

# Physics

<b>Year and Campus:</b>	2015																											
<b>Coordinator:</b>	Assoc Prof Jeffrey McCallum																											
<b>Contact:</b>	Email: <a href="mailto:msc@physics.unimelb.edu.au">msc@physics.unimelb.edu.au</a> (mailto:msc@physics.unimelb.edu.au)																											
<b>Overview:</b>	The Postgraduate Diploma program in Physics is designed to allow students to further their study of physics on a broad front, provide a pathway for entry into graduate study in Physics, and to engage students in their own research by participation in the activities of a research group in the School of Physics (coursework+research option). Prior study in Physics to at least 2nd year university level is assumed.																											
<b>Learning Outcomes:</b>	<ul style="list-style-type: none"> <li># increase students' knowledge of physics on a broad front and to a professional level;</li> <li># analyse how to solve a problem by applying simple fundamental laws to more complicated situations;</li> <li># develop independent and critical thinking skills.</li> </ul>																											
<b>Structure &amp; Available Subjects:</b>	<p>The Physics program consists of a:</p> <ul style="list-style-type: none"> <li># Coursework+Research Option (Coursework = 50 points, Research Project = 50 points)</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li># Coursework (100%) Option (Coursework = 100 points).</li> </ul>																											
<b>Subject Options:</b>	<p><b>Coursework+Research Option</b></p> <p><b>COURSEWORK</b></p> <p>Students must select four subjects from the following list in consultation with the Program Coordinator:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Subject</th> <th style="text-align: left;">Study Period Commencement:</th> <th style="text-align: left;">Credit Points:</th> </tr> </thead> <tbody> <tr> <td>PHYC90007 Quantum Mechanics</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>PHYC90008 Quantum Field Theory</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>PHYC90012 General Relativity</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>PHYC90013 Condensed Matter Physics</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>PHYC90010 Statistical Mechanics</td> <td>Semester 1</td> <td>12.50</td> </tr> <tr> <td>PHYC90011 Particle Physics</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>PHYC90009 Physical Cosmology</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>PHYC90006 Quantum and Advanced Optics</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>Other approved subjects at 300-level or higher.</p> <p>-</p> <p><b>RESEARCH</b></p> <p>Content: An original, supervised research project (experimental and/or theoretical) in one of the School's current fields: astrophysics, condensed matter physics, optical physics, particle physics and quantum physics.</p> <p>Assessment: A written report on the research performed during the year. Preparation and delivery of a 15 minute talk to the School of Physics on the research work.</p>	Subject	Study Period Commencement:	Credit Points:	PHYC90007 Quantum Mechanics	Semester 1	12.50	PHYC90008 Quantum Field Theory	Semester 1	12.50	PHYC90012 General Relativity	Semester 1	12.50	PHYC90013 Condensed Matter Physics	Semester 2	12.50	PHYC90010 Statistical Mechanics	Semester 1	12.50	PHYC90011 Particle Physics	Semester 2	12.50	PHYC90009 Physical Cosmology	Semester 2	12.50	PHYC90006 Quantum and Advanced Optics	Semester 2	12.50
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Depending on the coursework subjects taken a student would normally enrol in a combination of Research Project subjects as indicated below to ensure they have completed 50 points by the end of the course.

Subject	Study Period Commencement:	Credit Points:
PHYC40004 Physics Research Project	Semester 1, Semester 2	12.50
PHYC40002 Physics Research Project	Semester 1, Semester 2	25
PHYC40007 Physics Research Project	Semester 1, Semester 2	37.50
PHYC40008 Physics Research Project	Semester 1, Semester 2	50

### Coursework (100%) Option

#### COURSEWORK

Students must select eight subjects from the following list in consultation with the Program Coordinator:

Subject	Study Period Commencement:	Credit Points:
PHYC90007 Quantum Mechanics	Semester 1	12.50
PHYC90008 Quantum Field Theory	Semester 1	12.50
PHYC90012 General Relativity	Semester 1	12.50
PHYC90013 Condensed Matter Physics	Semester 2	12.50
PHYC90010 Statistical Mechanics	Semester 1	12.50
PHYC90011 Particle Physics	Semester 2	12.50
PHYC90009 Physical Cosmology	Semester 2	12.50
PHYC90006 Quantum and Advanced Optics	Semester 2	12.50

Other approved subjects at 300 level or higher. A maximum of four 300 level subjects can be taken.

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<b>Links to further information:</b>	<a href="http://graduate.science.unimelb.edu.au/">http://graduate.science.unimelb.edu.au/</a>
<b>Notes:</b>	This program has a start-year and a mid-year intake.
<b>Related Course(s):</b>	Postgraduate Diploma in Science