

## PHYC90009 Physical Cosmology

<b>Credit Points:</b>	12.50
<b>Level:</b>	9 (Graduate/Postgraduate)
<b>Dates &amp; Locations:</b>	This subject is not offered in 2014.
<b>Time Commitment:</b>	Contact Hours: 36 hours comprising 3 one-hour lectures/week Total Time Commitment: 120 hours
<b>Prerequisites:</b>	This subject will assume a general familiarity with Physics at third year level.
<b>Corequisites:</b>	None
<b>Recommended Background Knowledge:</b>	None
<b>Non Allowed Subjects:</b>	None
<b>Core Participation Requirements:</b>	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.
<b>Contact:</b>	Email: <a href="mailto:msc@physics.unimelb.edu.au">msc@physics.unimelb.edu.au</a> ( <a href="mailto:n.bell@unimelb.edu.au">mailto:n.bell@unimelb.edu.au</a> )
<b>Subject Overview:</b>	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.
<b>Learning Outcomes:</b>	<p>The objectives of this subject are:</p> <ul style="list-style-type: none"> <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>
<b>Assessment:</b>	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%).
<b>Prescribed Texts:</b>	None
<b>Recommended Texts:</b>	None
<b>Breadth Options:</b>	This subject is not available as a breadth subject.
<b>Fees Information:</b>	Subject EFTSL, Level, Discipline & Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a>
<b>Generic Skills:</b>	<p>At the completion of this subject, students should have gained skills in:</p> <ul style="list-style-type: none"> <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 style="list-style-type: none"><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>
<b>Related Course(s):</b>	Master of Science (Physics)
<b>Related Majors/Minors/ Specialisations:</b>	Physics