

## MC-SCIPHY Master of Science (Physics)

<b>Year and Campus:</b>	2013																										
<b>CRICOS Code:</b>	062189B																										
<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>Level:</b>	Graduate/Postgraduate																										
<b>Duration &amp; Credit Points:</b>	200 credit points taken over 24 months																										
<b>Coordinator:</b>	Assoc Prof Jeff McCallum Email: <a href="mailto:msc@physics.unimelb.edu.au">msc@physics.unimelb.edu.au</a>																										
<b>Contact:</b>	<p><b>Melbourne Graduate School of Science</b>  Faculty of Science  The University of Melbourne  Tel: + 61 3 8344 6128  Fax: +61 3 8344 3351  Web: <a href="http://graduate.science.unimelb.edu.au">http://graduate.science.unimelb.edu.au</a> (<a href="http://graduate.science.unimelb.edu.au/">http://graduate.science.unimelb.edu.au/</a>)</p>																										
<b>Course Overview:</b>	<p>The Master of Science (Physics) is a coursework masters degree incorporating a substantial research project.  The Master of Science gives students the opportunity to undertake a substantive research project in a field of choice as well as a broad range of coursework subjects including a professional skills component, as a pathway to PhD study or to the workforce.</p>																										
<b>Objectives:</b>	<p>At the completion of this course, students should be able to:</p> <ul style="list-style-type: none"> <li># analyse how to solve a problem by applying simple fundamental laws to more complicated situations;</li> <li># apply abstract concepts to real-world situations;</li> <li># manage time effectively in order to be prepared for group discussions and undertake the assignments and examinations.</li> </ul>																										
<b>Course Structure &amp; Available Subjects:</b>	<p>The Master of Science - Physics program offers students an exciting array of topics designed to prepare students for a career as a professional physicist and beyond. Students must complete 200 pts comprising:</p> <ul style="list-style-type: none"> <li># Discipline Component subjects (87.5 points);</li> <li># Professional Skills subject (12.5 points);</li> <li># Research Project (100 points).</li> </ul>																										
<b>Subject Options:</b>	<p><b>Discipline Component</b>  Students must select seven of the following subjects:</p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>PHYC90007 Quantum Mechanics</td> <td>Not offered 2013</td> <td>12.50</td> </tr> <tr> <td>PHYC90008 Quantum Field Theory</td> <td>Not offered 2013</td> <td>12.50</td> </tr> <tr> <td>PHYC90012 General Relativity</td> <td>Not offered 2013</td> <td>12.50</td> </tr> <tr> <td>PHYC90010 Statistical Mechanics</td> <td>Not offered 2013</td> <td>12.50</td> </tr> <tr> <td>PHYC90009 Physical Cosmology</td> <td>Not offered 2013</td> <td>12.50</td> </tr> <tr> <td>PHYC90011 Particle Physics</td> <td>Not offered 2013</td> <td>12.50</td> </tr> <tr> <td>PHYC90013 Condensed Matter Physics</td> <td>Not offered 2013</td> <td>12.50</td> </tr> </tbody> </table>			Subject	Study Period Commencement:	Credit Points:	PHYC90007 Quantum Mechanics	Not offered 2013	12.50	PHYC90008 Quantum Field Theory	Not offered 2013	12.50	PHYC90012 General Relativity	Not offered 2013	12.50	PHYC90010 Statistical Mechanics	Not offered 2013	12.50	PHYC90009 Physical Cosmology	Not offered 2013	12.50	PHYC90011 Particle Physics	Not offered 2013	12.50	PHYC90013 Condensed Matter Physics	Not offered 2013	12.50
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PHYC90006 Quantum and Advanced Optics	Not offered 2013	12.50
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\*Students may substitute at most two approved subjects at 300 level or higher. It will be compulsory to take 300-level Statistical Physics or 300-level Electrodynamics if the student did not take these subjects (or their equivalent at another institution) during undergraduate studies. Please contact the Melbourne Graduate School of Science at [graduate-science@unimelb.edu.au](mailto:graduate-science@unimelb.edu.au) (mailto:graduate-science@unimelb.edu.au) for approval.

