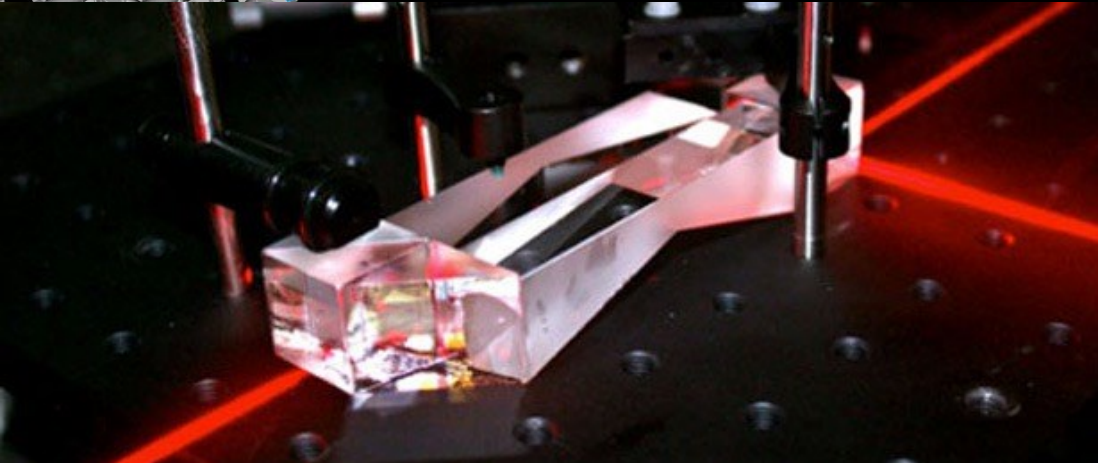
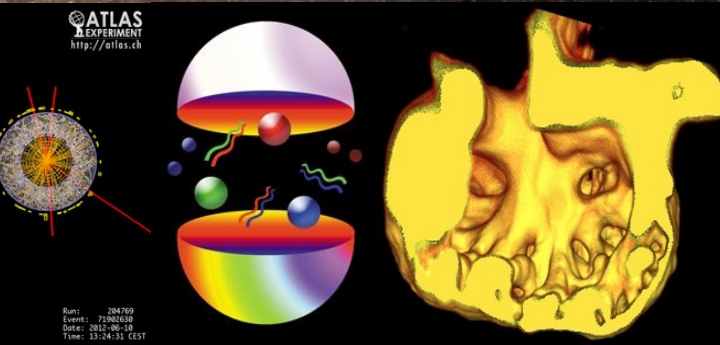
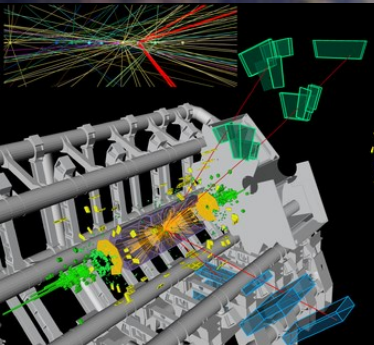
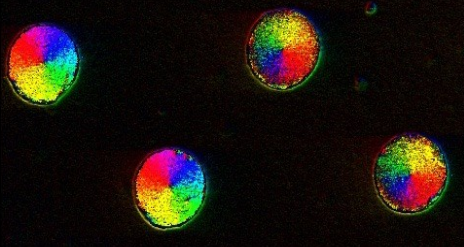
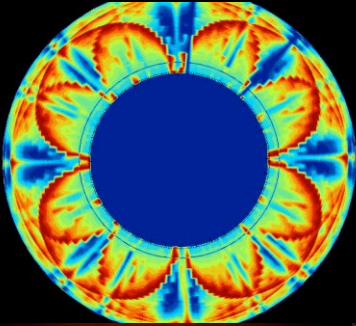




University of Glasgow | School of Physics & Astronomy



PLP4M Physics Literature Project (PHYS5047P) Course Information Guide

1. Conduct

We must all be committed to the fair and equal treatment of all students and staff. The diversity of our student body and staff, and the range of skills and viewpoints it ensures, is a cornerstone to the quality of our teaching and research. All staff and students must strive to work productively and professionally together in an atmosphere of mutual respect.

