P422H: Peer to Peer Teaching & Learning in Physics (PHYS4045)
Course guide

Summary:

A 10 credit Honours options course for students on the BSc Hons & MSci plans in Physics, Theoretical Physics and Physics with Astrophysics. Focussing on the use of peer tutors in the teaching of level 1 and 2 physics students, the course builds on the successful Peer to Peer tutorial scheme, focussing on the theory and practice of peer-led teaching and learning in higher education.

Detail:

In 2005-06 the then Department of Physics and Astronomy introduced the Peer to Peer (P2P) tutorial scheme. This saw students in their Honours years (i.e. levels 3, 4, and 5) acting as tutors to students in Physics 1 and Physics 2.

The P2P has continued to be well-received by all involved in the scheme. This course would provide the tutors with the opportunity to embed their tutoring duties in their undergraduate degrees. (Historically, the tutoring is something tutors do in their own time, with only a small financial remuneration provided as a formal reward.)

Contact time:

Students on this course will receive 6 hours of lectures, and then act as tutors in a range of tutorials: this will include the dedicated Peer to Peer Tutorials, as well as drop-in and workshop tutorials, across level 1 and 2 Physics. The lectures will run in early Semester 1, ahead of the tutorials that normally begin in week 4 of semester 1 and then continue through at roughly fortnightly intervals until the end of semester 2. (The specific pattern varies between level 1 and 2.) There will also be four sessions (two per semester) when the tutors will get together with the course organiser to discuss their experiences and try and learn from each other.

The taught content of the course will focus on:

1. Introduction to student learning and where the use of peer assisted learning (PAL) fits in Higher Education.
2. The role of a tutor in small group teaching.
3. How to perform a critical literature review in the field of physics education research.
4. How to give, and receive, constructive feedback.
5. Reflecting on your own behaviour.

Assessment would take the following form:

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 the standard of the observations that is

being assessed. This presentation of feedback will take place at one of the tutor discussion sessions.

Summative:

- *A PAL-based literature review essay* – all students will be given a set reading list of relevant papers/books. Each will then be given a 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	End of Semester 2	30 %
Final report	End of Semester 2	40 %

P422H: Peer to Peer Teaching & Learning in Physics (PHYS4045)
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 is very difficult to demonstrate critical reflection is very short terse pieces of text. 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 represents 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 by 1600 Friday week 11, semester 2. Late submission will be subject to a 10 % reduction in grade per working day late.
- If your journal is electronic, then the submitted file should have a filename in the form: SURNAME_IDNUMBER_JOURNAL.pdf

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

- The final report is akin to a laboratory report – you will write up a final report that 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.

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).
- 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, 2008).	University of St Andrews (2008), Physics and Astronomy Undergraduate Entry Rates, http://www.st-andrews.ac.uk/physics/pandaweb/admiss/ugadmiss.htm, date accessed 17/03/09

Deadline:

- You should submit your report, electronically as a pdf file, to peter.sneddon@glasgow.ac.uk by **1600 on Friday of week 11, Semester 2**.
- The submitted file should have a filename in the form: SURNAME_IDNUMBER_REPORT.pdf

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

- "*What are the strengths and weaknesses of peer learning from the perspective of the student-tutors?"*

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.

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, 2008).	University of St Andrews (2008), Physics and Astronomy Undergraduate Entry Rates, http://www.st-andrews.ac.uk/physics/pandaweb/admiss/ugadmiss.htm, date accessed 17/03/09

Deadline:

- You should submit your literature review, electronically as a pdf file, to peter.sneddon@glasgow.ac.uk by **1600 on Friday of Week 1, Semester 2**.
- The submitted file should have a filename in the form: SURNAME_IDNUMBER_LITREV.pdf