

## MAST30020 Probability for Inference

<b>Credit Points:</b>	12.5																					
<b>Level:</b>	3 (Undergraduate)																					
<b>Dates &amp; Locations:</b>	2015, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.																					
<b>Time Commitment:</b>	Contact Hours: 3 x one hour lectures per week, 1 x one hour practice class per week Total Time Commitment: Estimated total time commitment of 170 hours																					
<b>Prerequisites:</b>	<p>One of</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>MAST20026 Real Analysis</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>MAST10009 Accelerated Mathematics 2</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>Plus either</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>MAST20004 Probability</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table> <p>Or</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>MAST20006 Probability for Statistics</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table> <p>(MAST20006 must have a result grade of H2B or above)</p>	Subject	Study Period Commencement:	Credit Points:	MAST20026 Real Analysis	Semester 1, Semester 2	12.50	MAST10009 Accelerated Mathematics 2	Semester 2	12.50	Subject	Study Period Commencement:	Credit Points:	MAST20004 Probability	Semester 1	12.50	Subject	Study Period Commencement:	Credit Points:	MAST20006 Probability for Statistics	Semester 1	12.50
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MAST20004 Probability	Semester 1	12.50																				
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MAST20006 Probability for Statistics	Semester 1	12.50																				
<b>Corequisites:</b>	None																					
<b>Recommended Background Knowledge:</b>	None																					
<b>Non Allowed Subjects:</b>	None																					
<b>Core Participation Requirements:</b>	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: <a href="http://www.services.unimelb.edu.au/disability/">http://www.services.unimelb.edu.au/disability/</a>																					
<b>Coordinator:</b>	Prof Konstantin Borovkov																					
<b>Contact:</b>	Third Year Coordinator <b>Email: <a href="mailto:tycoord@ms.unimelb.edu.au">tycoord@ms.unimelb.edu.au</a> (mailto:tycoord@ms.unimelb.edu.au)</b>																					
<b>Subject Overview:</b>	<p>This subject introduces a measured-theoretic approach to probability theory and presents its fundamentals concepts and results.</p> <p>Topics covered include: probability spaces and random variables, expectation, conditional expectation and distributions, elements of multivariate distribution theory, modes of</p>																					

	convergence in probability theory, characteristic functions and their application in key limit theorems.
<b>Learning Outcomes:</b>	<p>On completion of this subject students should:</p> <ul style="list-style-type: none"> <li># Have a systematic understanding of the fundamentals of modern probability theory;</li> <li># Know and be able to work with the most important univariate and multivariate probability distributions;</li> <li># Have a good knowledge of general conditional expectations, integral transforms and key ideas of different modes of convergence of random variables and distributions.</li> </ul>
<b>Assessment:</b>	Ten written assignments due at weekly intervals during semester amounting to a total of up to 50 pages (20%), and a 3-hour written examination in the examination period (80%).
<b>Prescribed Texts:</b>	None
<b>Recommended Texts:</b>	A.F. Karr, Probability, 1st Ed. Springer, New York, 1993.
<b>Breadth Options:</b>	<p>This subject potentially can be taken as a breadth subject component for the following courses:</p> <ul style="list-style-type: none"> <li># <b>Bachelor of Commerce</b> (<a href="https://handbook.unimelb.edu.au/view/2015/B-COM">https://handbook.unimelb.edu.au/view/2015/B-COM</a>)</li> <li># <b>Bachelor of Environments</b> (<a href="https://handbook.unimelb.edu.au/view/2015/B-ENVS">https://handbook.unimelb.edu.au/view/2015/B-ENVS</a>)</li> <li># <b>Bachelor of Music</b> (<a href="https://handbook.unimelb.edu.au/view/2015/B-MUS">https://handbook.unimelb.edu.au/view/2015/B-MUS</a>)</li> </ul> <p>You should visit <b>learn more about breadth subjects</b> (<a href="http://breadth.unimelb.edu.au/breadth/info/index.html">http://breadth.unimelb.edu.au/breadth/info/index.html</a>) and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.</p>
<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>Generic Skills:</b>	<p>In addition to learning specific skills that will assist students in their future careers in science, they will have the opportunity to develop generic skills that will assist them in any future career path. These include:</p> <ul style="list-style-type: none"> <li># problem-solving skills: the ability to engage with unfamiliar problems and identify relevant solution strategies;</li> <li># analytical skills: the ability to construct and express logical arguments and to work in abstract or general terms to increase the clarity and efficiency of analysis;</li> <li># collaborative skills: the ability to work in a team;</li> <li># time-management skills: the ability to meet regular deadlines while balancing competing commitments.</li> </ul>
<b>Notes:</b>	<p>This subject is available for science credit to students enrolled in the BSc (both pre-2008 and new degrees), BAsC or a combined BSc course.</p> <p>This subject was previously titled MAST30020 Probability and Statistical Inference</p>
<b>Related Majors/Minors/Specialisations:</b>	<p>Science-credited subjects - new generation B-SCI and B-ENG.</p> <p>Selective subjects for B-BMED</p> <p>Statistics / Stochastic Processes</p> <p>Statistics / Stochastic Processes</p> <p>Statistics / Stochastic Processes</p> <p>Statistics / Stochastic Processes</p> <p>Statistics / Stochastic Processes (specialisation of Mathematics and Statistics major)</p>