All staff and graduate students undertake equality and diversity training, our lab guides include a code of conduct for students, supplementing the University policy

<https://www.gla.ac.uk/myglasgow/senateoffice/studentcodes/staff/studentconductstaff/>, and we support the

University's Dignity at Work and Study policy

<https://www.gla.ac.uk/myglasgow/humanresources/equalitydiversity/dignityworkstudyover/>. Bullying, harassment,

or offensive language or behaviour will not be tolerated. You can find support from any member of the University family, but specific points of contact are your adviser of studies, Class Head or Lab Head, or the School's two appointed Equality and Diversity officers (Mrs Angela Eden and Prof Stephen McVitie). You may speak in confidence to any of the above.

2. Course Description

PLP4M Physics Literature Project (PHYS5047P) is a 20 credit Physics 4 compulsory project course for students undertaking the Physics, Theoretical Physics and Physics with Astrophysics MSci degrees and will normally not be offered for the following degree programmes:

BSc (Honours) Physics, BSc (Honours) Combined Physics, BSc (Honours) Chemical Physics, BSc (Honours) Physics with Astrophysics, BSc (Designated) Physics, BSc (Designated) Combined Physics, BSc (Designated) Physics with Astrophysics, MSci Combined Physics, MSci Chemical Physics, MSci Chemical Physics with Work Placement.

The course is coordinated by

- Dr Chris Bouchard (Room 537, Kelvin Building): chris.bouchard@glasgow.ac.uk, and
- Dr David Sutherland (Room 536, Kelvin Building): david.w.sutherland@glasgow.ac.uk.

Course aims:

To provide students with an opportunity to develop research skills by studying in depth a current research topic in physics. This will include an extensive literature search, a written review of the topic, and an oral presentation to a level appropriate for a professional physicist.

Implementation:

The literature review will be carried out within one of the School's research groups with supervision by an academic member of staff. Each student will write a report on the review carried out and will give a presentation of the review to peers and other members of staff.

The course will be carried out in semester 1, with 10 weeks of work culminating with the talk, and three additional weeks to finalise the report.

2. Intended Learning Outcomes

By the end of this course students will be able to demonstrate a knowledge and broad understanding of a current research topic in physics. They should be able to: carry out an extensive literature search using the relevant databases for the research topic; critically evaluate the state of the art in the research field; analyse and interpret research results based on the literature investigation; summarise the research information in a clear and properly structured review in the form of a written report; perform a critical analysis of the potential of this field for future research; and give a brief presentation in front of their peers and academic members of staff on the literature review carried out.

This course meets the project needs of 4th year MSci students and covers research-skills in written and oral communication skills, in critical engagement with scientific literature, and specific skills in writing scientific papers. This course will cover the attributes required of a professional physicist and will prepare the students for the final MSci Research Project to be carried out in 5th year.

3. Assessment and Feedback

The assessment shall be carried out by the submission of a written report, covering an advanced research topic in Physics and/or Astronomy, and an oral presentation of 10 minutes (8 minutes for presentation and 2 minutes for questions). The assessment will be based on the quality of the research summary, demonstration of knowledge of the subject and the quality of the research report and oral presentation:

- 40% of the assessment will be determined by the supervisor, based on interactions with the student over the course of the semester;
- 40% of the assessment will be determined by an independent assessment of the written report;
- 20% of the assessment will be determined by two academics that will mark the quality of the oral presentation.

The criteria for assessment and the mark sheets used can be found in the appendix.

Furthermore, the students have to attend two compulsory workshops, offered at the beginning of the first semester

1. Scientific Writing Skills, at the beginning of the first semester (week 2). This workshop will describe the scientific writing process, how to structure a report, how to use references, how to avoid plagiarism and will provide examples of good practice in writing scientific reports.
2. Scientific Literature Database Searches, in the first semester, after the Scientific Writing Skills workshop (week 3). This will be a hands-on, practical workshop on how to cite papers within scientific reports and the use of scientific databases to search the scientific literature for papers relevant to a topic. The workshop will be specifically focused on databases for Physics and Astronomy and you will carry out practical exercises on how to perform these searches.

