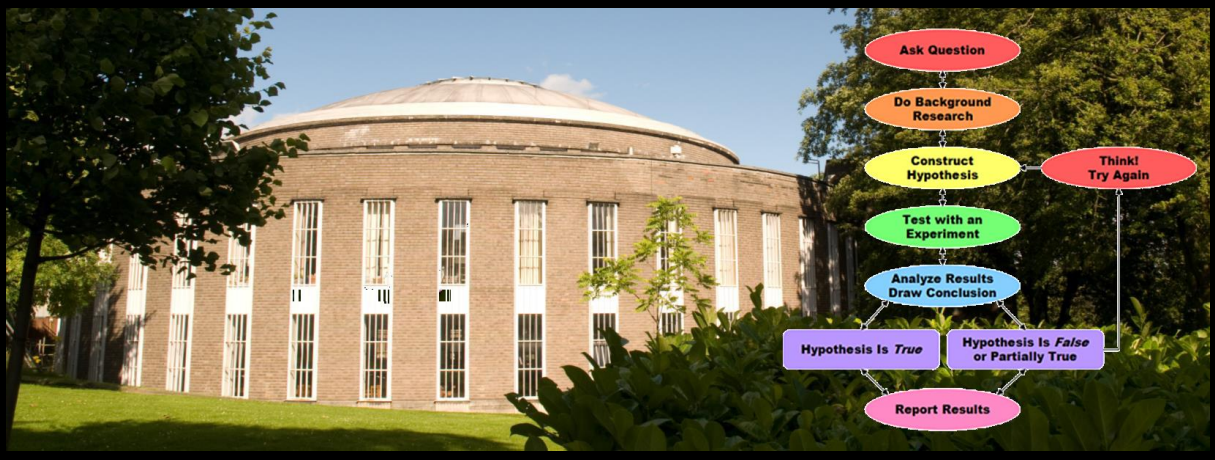
University of Glasgow | School of Physics & Astronomy



PHYS 5015 Research Skills

Academic Year 2023-24

Photo taken from Research Skills teaching materials

1 Course Details

PHYS5015 Research Skills is a 10-credit level 5 Physics Masters-level course. It is a core course for Physics and Astronomy MSc postgraduate degrees in Advanced Functional Materials, Advanced Imaging and Sensing, Astrophysics, Nuclear and Environmental Physics, Sensor and Imaging Systems and Theoretical Physics. It is designed to provide students with a solid preparation and foundation for scientific research and project work. The course encompasses a wide range of relevant topics, led by experts from across the University and from the School of Physics and Astronomy. Students will carry out a detailed literature review and there will be opportunities to develop and practice oral communication, research and report writing skills. Tuition is scheduled throughout Semester 1 with oral assessment held in the December examination period and report submissions due by the start of Semester 2.

Course leader:	Dr Johannes Courtial (Imaging Concepts Group) phas-rscoordinator@glasgow.ac.uk
Teaching staff:	Prof. Andy Buckley (MSc Programme Convenor) Prof. Craig Buttar (PGT Exam Board Chair) Katrina Gardner (CoSE Careers & Employability Manager) Prof. Andy Harvey (Leader Sensor and Imaging Systems MSc) Dr Bryan McKinnon (Nuclear & Hadron Physics Group) Dr Pedro Parreira (Astronomy & Physics Education Group) Scott Ramsay (Deputy Head of Student Learning Development (Sciences, Mathematics and Statistics)) James Rowe (University Effective Learning Advisor, LEADS) Dr David Sutherland (Particle Theory Group)
Time and place:	Normally Thursdays 13.00 - 15.00, James Watt South 375 (J15)
Course Materials:	Course notes, background reading and other teaching materials will be made available on Moodle.
Overlap with other courses:	This course has significant overlap with PHYS 5047P Literature Project. Students should not normally include both PHYS 5074P and PHYS 5015 in their MSc curriculum.

2 Assessment

The course will be assessed by an oral presentation (50%) and a research report (50%), both based on a literature research study.
The oral presentation will take place in the December examination period. It will be 7 minutes long, with added time for questions.
The report should be a detailed scientific review of approximately 1,500 words (not exceeding 2,000 words) which is due to be submitted on the first day of Semester 2.
The course provides 10 M-level credits.

3 Required Knowledge

Students are expected to have a general knowledge of physics and general science at a level corresponding to a BSc honours degree.

4 Intended Learning Outcomes

By the end of this course students will be able to demonstrate basic knowledge of a wide range of essential research skills, including scientific method, research attribution and critical thinking. They should be aware of, and know how to avoid, plagiarism, self-plagiarism and collusion. They should be able to write reports in their own words with suitable referencing as appropriate. Students should be able to discriminate between different types of information sources and demonstrate good communication skills, including both oral presentation and report writing skills.

5 Course Outline

This course covers the following topics:

- Introduction to research skills
- The scientific method
- Research attribution and plagiarism
- The application of critical thinking
- Orienting learning towards future careers
- How to conduct a literature review
- Choice of an appropriate research topic
- How to give a good oral presentation
- Writing skills (from both physics and more general perspectives)
- Time management during research
- Project management and teamwork

6 Moodle site

Communications regarding the organisation of the course and the distribution of teaching materials normally happen through the course Moodle site,