

## PHYC90021 Research Project

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| <b>Credit Points:</b>                    | 50   |
| <b>Level:</b>                            | 9 (Graduate/Postgraduate)  |
| <b>Dates &amp; Locations:</b>            | 2016, Parkville<br>This subject commences in the following study period/s:<br>Semester 1, Parkville - Taught on campus.<br>Semester 2, Parkville - Taught on campus.   |
| <b>Time Commitment:</b>                  | Contact Hours: Distribution of time between specific tasks will be decided in negotiation with the supervisor, but an overall weekly commitment of 40 hours per week, comprising seminars and research, is expected. Total Time Commitment: This subject is an individual research project and weekly contact hours will vary depending on the nature of the project. Students should discuss this with their supervisor but as a guide, a student enrolled in a 50 point research project subject would be expected to be engaged in their research for an average of forty hours per week. Students enrolled in a 37.5, 25 or 12.5 point research subject would be expected to be engaged in their research on a pro-rata basis.   |
| <b>Prerequisites:</b>                    | None   |
| <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. This subject requires all students to actively and safely participate in laboratory activities. 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>Coordinator:</b>                      | Assoc Prof Jeffrey McCallum  |
| <b>Contact:</b>                          | Email: <a href="mailto:msc@physics.unimelb.edu.au">msc@physics.unimelb.edu.au</a> ( <a href="mailto:msc@physics.unimelb.edu.au">mailto:msc@physics.unimelb.edu.au</a> )  |
| <b>Subject Overview:</b>                 | In this subject, students undertake a substantial program of original research in one of the many research fields in which the School of Physics is active and internationally recognised: astrophysics, condensed matter physics, optics, and particle physics. The research may be experimental and/or theoretical in nature. It will be conducted under the supervision of a member of the School's academic staff. The results will be reported in the form of a substantial thesis. In most instances, it is expected that the results will also be submitted for publication in a learned scientific journal. As part of their introduction to the research topic, students will be required to complete a seminar series and/or reading course providing advanced theoretical and/or practical training in the field. |
| <b>Learning Outcomes:</b>                | The objectives of this subject are: <ul style="list-style-type: none"> <li># to introduce students to the excitement and challenge of fundamental and applied research in physics;</li> <li># to challenge students to deepen their knowledge of fundamental physical principles by pushing outward the boundaries of knowledge;</li> <li># to complete a substantial piece of original research whose quality is sufficiently high that it is publishable in a leading international physics journal;</li> <li># to prepare students for further advanced research in physics, for example through doctoral studies.</li> </ul>   |

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| <b>Assessment:</b>                   | The assessment requirements below are applicable to the entire 100 point Research Project. 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 pages 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 minutes; pass/fail). Major thesis, comprising up to 50 pages of mixed text, diagrams, and mathematical formulas, due at the end of the second year of the MSc (90% of the final grade). An oral presentation lasting up to 30 minutes, given at the end of the second year of the MSc (10% of final grade). Successful completion of a seminar series and/or reading course (depending on the research stream) providing advanced theoretical and/or practical training, marked on a pass/fail basis. |
| <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>               | At the completion of this subject, students should have gained the ability to: <ul style="list-style-type: none"> <li># analyse how to solve a problem by applying fundamental laws to complicated situations;</li> <li># apply abstract ideas to real-world situations;</li> <li># participate as an effective member of a research team;</li> <li># develop excellent written and oral communication skills through writing a major thesis and presenting results in departmental seminars;</li> <li># manage time effectively;</li> <li># start to develop the capacity for fully independent research.</li> </ul>  |
| <b>Links to further information:</b> | <a href="http://graduate.science.unimelb.edu.au/programs/msc/physics">http://graduate.science.unimelb.edu.au/programs/msc/physics</a>  |
| <b>Related Course(s):</b>            | Master of Science (Physics)  |