Feedback for the oral presentation will be provided within two weeks following the presentations. Feedback from supervisors and feedback for the written report will be provided following the finalization of grades for the course in June.

3.1 Written Report

A template for the report is provided on the course Moodle page in both LaTeX (preferred) and MS Word formats. Students should use one of these templates when writing their report. The report should be approximately 20 pages in length and should not exceed 25 pages (including references).

There is no detailed requirement for the number of references to be used in the report. Generally speaking, 10 or less is probably too few and over 60 is probably too many. Use your best judgement.

The first page of the report should include an abstract summarizing the main findings. Published guidance for abstract length varies, but generally yours should be between 100 and 300 words. It is also good practice to let the reader know how the report is organized, either via a dedicated section or as a paragraph in the introduction. It is also expected to summarize the findings of the review at the end of the report, typically in a dedicated section.

It is common practice in a literature review to use images from other sources, with proper attribution. However, if a figure can easily be remade then you should create your own. An example of where this would be appropriate is a simple plot of data that is provided. In this case, you should make your own plot and cite the paper for providing the data, e.g., "Plot created using data from [1]." Ensure any text in figures is large enough to be read. A good rule of

thumb is that the font size in figures should match that of the text. It is also good practice to place figures and tables at the top or bottom of the page to reduce interruption to the flow of the text.

A very important aspect of your report is the correct attribution of content, images, data in plots, etc. Anything that is not original should be attributed via a citation. Avoiding both intentional and unintended plagiarism is an important aspect of the course and will be covered in detail in the workshops. See Section 5 below for more information.

The use of ChatGPT, or other AI tools, to help with aspects of the report is fine. Know, however, that without subject matter expertise to guide the tools and correct the output, the result is a likely a low mark. These tools are quite poor at providing proper references and are also bad about making statements that sound reasonable to someone who is not a subject matter expert, but are false. They are tools to be used and they can be helpful, but without subject matter expertise and close supervision, the output is unreliable. We will discuss the use of AI tools in the second workshop and review current University guidance and policies.

3.2 Oral Presentation

You will give an oral presentation to fellow students and members of academic staff that summarizes your literature review. The date, time, and location of the presentation will be provided closer to the date. Presentations should be “8+2 mins”, which means 8 minutes for the presentation plus 2 minutes allowed at the end for questions.

You will upload your presentation slides (preferably in pdf format) to Moodle in advance of the presentation.

Some key points to keep in mind when preparing your presentation include:

- * Attribution of content, images, etc. should be provided in your slides just as in the report.
- * The title slide should include, at a minimum, your name and the project title.
- * It is good practice to include an outline slide near the beginning to signpost to the audience what you will be speaking about, and to include a summary slide near the end to remind them what you just talked about.
- * Slides should be numbered to permit audience members to easily point to specific parts of the talk during the questions.
- * Generally speaking, you should only have information on a slide that can easily be digested during the time you have the slide visible to the audience. This means the audience should be able to read all the text and attempt to understand all equations, plots, and figures you have on the slide. A good rule of thumb is one slide per minute.

4. Details of the course and timetable

The students will create an ordered list of research group preferences that will be uploaded to Moodle. Allocations of students to research groups will be completed at the end of the first week of the semester (week 1). Topics will be chosen in coordination with the research group. **All students will carry out the Physics Literature Project in semester 1 and it is compulsory for all students to attend the two workshops in weeks 2 and 3.** Attendance will be monitored.

Groups of students will be assigned to research groups and there will likely be group work involved in each topic, but each student shall take on a different aspect of the research topic. Each group will be supervised by one or more academics on the chosen topic and should meet regularly to monitor progress throughout the semester. Each student will perform their research individually and each will submit a separate report and give their presentation individually. **It is extremely important that students do not copy the work of their fellow students and that they do not copy material from original sources without attributing its origin. This constitutes plagiarism and is a form of academic fraud. The definition of plagiarism and its penalties are detailed in section 5.**

This is a summary of the Physics Literature Project timetable. The numbering of weeks is with respect to the first week of the academic year, ie. week 1 is the week classes begin:

1. Week 1: Assignment of students to research groups by Friday.
2. Week 2: Physics Literature Projects begin.
3. Week 2: First workshop “**Scientific Writing Skills**”. The day, time, and location of the workshop will be provided.
4. Week 3: Second workshop “**Scientific Literature Database Searches**”. The day, time, and location of the workshop will be provided.
5. Week 10: Students will give oral presentations. Detailed timetables will be provided closer to the dates.
6. Week 13: Submission of all project reports by Friday of this week.

