University of Glasgow | School of Physics & Astronomy

P422H Peer to Peer Teaching & Learning in Physics (PHYS4045)

Course Information Guide 2023-24

The Peer to Peer Teaching & Learning in Physics (P2PT&LIP) course is an elective course for students on Physics Honours degrees, normally taken in year 4 or 5. It is intended for students considering a career in teaching, or simply interested in broadening their skills-base. Focussing on the use of peer tutors in the teaching of level 1 and 2 physics students, the course focuses on the theory and practice of peer-led teaching and learning in higher education.

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1 Welcome statement from Head of School

As the Head of School of Physics and Astronomy, I would like to welcome you to your new class. The School prides itself in providing an excellent and supportive learning and teaching environment that is fully integrated with our research; you will have the opportunity to interact with world-leading researchers working at the cutting edge of a wide range of fields of physics and astronomy, who are tackling some of the biggest contemporary challenges in science and technology.

Having said that, this year is going to be “interesting” to say the least, due to the uncertainties caused by the coronavirus pandemic. We will all be in learning mode this year. Staff will be undertaking a great deal of work in preparing teaching materials to be used in a blended learning approach that is flexible enough to work in different scenarios. We are confident that the current challenges present us with opportunities to re-evaluate and improve how we learn and teach, and for this you will play a critical role. I ask that you not only bear with us in these extraordinary circumstances, but engage with us through any of the available communication channels in letting us know what works and what does not.

One thing that will not change is the School’s firm commitment to supporting equally the careers and development of all its students and staff, as exemplified by our receipt of an Athena Swan Silver award. We value the diversity of our student body and recognise that this diversity improves the quality of our work by bringing a wide range of skills and viewpoints. We therefore expect that all staff and students will work productively and professionally together in an atmosphere of mutual respect.

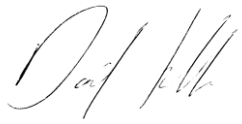
To support this, all our staff and graduate students undertake equality and diversity training, our lab guides include a code of conduct for students, supplementing the University code[1], and we support the University's Dignity at Work and Study policy[2]. You can be assured that any instances of bullying, harassment, or offensive language or behaviour will be both taken seriously by the School and treated with sensitivity. Points of support for students are your adviser of studies, your Class Head and Lab Head, and in addition the School has two appointed Equality and Diversity offices, to whom students may speak in confidence.

I wish you success with your current and future studies.

[1] https://www.gla.ac.uk/myglasgow/senateoffice/studentcodes/studentconductstaff/

[2] https://www.gla.ac.uk/myglasgow/humanresources/equalitydiversity/dignityworkstudyover/

Best wishes



Professor David Ireland

Head of School

2 General Information and Introduction

The Peer to Peer Teaching & Learning in Physics (P2PT&LIP) course is an elective course for students on Physics Honours degrees, normally taken in year 4 or 5. It is intended for students considering a career in teaching, or simply interested in broadening their skills-base. Focussing on the use of peer tutors in the teaching of level 1 and 2 physics students, the course focuses on the theory and practice of peer-led teaching and learning in higher education.

The course consists of six lectures focussing on the theory underlying peer-led teaching and learning, followed by a series of sessions where the participants act as tutors to students in years 1 and 2 of physics degrees.

There is no formal degree examination for this course. Assessment is by means of work carried out through the year. Full details can be found in Section 3.3.

2.1 Communication

All information about the class will be communicated via the P2PT&LIP Moodle site, or by direct emails to students from the course organiser. **You will automatically be registered for access to the P1 Moodle site.**

2.2 Contacts

Course Organiser:	Dr Peter H. Sneddon Room 251a, Tel 0141 330 5312 email: peter.sneddon@glasgow.ac.uk

2.3 Course availability

The course is open to students on the following degrees, either at MSci or BSc Hons:

- Physics
- Theoretical Physics
- Physics with Astrophysics
- Chemical Physics
- Astronomy & Physics

The course is normally taken in year 4 or 5 of a student's degree – depending on which degree the student is studying, only one year may be available

3 Course details

3.1 Intended Learning Outcomes

The broad aims of the course are:

- To introduce and explore the theory of peer-led teaching and learning in higher education
- To explore the practice of peer-led teaching in the context of Level 1 and Level 2 Physics tutorials

By the end of this course students will be able to:

- Explain the principles of peer assisted learning in Higher Education
- Demonstrate how to act effectively as a tutor in Higher Education
- Demonstrate how to perform a literature review in the field of physics education research
- Demonstrate how to give, and receive, effective formative feedback
- Demonstrate how to reflect effectively on their own teaching performance

3.2 Typical course timetable

The lectures for this course run on Tuesdays from 0900-1000 in weeks 1 – 6 of Semester 1. The tutorials that students then take part on are spread throughout semesters 1 and 2. Students will typically take part in ~ 10 tutoring sessions.

