INFO90001 eHealth & Biomedical Informatics Methods

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	This subject is not offered in 2013.
Time Commitment:	Contact Hours: 36 hours Total Time Commitment: 120 hours
Prerequisites:	<table><tr><th>Subject</th><th>Study Period Commencement:</th><th>Credit Points:</th></tr><tr><td>ISYS90069 eHealth & Biomedical Informatics Systems</td><td>July</td><td>12.50</td></tr></table> or equivalent demonstrable professional experience.
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
Contact:	Kathleen Gray email: **kgray@unimelb.edu.au (mailto:kgray@unimelb.edu.au)**
Subject Overview:	This subject familiarises students with core informatics tools and methods used in ehealth, translational research, simulation and modelling, and biomedical knowledge management. It also provides students with insights into research trends in the field of biomedical informatics. Five major topics will be covered in lectures, tutorials and hands-on computer labs: 1 How can we manage clinical data? Students will gain exposure to: informatics tools and methods for ehealth and broadband-enabled health, including shareable medical records, telehealth, mobile health; terminologies, coding and standards e.g. SNOMED-CT, HL7A and secure messaging, medical imaging (DICOM) and lab data (LOINC); and clinical decision support systems. 2 How can we integrate clinical data with molecular, population, environmental and other data sources? Students will gain exposure to: informatics tools and methods for translational research, including genomic data sources (microarray and next generation DNA sequencing); data integration and analysis platforms such as BioGrid, CaBIG. Gene ontology; and clinical research informatics (clinical trials). 3 How can we use computer models to simulate human biology and disease? Students will gain exposure to: informatics tools and methods for simulation and modelling; anatomical ontologies (FMA); VPH and Physiome platform; and infodemiology tools, systems medicine, virtual environments for clinical practice. 4 How can we manage health and biomedical knowledge? Students will gain exposure to: informatics tools and methods for biomedical informatics research, including bibliographic and web inforrnation; MeSH, and databases; biomedical text mining; social and semantic web for health and life sciences; technology assessment; and systematic reviews and meta-analyses.

	5 How can we develop the next generation of health and bioinformatics tools and methods? Students will gain exposure to trends and advances, including extreme phenotyping, informatics for personalised, regenerative and nanomedicine.
Objectives:	Upon completion of this subject students should be able to: # Describe key informatics tools and methods used in ehealth, translational research, simulation and modelling, health and biomedical knowledge management # Map typical needs in ehealth, translational research, simulation and modelling, health and biomedical knowledge management onto specific informatics tools and methods # Demonstrate an understanding of how clinical data is integrated with molecular, population, environmental and other data sources # Demonstrate an understanding of how computer models simulate human biology and disease, through a variety of informatics tools and methods for simulation and modelling Work knowledgeably towards resolution of research challenges in the field of biomedical informatics.
Assessment:	Team problem-solving project: a 2000 word report, online and class presentation, due in last week of classes (50%) Five laboratory reports of around 500 words each, due weekly (50%)
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:	Students will hone generic skills such as # Analytical thinking # IT and internet literacy # Teamwork # Presentation # Report writing skills