

## Physics Teaching Plan for 20/21

17<sup>th</sup> July 2020

The following set of principles is designed to aid and inform the planning of all individual staff for teaching next year. It has been shaped by ideas and discussions before, during and after the Annual Review of Teaching, and by external pressures. In particular it has included input from Ifan Hughes' working group; from the SSCC; from interactions with and advice from DCAD; from Faculty Education Committee, and subgroups thereof; from the IoP Teaching and Learning series of online events; and an ad-hoc working group led by the Director of Education that has finalized this document.

Our teaching next year will follow the following principles.

- 1. What we teach should not change; how we deliver our teaching will have to alter**
- 2. We will have plans for switching all activities fully online if necessary**
  - a. We must be robust against further lockdowns
- 3. Our teaching will follow all recommended health and safety guidelines such that any face-to-face contact is as safe for staff and students as possible**
  - a. We aim to ensure that staff and students will not be forced to engage with face-to-face teaching if they do not feel safe to do so
- 4. We will not do any undergraduate lectures in person next year**
  - a. All lectures will be replaced with pre-recorded material
- 5. We will *not* require all materials to be prepared and online for 1<sup>st</sup> October**
  - a. We will ask staff to make lecture material available **one week** before the scheduled lecture slot.
  - b. We recommend that staff teaching in Michaelmas term have some lectures prepared in advance before term starts
- 6. We will provide a default expectation for staff on what will be provided to replace an in-person lecture, and guidance on best practice for producing and publishing materials**
  - a. Guidance on structuring, producing and publishing lecture replacement material will be in separate documents: the Physics Lecture Replacement Plan, and Physics Lecture Replacement Technical Advice documents
- 7. We will use one of the scheduled lecture slots per week as an office hour**
  - a. The other lecture slot(s) should be kept free to provide time for viewing lecture materials
  - b. Office hours will use a standard delivery platform (Zoom or Teams, tbd)
- 8. We will do face-to-face tutorials (at Level 1) and workshops (Levels 2 – 4) but they will likely be to reduced class sizes**
  - a. This is dependent in all courses upon there being rooms allocated to us by timetabling
  - b. We will consider reducing the Level 1 tutorial group sizes to fit the capacity of the rooms available, and the timetabled slots; but they are unlikely to be deliverable in staff offices
  - c. Some tutorials may have to happen remotely for students unable to come to Durham – again we will fix on a standard platform in good time

- d. We will not be able to run workshops at full capacity. However, we plan to run them with reduced numbers on a rota basis for students, where individual students come to a subset of the face-to-face workshops and are supported remotely for the others – either asynchronously by the lecturer during office hours, or synchronously by a staff member during the scheduled workshop slot
- e. We have requested rooms that can support ~20 students for most modules at levels 2/3 – this is equivalent to a workshop every third week for individual students. At level 4 we asked for rooms large enough to accommodate a workshop every other week

**9. Laboratory modules will deliver an appropriate range of skills training, but will by necessity differ in structure and content to the pre-Covid delivery**

- a. Level 1 labs (Discovery Skills) will be run at 50% capacity; students will work on-site every other week, with online activities set in intervening weeks
- b. Level 2 labs (Labs Skills and Electronics) will be run entirely using ‘at home’ (i.e. off-site) experiments, much of which will use kit sent out by the lab team; this mode of operations has already been successfully demonstrated by the Bridge Projects
- c. Level 3 labs (Advanced Laboratory) will take place entirely on-site, with students working individually on experiments, and having greater flexibility over their hours to mitigate against further lockdowns
- d. Our computing sessions will be moved online, with workshop support run in synchronous sessions

**10. We will ensure projects are run and supervised as close to ‘as per usual’ as possible**

- a. Small group or individual supervision will be face-to-face if suitable rooms are available – usually staff offices for individual supervision.

**11. Materials for weekly problems, tutorials and workshops should not need to change substantially**

**12. We will assume that examinations and other forms of assessment will not change substantially**

- a. We will prepare exams next year that would be robust to being delivered as open book by minimizing direct bookwork elements
- b. We will adopt the improved practice we have discovered during lockdown – including online marking for lab scripts, and use of Gradescope where possible for marking e.g. progress tests, weekly problems at Level 1 etc.