The tutoring sessions fall into three categories:

- Dedicated Peer To Peer tutorials where students are the only tutors on duty – these run in Physics 1 and Physics 2.
- Physics 1 Tutorials where students work alongside a member of staff during.
- Astronomy 1 Tutorials where students work alongside a member of staff during

For each tutorial a student is assigned to, they will be provided questions and solutions to look over and prepare ahead of the tutorial sessions. These are drawn from a variety of sources, including textbooks and past papers. For each tutorial, it is assumed students put in a minimum of one hour's preparation.

Please note that lecture recordings, if available, and ALL course materials provided are for your own personal use and can only be used in relation to your studies. Any unauthorised distribution of course materials, including uploading them onto unauthorised web sites and social media sites, such as YouTube or Course Hero, will be considered in breach of the code of conduct and will be subject to disciplinary action.

3.3 Assessment

Formative:

- *Peer observation* – each tutor will spend one of their tutorials acting as an observer of the other tutors. They will then present their observations as formal feedback to their peers. How the observed tutors act will not form part of the formal assessment – rather it is how they then respond to that feedback that is assessed as part of the formal report – see below.

Summative:

- *A PAL-based literature review essay* – all students will be given a set reading list of relevant papers/books and expected to identify additional publications relevant to the specific topic to address in their essay.

- *A reflective journal* – akin to a lab book, maintained throughout the year, with a record of their experiences within each tutorial.

- *Final report* – akin to a laboratory report, students will write up a final report at the completion of their tutoring. This will collect together their experiences. Students will be expected to reflect in detail on their work, and in particular respond to the feedback they received from their observed tutorial.

Assessment deadlines and weighting:

Component	Deadline	Weighting
Literature review	End of Week 1, Semester 2	30 %
Reflective journal	After end of Semester 2	30 %
Final report	After end of Semester 2	40 %

In accordance with the School of Physics & Astronomy's feedback and assessment policy, students will normally receive the results of their assessments within 15 working days of submission. The Course Organiser will give exact submission deadlines during the year.

Full details of assessment criteria can be found in section 4.

4 Assessment criteria

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Literature review essay

Summary:

- This essay accounts for 30 % of your final grade for the course.
- It should be 1500 ($\pm$ 200) words long.
- Literature reviews do not need abstracts.

The question to answer:

- To be confirmed.

Criteria:

- Your essay will be assessed against the following criteria. You should take this into consideration when constructing and writing your essay. Whilst the exact number of references/sources used is up to you, you should aim to identify and use something in the region of 10-15 references. This can include those provided on the course Moodle site. The Reference List is not included in the word count, though the "in text" reference tags are.

Marking criteria	Detail
Clear aims outlined and achieved	▪ The aim(s) of the literature review are clearly stated in a detailed fashion. ▪ The aim(s) are appropriate for the question set. ▪ The aim(s) are achieved in the review that follows, wrapped up clearly in the final conclusions/discussions. ▪ The aim(s) relate to what follows in the main body of the review.
Logical structure	▪ Review has an overall logical structure within the context of answering the set question. ▪ Paragraphs should flow sensibly from one to another. ▪ Within paragraphs, clear structure should be applied, containing: topics sentence, a claim, some evidence supporting/refuting that claim, a conclusive sentence and something that links the paragraph to the next.

Critical approach to analysis of the literature	▪ The literature should not just be taken at face value and presented as facts. ▪ You should comment on the literature, comparing it both with other sources you have identified and your own experiences, where relevant. ▪ There should be evidence of having used a critical and questioning stance in exploring, processing and distilling the key points from the literature. ▪ Individual papers should be critiqued. ▪ Draws relevant conclusions from analysing the literature.
Justification to support arguments	▪ Contains well-constructed argument(s). ▪ Offers clear explanations and uses the literature well to offer support for claims. ▪ Personal experience can be used to justify claims, but only in tandem with published evidence.
Presentation of work and referencing	▪ Clearly presented. ▪ Well proof-read and edited. ▪ Contains a reasonable number and breadth of references. ▪ All referencing is accurate and follows the Harvard guidelines. ▪ Within word limit

Harvard referencing system:

- In the Harvard alphabetical system the name of the author appears in the text together with the year of publication, e.g. (Smith 2001) or Smith (2001) (as appropriate).
- Where there are only two authors both names should be given in the text (Smith and Jones 2001) or Smith and Jones (2001); however, if there are more than two authors only the first name should appear followed by et al, (Smith et al 2001) or Smith et al (2001).
- If you refer to different works by one author or group of authors in the same year they should be differentiated by including a, b, etc after the date (e.g. 2001a). If you refer to different pages of the same article, the page number may be given in the text, e.g. Smith (2001, p 39. Similarly, if you include a direct quote from a reference, you should include the specific page reference in the text, e.g. Smith (2001, p 39)

- The reference list at the end of your article using this system should be in alphabetical order.