5. Plagiarism

Plagiarism is a form of academic misconduct that will not be tolerated. The University of Glasgow Student Learning Service has a resource on plagiarism to help you understand what it is and how to avoid it, which can be found in:

<https://www.gla.ac.uk/myglasgow/leads/students/plagiarism/>

which defines plagiarism as

“The incorporation of material without formal and proper acknowledgement (even with no deliberate intent to cheat) can constitute plagiarism. Work may be considered to be plagiarised if it consists of: a direct quotation; a close paraphrase; an unacknowledged summary of a source; direct copying or transcription.”

The senate office policy related to plagiarism is:

<https://www.gla.ac.uk/myglasgow/senateoffice/policies/uniregs/regulations2019-20/feesandgeneral/studentssupportandconductmatters/reg32/>

You should read the entire regulation (it’s not very long). Some interesting bits include:

“Special cases of plagiarism can arise from a student using their own previous work (termed auto-plagiarism or self-plagiarism). Self-plagiarism includes using work that has already been submitted for assessment at this University or for any other academic award.”

“The incorporation of material without formal and proper acknowledgement (even with no deliberate intent to cheat) can constitute plagiarism. Work may be considered to be plagiarised if it consists of:

- a direct quotation;
- a close paraphrase;
- an unacknowledged summary of a source;
- direct copying or transcription.”

When in doubt, please consult your supervisor or the Physics Literature Project coordinators. If there is suspicion of plagiarism in the Physics Literature Report, we shall follow the guidelines and penalties recommended by the university:

<https://www.gla.ac.uk/myglasgow/senateoffice/studentcodes/staff/plagiarism/>

To avoid plagiarism, always write in your own words and cite the provenance of original material, such as figures or diagrams (for example with the following phrase in the caption: Figure taken from reference [X], © American Physical Society).

Appendix: Marking Sheets

Following are the marking sheets with verbal descriptors for each grade band. These should be useful in providing you guidance on what is expected. If you have questions about the verbal descriptors, please ask. Note that, in addition to filled out marking sheets, you will also receive feedback from your assessors.

