

# MAST10009 Accelerated Mathematics 2

<b>Credit Points:</b>	12.50																		
<b>Level:</b>	1 (Undergraduate)																		
<b>Dates &amp; Locations:</b>	This subject is not offered in 2014. Lectures and practice classes.																		
<b>Time Commitment:</b>	Contact Hours: 4 x one hour lectures per week, 1 x one hour practice class per week. Total Time Commitment: Estimated total time commitment of 120 hours																		
<b>Prerequisites:</b>	<p>A study score of at least 38 in VCE Specialist Mathematics 3/4 or equivalent; or 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>MAST10008 Accelerated Mathematics 1</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table> <p># MAST10013 UMEP Mathematics for High Achieving Students</p> <p>or permission from the Director of the Mathematics and Statistics Learning Centre.</p>	Subject	Study Period Commencement:	Credit Points:	MAST10008 Accelerated Mathematics 1	Semester 1	12.50												
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<b>Corequisites:</b>	None																		
<b>Recommended Background Knowledge:</b>	None																		
<b>Non Allowed Subjects:</b>	<p>Students may only gain credit for 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>MAST10006 Calculus 2</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>Students may only gain credit for 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>MAST10009 Accelerated Mathematics 2</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>MAST20026 Real Analysis</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	MAST10006 Calculus 2	Semester 1, Semester 2	12.50	MAST10009 Accelerated Mathematics 2	Semester 2	12.50	Subject	Study Period Commencement:	Credit Points:	MAST10009 Accelerated Mathematics 2	Semester 2	12.50	MAST20026 Real Analysis	Semester 1, Semester 2	12.50
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<b>Core Participation Requirements:</b>	<p>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></p>																		
<b>Contact:</b>	<p>First Year Coordinator  <b>Email: <a href="mailto:fycoord@ms.unimelb.edu.au">fycoord@ms.unimelb.edu.au</a> (mailto:fycoord@ms.unimelb.edu.au)</b></p>																		
<b>Subject Overview:</b>	<p>This subject develops fundamental concepts and principles in mathematical analysis. Students should gain skills in the practical techniques of differential calculus, integral calculus and infinite series, and study selected applications of these techniques in mathematical modelling.</p> <p>Topics covered include heuristic and rigorous discussion of limits of real-valued functions, continuity and differentiability; Mean Value Theorem and applications; Taylor polynomials; Riemann integration, techniques of integration and applications, improper integrals; sequences</p>																		

	and infinite series; first order differential equations, second order linear differential equations with constant coefficients and selected applications.
<b>Learning Outcomes:</b>	<p>Students completing this subject should:</p> <ul style="list-style-type: none"> <li># understand the significance and applications of properties of functions such as limits, continuity and differentiability;</li> <li># be able to evaluate proper and improper Riemann integrals;</li> <li># develop the ability to determine the convergence and divergence of infinite series;</li> <li># be able to solve analytically first and second order ordinary differential equations, and use these equations to model some simple physical systems;</li> <li># understand simple rigorous proofs of fundamental results in real analysis.</li> </ul>
<b>Assessment:</b>	Two or three written assignments due at regular intervals during semester amounting to a total of up to 25 pages (10%), a 45-minute written test held mid-semester (10%), and a 3-hour written examination in the examination period (80%).
<b>Prescribed Texts:</b>	None.
<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 Arts</b> (<a href="https://handbook.unimelb.edu.au/view/2014/B-ARTS">https://handbook.unimelb.edu.au/view/2014/B-ARTS</a>)</li> <li># <b>Bachelor of Commerce</b> (<a href="https://handbook.unimelb.edu.au/view/2014/B-COM">https://handbook.unimelb.edu.au/view/2014/B-COM</a>)</li> <li># <b>Bachelor of Environments</b> (<a href="https://handbook.unimelb.edu.au/view/2014/B-ENVS">https://handbook.unimelb.edu.au/view/2014/B-ENVS</a>)</li> <li># <b>Bachelor of Music</b> (<a href="https://handbook.unimelb.edu.au/view/2014/B-MUS">https://handbook.unimelb.edu.au/view/2014/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; and</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 is suitable for students with a high level of achievement in VCE Specialist Mathematics 3/4 or equivalent.</p> <p>This subject, together with MAST10008 Accelerated Mathematics 1 is equivalent in content to the three subjects</p> <ul style="list-style-type: none"> <li># MAST10006 Calculus 2</li> <li># MAST10007 Linear Algebra</li> <li># MAST20026 Real Analysis</li> </ul>
<b>Related Course(s):</b>	Bachelor of Biomedicine
<b>Related Majors/Minors/Specialisations:</b>	<p>Science credit subjects* for pre-2008 BSc, BAsc and combined degree science courses</p> <p>Science-credited subjects - new generation B-SCI and B-ENG.</p> <p>Selective subjects for B-BMED</p>
<b>Related Breadth Track(s):</b>	Accelerated Mathematics