Some examples of Harvard style reference list entries:

Ref type	*Ref as it appears in text*	*Ref as appears in ref list*
A book	(Boud et al, 2001)	Boud, D., Cohen, R. & Sampson, J. (2001). *Peer Learning in Higher Education*, Kogan Page Limited, London.
A journal paper	(Sneddon et al, 2009).	Sneddon, P.H., Slaughter, K.A., and Reid, N. (2009). Perceptions, views and opinions of university students about physics learning during practical work at school. *European Journal of Physics*, 30, 1119-1129.
A website	(University of St Andrews, 2020).	University of St Andrews (2020), Physics and Astronomy Undergraduate Entry Rates, http://www.st-andrews.ac.uk/physics/pandaweb/admiss/ugadmiss.htm , date accessed 17/03/20

Deadline:

- You should submit your literature review, electronically as a pdf file, via the dedicated link on the course Moodle site by **1600 on Friday of Week 1, Semester 2**.
- The submitted file should have a filename in the form: IDNUMBER_LITREV.pdf

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Reflective journal

Summary:

- This journal accounts for 30 % of your final grade for the course.
- There is no specific length for this, nor strict format, but be aware that it is very difficult to demonstrate critical reflection is very short, terse pieces of text. Conversely, excessively long journal entries may indicate a lack of focus. Although your reflections require some narrative in order to explain what happened you will need to go beyond the "what" to the "how" and the "why". You should reflect on all tutorials that you take part in. The journal can take the form of a hand-written lab-book or an electronic record if you prefer. It is not a formal report though – it should represent your thoughts and reflections as they are at the time of the tutorials.

Criteria:

- Your journal will be assessed against the following criteria, based on the framework published by Hatton & Smith (1995). These criteria are summarised below. You may find it useful to use the framework of Johns & Graham (1996) to help try to determine where on the Hatton & Smith scale you are.

Grade range	Equivalent reflection level	Detail
A1 → A5	Critical reflection	Journal shows consistent consideration of broader historical, social and/or political contexts
B1 → B3	Dialogic reflection	Journal shows continued discourse with self; exploration of the situation
C1 → C3	Descriptive reflection	Journal contains a description of events with reasons/recognition of alternate viewpoints
D1 → D3	Descriptive writing	There is no reflection, just a description of events without reasons or justifications

E1→H	NA	Journal is missing entries for significant proportions of the tutorials attended, without good cause.

Submission deadline:

- Journal should be submitted to Dr Peter H. Sneddon via the dedicated link on the course Moodle site by **1600 on the first Wednesday after the end of Week 11 in Semester 2**. Late submission will be subject to a 10 % reduction in grade per working day late.
- The submitted file should have a filename in the form: IDNUMBER_JOURNAL.pdf

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Final report

Summary:

- This report accounts for 40 % of your final grade for the course.
- It should be 1500 ($\pm$ 200) words long.

The purpose of the report:

- Your final report collects together your experiences. You are expected to reflect in detail on your work, and in particular respond to the feedback you received from your observed tutorial. Where your journal contains your thoughts as the year unfolded, the report is your opportunity to reflect on the year as a whole. You do not need to include references to the published literature. If, though, you find that your experiences tie in with the papers you read, or indeed run contrary to what you read, you can make those connections. If you do so, remember to use the correct referencing system that was detailed below. It can be written in the first or third person depending on your preference.

Criteria:

- Your report will be assessed against the following criteria. You should take this into consideration when constructing and writing your report.

Marking criteria	Detail
Student's clarity of presentation	▪ Neatly word-processed report with clearly labelled diagrams and figures, where appropriate. ▪ Good use of English. ▪ Well-structured. ▪ Properly proof-read. ▪ Referencing, if used, correctly entered following the Harvard style.
Student's reflection the year as a whole	▪ The report details the experiences of the tutoring, and the course, in a suitably critical manner.

	▪ The report details what the student did, and why. ▪ Evidence of reflection on the year as a whole, looking at how (if appropriate) thoughts/actions evolved over the course of the year.
Student's response to their observed session	▪ The report contains a response to the feedback received – does the student agree/disagree with the comments made? Why? ▪ The feedback itself is included as an appendix.
Summary and conclusions	▪ Experiences are summarised clearly, with sensible conclusions drawn. ▪ The conclusions should be supported by the experiences reported in the main body of the text.

Harvard referencing system:

- In the Harvard alphabetical system the name of the author appears in the text together with the year of publication, e.g. (Smith 2001) or Smith (2001) (as appropriate).
- Where there are only two authors both names should be given in the text (Smith and Jones 2001) or Smith and Jones (2001); however, if there are more than two authors only the first name should appear followed by et al, (Smith et al 2001) or Smith et al (2001).
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A journal paper	(Sneddon et al, 2009).	Sneddon, P.H., Slaughter, K.A., and Reid, N. (2009). Perceptions, views and opinions of university students about physics learning during practical work at school. *European Journal of Physics*, 30, 1119-1129.
A website	(University of St Andrews, 2020).	University of St Andrews (2020), Physics and Astronomy Undergraduate Entry Rates, http://www.st-andrews.ac.uk/physics/pandaweb/admiss/ugadmiss.htm, date accessed 17/03/20

Deadline:

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- The submitted file should have a filename in the form: IDNUMBER_REPORT.pdf