

## 421-692 Biological Systems Engineering

<b>Credit Points:</b>	12.500
<b>Level:</b>	Graduate/Postgraduate
<b>Dates &amp; Locations:</b>	2008, This subject commences in the following study period/s: Semester 2, - Taught on campus.
<b>Time Commitment:</b>	Contact Hours: 36 Hours; Non contact time commitment 84 Hours Total Time Commitment: Not available
<b>Prerequisites:</b>	None
<b>Corequisites:</b>	None
<b>Recommended Background Knowledge:</b>	None
<b>Non Allowed Subjects:</b>	None
<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>Coordinator:</b>	David Smith
<b>Subject Overview:</b>	This subject will explore the emerging field of systems biology. Topics examined will include: linear algebra, differential equations, optimisation, network reconstruction, control systems, chemical reaction networks. Examples will include systems from the species population scale down to intra-cellular networks.
<b>Assessment:</b>	One 2-hour examination (75%) and one assignment of 2000 words equivalent (25%).
<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>On successful completion, students should be able to:</p> <ul style="list-style-type: none"> <li># identify various systems that operate in biological processes</li> <li># reconstruct networks from experimental data</li> <li># express the interactions of system components mathematically</li> <li># describe the role of mathematical modelling in understanding biological systems</li> <li># develop skills in the quantitative analysis of biological networks</li> <li># develop skills in computer modelling of biological systems</li> <li># have exposure to a range of problems in which biomedical engineers may play a role</li> </ul>
<b>Related Course(s):</b>	Master of Biomedical Engineering Master of Engineering Science(Biomedical Engineering) Master of Engineering Structures