Project Presentation Mark Sheet

Grade range (highest to lowest)	A1,A2,A3,A4,A5 (22-18)	B1,B2,B3 (17-15)	C1,C2,C3 (14-12)	D1,D2,D3 (11-9)	E1,E2,E3 (8-6)	F1,F2,F3 (5-3)	G1,G2,G3,H (<3)	Grade
Descriptor	<i>Excellent</i>	<i>Very Good</i>	<i>Good</i>	<i>Satisfactory</i>	<i>Weak</i>	<i>Poor</i>	<i>G: Very Poor H: No attainment</i>	
Delivery	Confident, clear and unhesitating delivery. Held attention of audience. Easy to follow arguments.	Was confident but perhaps a few minor flaws (such as hesitation, talking too fast etc).	Lacking in confidence or possibly not speaking quite clearly enough.	Overall a reasonable delivery but there were issues regarding clarity, or fluency.	A hesitant or unclear delivery made understanding the presentation difficult.	Hesitant, unclear, monotonous, hard to maintain attention. Difficult to follow argument.	No fluency or clarity. Too many basic errors, e.g. mumbling or talking to screen	
Slides	Exceptionally clear slides. Simple design, large enough font, not too much material on slides. A professional quality presentation.	Clear slides but perhaps the occasional flaw (font size, colour scheme etc) but overall impressive presentation.	There may be a few errors, but overall still clear and flaws do not detract significantly from content.	Consistent errors on many slides but not of a significant nature. A reasonable effort but flaws have detracted from presentation.	Significantly flawed slides. Basic errors such as small font size, too much content on slides, over-elaborate design.	Not only are slides poor, but they make it difficult to follow argument.	Very poor slides, basic errors on every slide. Impossible to follow technical argument.	
Technical Content	There is a good quantity of high level technical content. All figures, data, quotes, etc. attributed.	Overall, content is sufficient to give audience clear account of a challenging technical task. Adequate attribution of figures, data, quotes, etc.	Good level of technical content with only small amount of superfluous information. Adequate attribution of figures, data, quotes, etc.	Some irrelevant material, but overall technical content is satisfactory. Adequate attribution of figures, data, quotes, etc.	Limited technical content with too much general background information. Limited attribution of figures, data, quotes, etc.	Technical content is relatively low in terms of level and quantity. Limited attribution of figures, data, quotes, etc.	Superfluous or possibly no relevant technical content evident. No figures, data, quotes, etc. attributed.	
Structure/ Layout	Structure of the presentation makes understanding the technical arguments exceptionally clear.	A very well structured presentation with everything where it should be to provide clarity.	Overall a well structured presentation but perhaps one or two slides are misplaced.	Some elements of the presentation are not clear as the structure is slightly confused.	A badly structured presentation giving a confused picture of the project making it difficult to follow arguments.	Although there is some structure to the presentation it is very confused and it is almost impossible to follow.	No discernible attempt at a logical structure.	
Response to Questions	Answered all questions clearly and confidently. Gave the impression of having an excellent grasp of the subject.	Answered all questions competently. Has clearly developed a very good understanding of subject.	Answered most questions well enough to conclude that the student has a developed a good understanding of subject.	Gave some good answers but also some poor ones. Evidence of reasonable understanding of subject.	Answered the majority of the questions poorly suggesting a lack of knowledge in the subject.	Gave some superficial answers but appears to have very little understanding of the subject.	Unable to give any sort of competent answer to any question.	

Student Name:

Project Title:

Academic Markers:

Report Mark Sheet

Grade range (highest to lowest)	A1,A2,A3,A4,A5 (22-18)	B1,B2,B3 (17-15)	C1,C2,C3 (14-12)	D1,D2,D3 (11-9)	E1,E2,E3 (8-6)	F1,F2,F3 (5-3)	G1,G2,G3,H (<3)	Grade Awarded
Descriptor	Excellent	Very Good	Good	Satisfactory	Weak	Poor	G: Very Poor H: No attainment	
Writing	Exceptionally clear, precise and concise English. Excellent spelling & grammar, few typos.	Clear and well written, easy to understand, and mostly free of errors.	Most of the text is clear and easily understood. There are some issues with grammar and spelling.	The text can be understood but some elements are not entirely clear. A sizeable volume of errors is noticeable.	Hard to understand much of the text. Significant spelling errors and grammatical flaws.	The volume and nature to the grammatical errors, combined with poor writing makes this report difficult to read.	Unintelligible. Impossible to read due to exceptionally poor use of English.	
Presentation and Figures	Professional standard of presentation. All illustrations are well formatted and presented. Appropriate attribution of all unoriginal figures.	A clear and consistent presentation style making it easy to read. Most of the figures are clear and well presented. Appropriate attribution of all unoriginal figures.	There are some minor flaws in the presentation and the clarity of the figures, but overall a well-presented report. Appropriate attribution of all unoriginal figures.	A number of basic errors present – inconsistent use of styles, margins etc. Figures are satisfactory. Appropriate attribution of all unoriginal figures.	Significant flaws in the presentation, detracting from the overall impression of the report. Flawed figures – badly drawn and untidy. Some ambiguous or incomplete referencing of unoriginal figures.	Unacceptable presentation: untidy and inconsistent use of styles. Figures are messy and unclear. Many ambiguous or incomplete references for unoriginal figures.	A messy report – no evidence of any effective effort on the quality of the presentation. Report is hard to follow due to unclear figures. Missing attribution for unoriginal figures.	
Organisation and Structure	Structure is entirely correct with all sections correctly placed. Reading contents gives clear overview.	A well organised report with all sections logically placed enhancing understanding of work.	A report which is sufficiently well organised to make reading report easy.	There may be some issues with the structure, but these don't detract from overall quality.	There are flaws in the way the report is structured which damages the overall quality of the report.	Serious flaws in structure which makes it difficult to read and understand the report.	No discernable structure. Illogical placement of sections. Impossible to follow argument.	
Technical Content	Well informed and authoritative discussion of a significantly complex technical problem. Excellent breadth and depth of knowledge.	Clear and reasoned arguments indicating very good grasp of difficult technical problem.	Arguments presented are of a reasonable technical level, and have been well considered and clearly stated.	The arguments presented are of reasonable technical depth and show a satisfactory understanding.	Only limited critical discussion of the technical problem studied. Suggests limited understanding of problem	Very little evidence of critical discussion of technical work or results. Superficial understanding of problem.	The lack of quality of the technical argument suggests the student has very little understanding of the problem.	
References	Exemplary range of references indicating comprehensive background reading. All references consistently and appropriately formatted.	An appropriate range of relevant references suggesting substantial background reading. Almost all references consistently and appropriately formatted.	Sufficient references to indicate a good level of background reading. Most references consistently and appropriately formatted.	Perhaps just enough references to suggest some background reading was undertaken. Too many unpublished references. Majority of references consistently and appropriately formatted.	Too few relevant references and possibly an over reliance on unpublished sources indicating insufficient background work. Minority of references consistently and appropriately formatted.	Only a few references and majority are irrelevant. Little evidence of background reading. Very few references consistently and appropriately formatted.	Very few (or no) references. No evidence of any background reading. Complete lack of consistent or appropriate format.	

