

421-457 Modelling Pharmacokinetics & Dynamics

Credit Points:	12.500
Level:	Undergraduate
Dates & Locations:	2008, This subject commences in the following study period/s: Semester 1, - Taught on campus. Lectorials and group projects
Time Commitment:	Contact Hours: Forty-eight hours. Total Time Commitment: Estimated total time of commitment of 96 hours.
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	<p><p>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.</p> <p>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</p></p>
Coordinator:	Prof Dave Smith
Subject Overview:	<p>This subjects examines methods and processes for drug administration, absorption, distribution and elimination, with a focus on modelling the pharmacokinetics behaviour of drugs using compartment and transport models. Some aspects of pharmacokinetics (eg. modelling mechanisms of drug actions at receptors), and the signal transduction following receptor activation are modelled and contextualised in a modern understanding of biological systems behaviour, and modern therapeutics. Students completing this subject should develop an appreciation of the basic principles of modelling drug behaviours in humans and be able to build computational models of these systems from first principles. Students will complete the subject with an understanding of various information types arising from specialist engineers and pharmacologists. When possible, practical examples of these models in a clinical context will be given. The subject will develop skills in problem formulation, research, information synthesis and model development for drugs in the body. Students will have opportunities to develop their professional and presentation skills.</p>
Assessment:	An examination of 2-hours contributing 40%, mid-semester test (10%), group project assignments (40%) and assessment of tutorial workbook (10%).
Prescribed Texts:	None
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:	<p>At the end of this subject students should have abilities to:</p> <ul style="list-style-type: none"> # Apply knowledge of basic science and engineering fundamentals; # Undertake problem identification, formulation and solution;

	<ul style="list-style-type: none"># Utilise a systems approach to design and testing a computational model of drug behaviour in humans;# Function effectively either as an individual or in multi-disciplinary and multi-cultural teams.
Related Course(s):	Bachelor of Engineering (Biomedical)Biocellular