### Professional Skills

Students must take one of the following subjects:

Subject	Study Period Commencement:	Credit Points:
MAST90044 Thinking and Reasoning with Data	Not offered 2013	12.50
MAST90045 Systems Modelling and Simulation	Not offered 2013	12.50
SCIE90005 Ethics and Responsibility in Science	Not offered 2013	12.50
BUSA90403 Business Tools: Money People & Processes	Semester 2	12.50
MAST90007 Statistics for Research Workers	Not offered 2013	12.50
SCIE90012 Science Communication	Not offered 2013	12.50
SCIE90013 Communication for Research Scientists	Semester 1	12.50

### Research Project

Students will gain research experience in Physics by completing a 100 point Research Project comprising: a preliminary literature survey and research plan at the end of year one or after the student has enrolled in 25 points of Research Project (10 page limit of mixed text, diagrams and mathematical formulas; pass/fail); an oral presentation at the end of year one or after the student has enrolled in 25 points of Research Project (up to 20 min; pass/fail); a major thesis at the end of year two (50 page limit of mixed text, diagrams and mathematical formulas; 90% of final grade); an oral presentation at the end of year two (up to 30 min; 10% of final grade); and the completion of an advanced seminar in the relevant research area (pass/fail).

The research project will be taken over consecutive semesters and will begin on the Monday of the first semester of research project enrolment (semesters 1 or 2) (indicative for 2013: March 4 and July 29) and continue until the end of the final semester of research project enrolment. The research project work continues over summer and winter breaks, minus recreation leave of 4 weeks per year

For how long and at what time within the enrolment the actual period of leave is to be taken needs to be negotiated with a student's supervisor.

The thesis will be due for submission at the end of the formal examination period of the final semester of research project enrolment (usually fourth semester) if an earlier date is not specified.

Students may enrol in a combination of research project subjects and coursework subjects as long as once the Research Project is commenced, the consecutive enrolment requirement is met and to ensure they have completed a total of 100 points for the research project by the end of their course.

You must consult your supervisor to discuss an appropriate study plan prior to enrolling in your subjects online through the Student Portal. In particular, it is important that you agree an appropriate combination of research project points and coursework point enrolment each semester.

Subject	Study Period Commencement:	Credit Points:
PHYC90024 Research Project	Not offered 2013	12.50
PHYC90023 Research Project	Not offered 2013	25
PHYC90022 Research Project	Not offered 2013	37.50

	PHYC90021 Research Project	Semester 2	50
<b>Entry Requirements:</b>	<p>An undergraduate degree with a major in Physics, Mathematical Physics, Chemical Physics, Mathematics, Statistics, or Engineering with at least an H3 (65%) in the major, or equivalent, including Quantum Mechanics at both second-year and third-year university level. In addition, Electrodynamics and Statistical Physics at third-year university-level are recommended.</p> <p>Quotas may be applied and preference may be given to applicants with evidence of appropriate preparation or potential to undertake research. Entry is subject to the capacity of the School to provide adequate supervision in a research project appropriate to the interests and preparation of the individual student and may be subject to the agreement of a member of academic staff to supervise the project module. Selection is not automatic and, in particular, is subject to competition.</p>		
<b>Core Participation Requirements:</b>	<p>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 active and safe participation in a subject are encouraged to discuss this with the relevant subject coordinator and the Disability Liaison Unit.</p>		
<b>Further Study:</b>	<p>The Master of Science offers a pathway to a PhD.</p>		
<b>Graduate Attributes:</b>	<p>Graduates will: have the ability to demonstrate advanced independent critical enquiry, analysis and reflection; have a strong sense of intellectual integrity and the ethics of scholarship; have in-depth knowledge of their specialist discipline(s); reach a high level of achievement in writing, research or project activities, problem-solving and communication; be critical and creative thinkers, with an aptitude for continued self-directed learning; be able to examine critically, synthesise and evaluate knowledge across a broad range of disciplines; have a set of flexible and transferable skills for different types of employment; and be able to initiate and implement constructive change in their communities, including professions and workplaces.</p>		
<b>Links to further information:</b>	<p><a href="http://graduate.science.unimelb.edu.au/programs/msc/physics">http://graduate.science.unimelb.edu.au/programs/msc/physics</a></p>		