PHYC90012 General Relativity

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2010, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 36 hours comprising 3 one-hour lectures/week Total Time Commitment: 120
Prerequisites:	A third year subject in electrodynamics equivalent to 640-323 Electrodynamics (Advanced), 640-343 Electrodynamics or 640-383 Electrodynamics.
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 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 3 Disability Liaison Unit website: 4 http://www.services.unimelb.edu.au/disability/
Coordinator:	Dr Nicole Bell
Contact:	Email: n.bell@unimelb.edu.au
Subject Overview:	This subject provides an advanced introduction to Einstein's theory of general relativity. Specific topics may inlcude special relativity, manifolds and curvature, experimental tests, Einstein's equations, the Schwarzschild solution and black holes, weak fields and gravitational radiation. Examples will be drawn from particle physics, astrophysics and cosmology.
Objectives:	The objectives of this subject are: # to introduce the theoretical framework and experimental necessity of Einstein's theory of general relativity; # to understand the principles of general relativity and physics in curved spacetime; # to develop tools to enable the quantitative calculation of general relativistic effects; # to provide a foundation for more advanced studies of general relativity.
Assessment:	Two assignments totalling up to 36 pages of written work (20%), one due mid-semester and the other late-semester, plus a four-hour end-of-semester written examination (80%).
Prescribed Texts:	Nil.
Recommended Texts:	Nil.
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:	At the completion of this subject, students should have gained skills in: # analysing how to solve a problem by applying simple fundamental laws to more complicated situations; # applying abstract concepts to real-world situations;

	# participating as an effective member of a group in discussions and collaborative assignments; # managing time effectively in order to be prepared for group discussions and undertake the assignments and exam.
Related Course(s):	Master of Science (Physics)