436-386 Biomaterials

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Semester 1, - Taught on campus. On campus only
Time Commitment:	Contact Hours: Thirty-two hours of lectures, 12 hours of tutorials and 4 hours of laboratory work Total Time Commitment: 120 hours
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	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. 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: http://services.unimelb.edu.au/disability
Coordinator:	Dr Karlis Agris Gross
Subject Overview:	This course is designed to enable students to apply the fundamental principles in material sciences to biomedical applications. It will address different materials (polymers, metals, ceramics and composites) used in contact with living tissue. In addition, students will be introduced to biological materials like bone, muscles, skin and vasculature. A main focus in this course is to examine the application of materials in the physiological environment. Topics will include host reaction, testing and degradation of biomaterials in biological environment (e.g. blood – material interaction). Finally, students will be introduced to the regulatory, ethical and legal aspects of fielding biomaterials.
Objectives:	Upon completion of the subject students should have a good foundation in biomaterials and an appreciation for their applications in medicine.
Assessment:	Final exam 3-hours (60%), Research Paper (20%) and Laboratory Report (20%).
Prescribed Texts:	Biomaterials Science: An introduction to materials in medicine by BD Ratner et al. Elsevier, 2005. ISBN 0-12-582463-7
Recommended Texts:	Information Not Available
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	# ability to apply knowledge of basic science and engineering fundamentals; # ability to communicate effectively with members from different disciplines;

	# capacity for independent critical thought, rational enquiry and self-directed learning; # ability to function effectively as an individual and in multi-disciplinary and multi-cultural team, with the capacity to be a leader or manager as well as an effective team member; # ability to undertake problem identification, formulation and solution using engineering or biological approaches; # openness to new ideas and unconventional critiques of received wisdom; # intellectual curiosity and creativity, including understanding of the philosophical and methodological bases of research activity; # expectation of the need to undertake lifelong learning, capacity to do so.
Related Course(s):	Bachelor of Engineering (Biomedical) Biomechanics Bachelor of Engineering (Biomedical)Biocellular Bachelor of Engineering (Biomedical)Bioinformatics Bachelor of Engineering (Biomedical)Biosignals Bachelor of Engineering (EngineeringManagement)Mechanical&Manufacturing Bachelor of Engineering (Mechanical &Manufacturing)/Bachelor of Commerce Bachelor of Engineering (Mechanical and Manufacturing Engineering)