, economics, finance or mathematics, as approved by the Academic Program Director.

This program is available for Semester 1 entry only.

**Note:** Students interested in progressing to the PhD program will need to follow the research pathway.

<b>Entry Requirements:</b>	<p>1. In order to be considered for entry, applicants must have completed:</p> <ul style="list-style-type: none"> <li># an undergraduate or postgraduate degree in actuarial science or similar with a weighted average mark of at least H2A (75%);</li> <li># the Graduate Records Examination (GRE), unless the applicant has completed an undergraduate degree in Australia or New Zealand or met one of the approved conditions for GRE exemption; and</li> <li># a personal statement outlining why they wish to be considered for the course. Meeting these requirements does not guarantee selection.</li> </ul> <p>2. In ranking applications, the Selection Committee will consider:</p> <ul style="list-style-type: none"> <li># prior academic performance; and</li> <li># the GRE score unless the applicant has completed an undergraduate degree in Australia or New Zealand or met one of the approved conditions for GRE exemption; and</li> <li># the personal statement.</li> </ul> <p>3. The Selection Committee may seek further information to clarify any aspect of an application in accordance with the Academic Board <b>rules</b> (<a href="http://about.unimelb.edu.au/__data/assets/pdf_file/0007/1413727/Use-of-Selection-Instruments-Rules-of-the-Academic-Board-23-March-2015.pdf">http://about.unimelb.edu.au/__data/assets/pdf_file/0007/1413727/Use-of-Selection-Instruments-Rules-of-the-Academic-Board-23-March-2015.pdf</a>) on the use of selection instruments</p> <p>4. Applicants are required to satisfy the university's <b>English language requirements</b> (<a href="http://futurestudents.unimelb.edu.au/admissions/entry-requirements/language-requirements">http://futurestudents.unimelb.edu.au/admissions/entry-requirements/language-requirements</a>) for graduate courses. For those applicants seeking to meet these requirements by one of the standard tests approved by the Academic Board, performance band 6.5 is required.</p>
<b>Core Participation Requirements:</b>	<p>&lt;p&gt;For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry.&lt;/p&gt; &lt;p&gt;It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: &lt;a href="http://services.unimelb.edu.au/disability"&gt;http://services.unimelb.edu.au/disability&lt;/a&gt;&lt;/p&gt;</p>
<b>Graduate Attributes:</b>	<p>Graduate attributes: On successful completion of this degree graduates will be: Receptive to alternate ideas through a review of the literature and through class participation and assessment; Ethical in their approach to research and work practices; Skilled in the use, critical evaluation and testing of actuarial models; Adept in statistical reasoning through completion of core quantitative subjects in the degree; Practiced at problem solving through their understanding of financial, statistical and actuarial techniques; Experienced in working effectively with computer software for the analysis of data; Adept at retrieval, summary and interpretation of actuarial and financial information through class exercises and assessment; Able to apply and synthesise mathematical, statistical, financial and actuarial theory, models and evidence to a variety of financial and insurance issues; Independent and effective in communication of ideas; and Able to collaborate and be effective in team work.</p>
<b>Professional Accreditation:</b>	<p>The course provides the possibility of exemptions from modules necessary to complete the associateship of the Actuaries Institute Australia.</p>
<b>Generic Skills:</b>	<p>On successful completion of this degree students should have enhanced their skills in:</p> <ul style="list-style-type: none"> <li># Synthesizing ideas, theories and data in developing solutions to actuarial problems;</li> <li># Critical evaluation of evidence in support of an argument or proposition;</li> <li># Recognizing when mathematical analysis is appropriate and when it is inappropriate;</li> <li># Problem solving in actuarial practice through the application of appropriate theories, principles and data;</li> <li># Teamwork through collaborative exercises in seminars, workshops and assessment;</li> <li># The use of software packages applicable to actuarial and statistical modelling;</li> <li># The implementation of models as software;</li> <li># Written communication of actuarial ideas, theories and solutions to peers and the wider community.</li> </ul>