## PHYC90009 Physical Cosmology

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2010, Parkville
	This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 36 hours comprising 3 one-hour lectures/week Total Time Commitment: 120
Prerequisites:	This subject will assume a general familiarity with Physics at third year level.
Corequisites:	None.
Recommended Background Knowledge:	None.
Non Allowed Subjects:	None.
Core Participation Requirements:	It is University policy to take all reasonable steps to minimise the impact of disability upon academic study and reasonable steps will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact upon their participation are encouraged to discuss this with the subject coordinator and the Disability Liaison Unit.
Coordinator:	Dr Nicole Bell
Contact:	Email: n.bell@unimelb.edu.au
Subject Overview:	This subject provides an advanced introduction to physical cosmology. Specific topics may include the isotropic homogeneous Universe, the Robertson Walker metric, the Friedmann equations, baryogenesis, inflation, big-bang nucleosynthesis, the recombination era, density fluctuations as the origin of galaxies, the cosmic microwave background, linear and non-linear growth of structure, the Press-Schechter mass function, reionization of the IGM and gravitational lensing. Examples are drawn from past and current cosmological observations.
Objectives:	<ul> <li>The objectives of this subject are:</li> <li># to challenge the students to develop knowledge of fundamental physical principles governing the formation and evolution of structure in the Universe;</li> <li># to understand the connection between the microscopic properties of particles and the macroscopic evolution of the Universe;</li> <li># to introduce students to the problems facing contemporary research in cosmology;</li> <li># to appreciate the distinction between the evolution of baryonic and non-baryonic matter;</li> <li># to develop the skills required to interpret cosmological data.</li> </ul>
Assessment:	Three assignments totalling up to 36 pages (20%), spaced equally throughout the semester, plus one end-of-semester oral examination lasting up to an hour or one end-of-semester written examination lasting up to four hours (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:
	<ul> <li># analysing how to solve a problem by applying simple fundamental laws to more complicated situations;</li> <li># applying abstract concepts to real-world situations;</li> </ul>

	<ul> <li># solving relatively complicated problems using approximations;</li> <li># participating as an effective member of a group in discussions and collaborative assignments;</li> <li># managing time effectively in order to be prepared for group discussions and undertake the assignments and exam.</li> </ul>
Related Course(s):	Master of Science (Physics)