**13. We will run adviser meetings face-to-face if possible**

- a. Advisers will have to be the frontline in monitoring student progress more closely next year to ensure that students stay ‘active’ – we are planning to implement closer monitoring of attendance and submissions of work via the database to support this

**14. Postgraduate teaching should not operate on substantially different principles to undergraduate**

- a. The PGT (Particles, Strings & Cosmology; MiSCaDA) courses should largely follow the principles of the lead department
- b. We will encourage the PGR courses to follow a similar model to the UG courses – deliver lectures via recorded material, and provide opportunities for students to interact with teaching staff to support their learning

**Notes:** reasons behind decisions and further information in red.

**1. What we teach should not change; how we deliver our teaching will have to alter**

In the vast majority of our modules no changes are required to the module description to permit their teaching next year, whether online or not; hence the content remains the same. However, with no vaccine in sight and social distancing likely to extend well into 2021 the situation dictates that our delivery will have to alter.

**2. We will have plans for switching all activities fully online if necessary**

Further lockdowns are a very real possibility. In those circumstances we shall be expected to continue our teaching. Plans must therefore exist for all modules to go wholly online at short notice.

**3. Our teaching will follow all recommended health and safety guidelines such that any face-to-face contact is as safe for staff and students as possible**

- a. We aim to ensure that staff and students will not be forced to engage with face-to-face teaching if they do not feel safe to do so

A no brainer - we want everyone to be as safe as possible going forwards. Staff are asked to disclose to the University if they are in the High Risk category via the official channels.

**4. We will not do any undergraduate lectures in person next year**

- a. All lectures will be replaced with pre-recorded material

Current lecture theatres do not have the capacity to hold sufficient students for the vast majority of our courses to run next year, even with relaxed social distancing. The rooms we would usually be lecturing in are likely to be re-allocated for smaller socially-distanced classes in the same slot.

**5. We will *not* require all materials to be prepared and online for 1<sup>st</sup> October**

We confirm that staff will not have to prepare all materials in advance of next term.

- a. We will ask staff to make lecture material available **one week** before the scheduled lecture slot.

However – students still need time to view the prepared materials. A week is plenty of time for them to view the material ahead of the support sessions – and provides some redundancy in the eventuality that staff have technical problems with uploading material etc.

- b. We recommend that staff teaching in Michaelmas term have some lectures prepared in advance before term starts

We suspect that the start of next term will place very heavy demands on the University IT infrastructure, and on our time. We therefore advise preparing and placing at least some pre-recorded material on DUO ahead of the start of term, to ensure that it is available for students, and that you are familiar with the full process of content creation. Note that you should ideally wait until your new module (20/21 version) is available on DUO, after the annual roll-over, before uploading new material.

**6. We will provide a default expectation for staff on what will be provided to replace an in-person lecture, and guidance on best practice for producing and publishing materials**

- a. Guidance on structuring, producing and publishing lecture replacement material will be in separate documents: the Physics Lecture Replacement Plan, and Physics Lecture Replacement Technical Advice documents

Please see other documents. For student experience reasons it is important that we maintain a relatively uniform approach across this activity – although with sufficient flexibility to cater to the needs of different courses.

**7. We will use one of the scheduled lecture slots per week as an office hour**

We expect the current timetable to be maintained, such that students are expected to be free to undertake an activity related to a lecture course in its timetabled slot. [We note that in reality the rooms the lectures were originally scheduled in will very likely be re-assigned to another activity, so cannot be used.] Lecturers should use one lecture per week as an online office hour, given that students are free to focus on their subject then.

- a. The other lecture slot(s) should be kept free to provide time for viewing lecture materials

Students still require time to view the lecture materials. At least some of this can be in the other lecture slot(s) in each week.

- b. Office hours will use a standard delivery platform (Zoom or Teams, tbd)  
We will provide further advice on this closer to term.

**8. We will do face-to-face tutorials (at Level 1) and workshops (Levels 2 – 4) but they will likely be to reduced class sizes**

We have prioritized support sessions as our primary face-to-face interaction next year. For most students this will be via tutorials (at Level 1) or workshops (Levels 2 & 3). At Level 4 the project supervision is our main interaction.

- a. This is dependent in all courses upon there being rooms allocated to us by timetabling

We have requested rooms to be timetabled for all tutorials and workshops. We will find out in August which face-to-face activities we will be able to do.

- b. We will consider reducing the Level 1 tutorial group sizes depending on the rooms available, and the timetabled slots; but they are unlikely to be deliverable in staff offices

The final tutorial group sizes will depend on the number of rooms we can use, and their size. We have asked that some tutorials are run in (unused) lecture slots to provide more flexibility for us.

- c. Some tutorials may have to happen remotely for students unable to come to Durham – again we will fix on a standard platform in good time  
We will use the experience gained earlier this year to inform how we will run online tutorials. Further instructions will be distributed closer to term.

- d. We cannot run full workshops. However, we plan to run them on a rota basis for students, where individual students come to a subset of the workshops and are supported remotely for the others – either asynchronously via the lecturer during office hours, or synchronously by a staff member during the scheduled workshop

As above, where online support is required we will use past experience to help us optimize the student and staff experience.

