

## MAST10016 Mathematics for Biomedicine

<b>Credit Points:</b>	12.50
<b>Level:</b>	1 (Undergraduate)
<b>Dates &amp; Locations:</b>	2014, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus. Lectures and practice classes. Students who have completed VCE Biology 3/4 or equivalent are required to enrol in Mathematics for Biomedicine in Semester 1. Students who have not completed VCE Biology 3/4 or equivalent are required to enrol in Mathematics for Biomedicine in Semester 2. Students will be enrolled in Mathematics for Biomedicine in the opposite semester to which they are enrolled in Experimental Design and Data Analysis. Students who enrol in Mathematics for Biomedicine in Semester 1 will enrol in Experimental Design and Analysis in Semester 2 and vice versa.
<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 120 hours
<b>Prerequisites:</b>	Admission to the Bachelor of Biomedicine.
<b>Corequisites:</b>	None
<b>Recommended Background Knowledge:</b>	The pre-requisite for the subject Mathematics for Biomedicine is VCE Mathematical Methods 3/4 or equivalent. The subject is not a replacement for VCE Specialist Mathematics 3/4; it covers different material.
<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>	Dr Anthony Morphett
<b>Contact:</b>	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>
<b>Subject Overview:</b>	This subject will introduce mathematical techniques to illustrate the importance of quantitative modelling in biomedicine. Quantitative models will be explored in a variety of biomedical contexts. Emphasis will be placed on understanding how biological principles can give rise to quantitative models. Topics to be explored in a quantitative context include genetic variation over many generations, dynamic processes at the cellular level and the modeling of the spread of infectious diseases among populations.
<b>Learning Outcomes:</b>	On completion of this subject, students should: <ul style="list-style-type: none"> <li># Understand the importance of mathematical principles underlying some topics in biomedical science;</li> <li># Be able to explain and apply these principles, using logical and mathematical reasoning, to a variety of familiar and novel situations in biomedicine and public health policy.</li> </ul>
<b>Assessment:</b>	Ten written assignments due at weekly intervals throughout the semester amounting to a total of up to 50 pages of written work (25%); an oral presentation due during the semester (5%); and a 3-hour written examination conducted during the examination period (70%).
<b>Prescribed Texts:</b>	None.

<b>Breadth Options:</b>	This subject is not available as a breadth subject.
<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 the health sciences, 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># communication skills;</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>Related Course(s):</b>	Bachelor of Biomedicine