

640-614 General Relativity

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Semester 1, - Taught on campus.
Time Commitment:	Contact Hours: 36 hours comprising 3 one-hour lectures/week Total Time Commitment: Not available
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:	<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:	Dr Nicole Bell
Subject Overview:	This subject provides an advanced introduction to Einstein's theory of general relativity. Specific topics may include 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:	<p>The objectives of this subject are:</p> <ul style="list-style-type: none"> # 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:	<p>At the completion of this subject, students should have gained skills in:</p> <ul style="list-style-type: none"> # analysing how to solve a problem by applying simple fundamental laws to more complicated situations;

	<ul style="list-style-type: none"># 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 Majors/Minors/ Specialisations:	R05 RP Master of Science - Physics