PHYC90009 Physical Cosmology

Credit Points:	12.5
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2015, 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: 170 hours
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:	Assoc Prof Jeffrey Mccallum
Contact:	Email: **msc@physics.unimelb.edu.au (mailto: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.
Learning Outcomes:	The objectives of this subject are: # to challenge the students to develop knowledge of fundamental physical principles governing the formation and evolution of structure in the Universe; # to understand the connection between the microscopic properties of particles and the macroscopic evolution of the Universe; # to introduce students to the problems facing contemporary research in cosmology; # to appreciate the distinction between the evolution of baryonic and non-baryonic matter; # to develop the skills required to interpret cosmological data.
Assessment:	Four assignments totalling up to 48 pages (40%), evenly spaced throughout the semester, plus one end-of-semester 45-minute oral examination or one end-of-semester 3-hour written examination (60%).
Prescribed Texts:	None
Recommended 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:	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; # solving relatively complicated problems using approximations; # 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)
Related Majors/Minors/ Specialisations:	Approved Masters level subjects from other departments Physics Physics