- e. We have requested rooms that can support ~20 students for most modules at levels 2/3 – this is equivalent to a workshop every third week for individual

students. At level 4 we asked for rooms large enough to accommodate a workshop every other week

Room size (and hence class size) is a play-off between ensuring the classes are small enough there is a strong chance the classes will be scheduled; and providing sufficient face-to-face workshops that students get an appreciable amount of face-to-face contact across each week. At Levels 2 & 3 we hope to run workshops every third week; at Level 4 we hope to run larger classes, given there are fewer workshops; but also it is not as critically important to schedule these sessions as it is at Levels 2 & 3, since Level 4 students will get their face-to-face interactions via their projects.

**9. Laboratory modules will deliver an appropriate range of skills training, but will by necessity differ in structure and content to the pre-Covid delivery**

Our lab teams have re-designed their delivery such that students get the best experience possible next year. We chose to do Level 2 online in part to free up lab space to ensure that we are able to run the Level 1 and Level 3 labs.

- a. Level 1 labs (Discovery Skills) will be run at 50% capacity; students will work on-site every other week, with online activities set in intervening weeks
- b. Level 2 labs (Labs Skills and Electronics) will be run entirely using 'at home' (i.e. off-site) experiments, much of which will use kit sent out by the lab team; this mode of operations has already been successfully demonstrated by the Bridge Projects
- c. Level 3 labs (Advanced Laboratory) will take place entirely on-site, with students working individually on experiments, and having greater flexibility over their hours to mitigate against further lockdowns
- d. Our computing sessions will be moved online, with workshop support run in synchronous sessions

**10. We will ensure projects are run and supervised as close to 'as per usual' as possible**

- a. Small group or individual supervision will be face-to-face if suitable rooms are available – usually staff offices for individual supervision.

Supervisions are one of our more flexible activities – they can readily go online if needed or if staff are shielding, etc., but, where possible, we should use them to give students a face-to-face interaction.

**11. Materials for weekly problems, tutorials and workshops should not need to change substantially**

If the content of our modules is not changing substantially, then the content of our learning support activities should not need to change substantially either. Hence we do not expect large changes to the content of weekly problems or to workshops/tutorials.

**12. We will assume that examinations and other forms of assessment will not change substantially**

Although next May is a long time off, again in the absence of a viable vaccine we can assume that exams could look very similar to this year. Again given that we are working on the principle of not substantially changing our modules, there shouldn't be a need for substantial changes to our continuous assessment activities.

- a. We will prepare exams next year that would be robust to being delivered as open book by minimizing bookwork elements

One area we can improve upon is making our exams robust to delivery either online as open-book, or in a traditional setting. The way to achieve this is not to ask any questions that require direct regurgitation of information (i.e. bookwork), or reproduce previously-solved problems from weekly problems, examples classes or exams. More information will be provided on this by the Chair of the Board of Examiners in the October meeting.

- b. We will adopt the improved practice we have discovered during lockdown – including online marking for lab scripts, and use of Gradescope where possible for marking e.g. progress tests, weekly problems at Level 1 etc. We have been forced to try new solutions by the situation we have found ourselves in – and they have in some cases proved superior to our old solutions! We should adopt any improvements that we have serendipitously found wherever we can.

**13. We will run adviser meetings face-to-face if possible.**

Students will potentially require more support next year than usual. This should be delivered via our usual support structures, most notably our academic advisers. We will provide additional support and advice for staff where necessary.

- a. Advisers will have to be the frontline in monitoring student progress more closely next year to ensure that students stay ‘active’ – we are planning to implement closer monitoring of attendance and submissions of work via the database to support this  
We are designing a new tool for the Physics database that will monitor students over set windows (e.g. 2 weeks) and flag to staff where students are not engaging substantially across their course. Academic advisers would be asked to keep an eye on this and be proactive in contacting students where engagement drops.

**14. Postgraduate teaching should not operate on substantially different principles to undergraduate**

Our postgraduate teaching should not be the poor relative of our undergraduate teaching; it should also be subject to the same conditions, particularly health & safety. We should take the lead from the lead departments for our two taught Masters courses; but our other PG teaching should mirror practices at undergraduate level. Staff and students will be no safer simply because it is PG teaching.

- a. The PGT (Particles, Strings & Cosmology; MiSCaDA) courses should largely follow the principles of the lead department
- b. We will require the PGR courses to follow a similar model to the UG courses – deliver lectures via recorded material, and provide opportunities for students to interact with teaching staff to support their learning  
Similar to the undergraduate courses, a subset of the lectures could be used as drop-in sessions. These could run in-person, or remotely.