Project title:

Student number:

Academic Marker:

Signature:

Project Mark Sheet

(to be filled by the academic supervisor)

Grade range (highest to lowest)	A1,A2,A3,A4,A5 (22-18)	B1,B2,B3 (17-15)	C1,C2,C3 (14-12)	D1,D2,D3 (11-9)	E1,E2,E3 (8-6)	F1,F2,F3 (5-3)	G1,G2,G3,H (<3)	Grade Awarded
Descriptor	<i>Excellent</i>	<i>Very Good</i>	<i>Good</i>	<i>Satisfactory</i>	<i>Weak</i>	<i>Poor</i>	<i>G: Very Poor H: No attainment</i>	
Planning	High-quality planning, made excellent use of time and resources.	Very well-planned project, only occasional evidence of deficiencies.	Mostly project was well planned but some deficiencies observed.	Planning was satisfactory generally, but could have been better in some areas.	Poor planning often tending to inefficient use of time and resource.	An unorganised project often lacking focus and direction.	Little or no evidence of any planning.	
Initiative	Made major input to the content and direction of the work; took ownership of the project.	Regularly overcame problems with minimum reliance on supervisor.	Showed moderate levels of initiative by occasionally contributing to project direction.	Overall student required regular assistance and seldom provided any contribution to project.	Student required regular and substantial assistance from supervisor to remain on track.	Student relied heavily on supervisor and contributed little to the project.	Student contributed nothing to the project.	
Professional Conduct	Student integrated fully into the project group and articulated complex ideas based on the literature survey.	Student worked well within the project group and developed good quality ideas based on the literature survey.	Student did not integrate but still functioned well within the project group with adequate ideas based on the literature survey.	Only superficial interaction with project group and this compromised the literature survey.	Student did not integrate into project group and had difficulty carrying out the literature survey.	Student found operating in project group challenging and achieved very little in the literature survey.	Student struggled to operate in project group and struggled to carry out literature survey.	
Technical Quality of Work (based on meetings with student)	Excellent critical analysis of literature with a rigorous treatment of the subject.	Really good quality analysis of literature of a very high standard for an undergraduate.	Competent analysis of literature but perhaps with insufficient insight.	Reasonable analysis of literature one might expect from an average undergraduate.	Some signs of reasonable literature survey but overall attainment is very modest.	Very little evidence that literature survey is at Honours level.	No literature survey output of any value.	

Project title:

Student name:

Academic Marker:

Signature: