

Faculty Guidelines for Part III Examples Classes (2020/2021)

1 The function of examples classes

The Faculty is very grateful for the work put in by those who organise and give examples classes. Feedback from students shows that well-run examples classes are highly valued, and those giving examples classes have the opportunity to make a positive and effective contribution to the mathematical understanding of Part III students.

- The main function of examples classes is to provide backup to the lectures, primarily by discussing examples sheet questions that have been set by the lecturer and tried by the students before the class. Examples classes should also provide opportunities for more general discussion of the lecture course material.
- A second function is to monitor the progress of the students and to identify students who may be having difficulties. The Colleges regard this as particularly important. In this sense, the examples classes can provide a useful complement to the Part III Progress Interview system.

2 Outline

The Faculty Board has agreed¹ that there will be a *minimum* number of hours of additional support *over and above* lectures for each Part III course, namely

- 4 hours for a 24-hour lecture course, plus revision;
- 3 hours for a 16-hour lecture course, plus revision.

In most cases, this support takes the form of examples classes. Revision support is also expected, of 1-2h per lecture course. This is not envisaged to be given by anyone other than the lecturer. It should involve review of previous exam questions, opportunities for students to ask questions about examinable material, and clarification of lecture notes and examples sheet questions, etc. Where there are no past papers available for a lecture course, the lecturer should provide examples of questions of a suitable standard and length, for example by indicating which questions on the examples sheets they might consider appropriate as (part of) an exam question.

For small lecture courses, special revision office hours might serve this need, but in most cases a revision class given in Easter term will be more suitable.

These guidelines are intended for Part III lecturers and for all those involved with giving and organising Part III examples classes. They are intended to offer helpful advice that those giving the classes are asked to follow.

Comments and questions are welcome and should be addressed to one of:

The Director of Taught Postgraduate Education: Julia Wolf (email: director-tpe@maths.cam.ac.uk; CMS room: C2.07; phone: (3)37926).

The DAMTP Course Director: David Stuart (email: partiii-director@damtp.cam.ac.uk; CMS room: B2.22; phone: (3)37849).

The DPMMS Course Director: Imre Leader (email: partiii-director@dpmms.cam.ac.uk; CMS room: C2.02; phone: (7)65902).

The Chair of the Part III Committee: Eric Lauga (email: partiii-chair@maths.cam.ac.uk; CMS room: H0.07; phone: (3)37031).

¹ At its meeting of 22 May 2014.

Subject specific advice for students taking the Mathematical Tripos² is available from the Part III Subject Advisers (see the glossary in Section 9).

The Faculty Board and Heads of Departments recommend the procedures described below. This document is based on an agreement between the Mathematics Faculty and the Senior Tutors' Committee (July 2014).

3 Who gives the class?

There is more than one possible model for the provision of support via examples classes, not least because the availability of PhD students/postdocs as instructors for examples classes is uneven over the various subject areas in the Faculty.

The Faculty Board recommends that lecturers normally adopt one of the following two methods of providing examples classes.

Either

Method A: the lecturer gives the examples classes, one class for each examples sheet, to the whole class together.

Or

Method B: the lecturer recruits a suitable number of instructors to run small-group examples classes ideally with 6–12 students in each class (but see Sections 4 and 5 for more on sizes of classes).

Method A. This method may be especially useful for larger lecture courses in subject areas where there are few PhD students/postdocs, but Method A may be used for any size of lecture course.

Method B. It is the lecturer's responsibility to organise instructors to give the classes.

In any cases where instructors are recruited it is the lecturer's responsibility to ensure that the instructors have all the necessary information to be able to run the classes effectively.

For example, instructors should be briefed on how many examples sheets to expect and when they will be issued. Many lecturers provide instructors with model answers to examples sheets. Instructors should be provided with a copy of the lecture notes if they need them. Instructors should also be briefed on how many hours each examples class should be. In summary, it is the lecturer's responsibility to ensure the smooth running of the examples classes, which includes responding to timetabling information requests from the Undergraduate Office (see Section 5), briefing the instructors, and for dealing with problems arising during the term.

4 Who are the examples classes for and who pays for them?

The examples classes are primarily for Part III students and for Physics and Astrophysics students who are taking Part III courses for examination. Occasionally Part II students attend Part III courses for interest (and are not taking the examination), and they sometimes sign up for examples classes; permission from the student's Director of Studies should be obtained before claiming payment from Colleges for these students. PhD students also sometimes attend Part III lectures but are not taking the examination. These students may attend examples classes if there is room for them (they have a lower priority than students who are taking the course for examination). Payment from Colleges should not be sought for PhD students.

Under the current agreement with the Senior Tutors, **the Colleges will only pay for classes of between 6 and 12 (inclusive) with appropriate documentation as described below.** Marking is paid for by the Faculty of Mathematics for Mathematics Part III students, while Physics and the Institute of Astronomy pay for Physics Part III students and Astrophysics Part III students respectively.

² Those taking the Natural Sciences Tripos have advisers in their own department.

Method A: class size greater than 12. Under the current agreement with the Senior Tutors, if the class size is greater than 12, then UTOs give the examples classes as part of their duties, i.e. they cannot claim payment from the Colleges (and so do not complete reports on all students). If the lecturer is a College Teaching Officer (CTO), postdoc or other non-UTO, then the Department pays for the examples classes in addition to the lectures. In this case, lecturers should include the number of hours of examples classes when they claim for their lectures from the Department.

Method A: class size 12 or less. If the class size is 12 or less, the Senior Tutors have agreed that UTOs may if they wish claim payment from the Colleges. If they do claim from the Colleges, then they must complete a CamCORS report (see Section 8) for each student. If the lecturer is not a UTO, then they should claim payment from the Colleges which will involve completing a CamCORS report (see Section 8) for each student.

Method B. Instructors of Examples Classes of size 6–12 claim payment from the Colleges, and so must complete a CamCORS report (see Section 8) for each student. If the class size is unavoidably larger than 12, or smaller than 6, then payment can be claimed from the Undergraduate Office (email undergrad-office@maths.cam.ac.uk for DAMTP lecture courses) or the Graduate Office (email grad-administrator@maths.cam.ac.uk for DPMMS lecture courses). Payment for marking is also claimed from the relevant office, even if payment for the class is being claimed from the Colleges. Those claiming payment will be asked to complete a temporary workers agreement and a claim form, which the lecturer of the Part III course will need to authorise. A record of the number of students from Physics or Astrophysics should also be sent, so that the host department of such students can be charged appropriately. Anyone who is not on the payroll will also be asked to complete a UPS2 form and an HMRC form, and will be asked to provide some proof of their right to work in the UK, such as a passport.

5 Timetabling

The Faculty Board's expectation is that there will be 4 (3) examples classes for a 24 (16) hour lecture course, together with a (mandatory) revision class in the Easter Term. Normally (excluding the revision class):

- the *minimum* total number of hours of examples classes would be 4 (3) hours for a 24 (16) hour lecture course;
- the *maximum* total number of hours of examples classes would be 8 (6) hours for a 24 (16) hour lecture course.

The Faculty Board has agreed³ that as of the start of the academic year 2019-2020, all examples classes (with the exception of those in Continuum Mechanics⁴) will be centrally timetabled by the Undergraduate Office before the start of each term. The following procedure in place for 2019-20 will be reviewed in light of experience at the end of the academic year.

- (i) On the lecture constraint form circulated by the Undergraduate Office in the Easter term, lecturers are asked to indicate what times during the afternoon in their teaching term during the following academic year

Method A: they are unavailable to hold an examples class (for example, “combinatorics seminar Thu 2:30-3:30pm”).

Method B: their examples class instructors are likely to be unable to teach due to seminar attendance or other research commitments (for example, “HEP/GR colloquium Wed 2:15-3:30pm”).

- (ii) At the same time as the lecture timetable is drawn up, in early July, each lecture course is assigned a 1h30 time slot during one of the afternoons Monday-Friday (one of 2-3:30pm Monday-Friday, or 3:30-5pm Monday-Friday\{Wednesday\}). This is done in such a way as to avoid clashes with the essential commitments indicated by the lecturer as well as clashes between courses, based on the morning lecture timetable. Examples classes are expected to run within this time slot.

³ At its meeting of 2nd May 2019.

⁴ Continuum Mechanics classes will continue to be timetabled by the Subject Adviser.

(iii) About four weeks before the start of their teaching term, lecturers are asked to choose

- the weeks they want their examples classes to take place (it is recommended that the first class be held in Week 3 at the earliest; the final class may be at the start of the following term—the time slot remains the same);
- the desired length of the examples class (confer the Faculty-recommended minimum and maximum number of total hours of classes given at the beginning of this section; if a class length of 2 hours is chosen, the time slot will be extended to 1:30-3:30pm or 3:30-5:30pm, respectively);
- the start time of the examples class (within the assigned time slot, i.e. for a 1h class in an early-afternoon slot, the lecturer may choose a start time of 2pm or 2:30pm);
- who will be giving the examples classes (if using Method B, it will be helpful to know how many groups each instructor has agreed to teach).

Those lecturers using Method B are strongly encouraged to discuss these parameters with their instructors as early on as possible.

- Once the Undergraduate Office has received this information, along with the lecturer's best estimate of student numbers, suitable rooms are booked at the times indicated by the lecturer. Subsequent changes to these times must be made through the Undergraduate Office.
- The initial timetabling effort includes a tentative slot for the Easter-term revision class, with the Michaelmas-term timetable in operation in Week 3 of the Easter term and the Lent-term timetable in Week 4. This time slot will be confirmed with lecturers at the end of the Lent term.

6 Advanced organisation for Method B

Students will be asked to sign up for examples classes via Moodle at the start of each term. The deadline for signing up is midnight on the second Saturday of Full Term. A centralised timetable as well as group assignments for the large theoretical physics courses will be made available online to all staff and students by the third Wednesday of Full Term. Students are free to attend lecturers, or offer a course for examination, regardless of whether or not they have registered for the associated examples classes.

Special arrangements are in place for the large theoretical physics courses (referred to as 'TPS' below) as these routinely run many parallel groups with multiple instructors.

- It is the lecturer's responsibility to ensure that all those giving Examples Classes for their course have seen these guidelines.*
- For all non-TPS courses running more than one examples class group, *the lecturer* has responsibility for allocating students to an examples class group. To help with this, after examples class registration has closed, the Undergraduate Office will provide the lecturer with a list of students who registered for the examples classes associated with their course. The lecturer is responsible for communicating the group allocation to students and to any examples class instructors.
- For all TPS courses, *the Undergraduate Office* will draw up examples class groups with compatible timetables and make them available to students as well as the lecturer and examples class instructors for each course.
- For Method B, the ideal number of Part III students per examples class is 6–12; however this is not possible for all courses. The Colleges will reject any claim for a group size greater than 12, so it is recommended that the initial allocation is about 10–12 students to each class, if possible. The aim of this is to keep the number of students per class both manageable, and greater than or equal to 6 even if students drop out as the course progresses. The instructors and lecturer should liaise with the Undergraduate Office throughout the term to ensure that classes are merged if the number of students drops too low (i.e. below 6 students per class). Classes larger than 12 should only be organised if there is not an adequate number of instructors available.

(v) It is recommended, particularly if payment will ultimately be sought from the Colleges, that there should be a formal allocation of each student to a particular class. A student who wishes to drop out of a course, or cannot attend a class for some reason, must notify the instructor at least 48 hours in advance of the relevant class. For final classes to be held at the beginning of the following term, the notification must at least 48 hours in advance of the end of the preceding Full Term. **If a student is not present, and has not given at least 48 hours advance notice to the instructor, then the instructor should email the student individually for an explanation. For every subsequent missed class without at least 48 hours notice, the instructor should email the student's Director of Studies.**⁵ If the student opts to drop out of the course then the College should not be charged for subsequent classes (see above for what to do if the number of students drops below 6). Colleges should not be charged for students who do not attend a class and have given notice of at least 48 hours in advance of the class.

7 The class: attendance record, student self-assessment and marking

The class is usually based around discussion of examples sheet questions. But there should also be an opportunity for students to ask more general questions, e.g. about difficult points in the lecture notes. Feedback from students confirms that they like the opportunity to ask questions, either on the examples sheet questions or other aspects of the course material. There is *no* requirement to produce photocopies of solutions, but feedback also suggests that the students like receiving them!

When payment is to be claimed from the Colleges, the instructor will need to write an *individualised* report on each student for their College. Details of report writing are given in Section 8. However the instructor will need to arrange to collect various pieces of information about the students during the classes to provide information for the reports. For instructors claiming payment from Colleges, a self-assessment form (see below) is required as a minimum from each student attending each examples class, providing a record of attendance and also the student's self assessment of their attempts at the questions on the relevant examples sheet. Offering selective marking (see section on Marking below) is also **required** as good educational practice.

Self-assessment forms (including attendance record). The self-assessment form provides an attendance record and a student's self assessment of their progress with each examples sheet. It is essential that instructors require that *all* students attending *each* examples class should complete a self-assessment form and the instructor should collect these during *each* examples class. A model self-assessment form is available at <http://maths.cam.ac.uk/part-iii-current/saform.pdf>. Instructors should take spare copies to each examples class and ensure that all students who are present at the class hand in a completed form. The instructor should make it clear to students that if they do not hand in a completed self-assessment form then they will be assumed absent and their Director of Studies will be informed.

Attendance record. Student attendance at examples classes is one indicator of progress, morale, etc. For reasons that will become clear below, it is *essential* that each student attending an examples class has completed the sections of the self-assessment form giving

- the student's name;
- the student's `cam.ac.uk` email address;
- the student's College;
- the name of the student's Director of Studies;
- last but not least, which Triposes they are taking.

The final bullet point is important, since a few Part III courses are also open to students from other Triposes (e.g. 'Quantum Field Theory', 'Advanced Quantum Field Theory' and 'Structure and

⁵ The instructor's email to the Director of Studies should state that payment will continue to be claimed until the student drops the course by notifying the instructor. Instructors are advised to collect the names and email addresses of students' Directors of Studies at the start of the course. Instructors can subsequently discover a student's Director of Studies from CamCORS, or by contacting `supervisions@[college].cam.ac.uk`.

Evolution of Stars' are often attended by Part III Physics and Astrophysics students); in those cases you must keep a record of this if you intend to claim payment.

In order to collect information on the students' progress with all the questions on the examples sheet, the instructor should require each student to complete the remaining part of the self-assessment form indicating which of the examples sheet questions they have attempted and their own assessment of the success of their attempts. These forms should be collected in by the instructor during the examples class, and will be invaluable when claiming payment for examples classes. The self-assessment form makes it clear that the progress information will be used only by the examples class instructor. We recommend that examples class instructors keep the completed forms (after writing the individualised report on each student) in case there are any queries from the Colleges about the reports.

Marking. Students benefit from having written comments on at least some of their attempts at questions on examples sheets, and it is now required that at least some marking is offered to all students. Typically, group sizes are normally between 6 and 12, so that it is not feasible to mark all question attempts. However, it is required as good practice that the instructor should

- ask students to hand in their attempts to at least two particular questions (specified in advance to the students) on each examples sheet;
- specify both a deadline for this (e.g. 24 hours before the class) and where the work should be handed in.
- Marking conducted by non-UTOs will be paid by the Faculty, at the rate of 12 questions corresponding to one hour of "intermediate" demonstrating for all classes, including those for which payment is being claimed from the colleges. At least two questions per example sheet should be identified for marking.

Work handed in should be marked and then returned in the examples class. Instructors should keep a record of students' performance; the record will be helpful in writing informed individual student reports for the Colleges.

8 Reporting and claiming payment from Colleges

- Reports on students (and claims for payment) are submitted to Colleges via the Cambridge Colleges' Online Reports for Supervisions (CamCORS). Anyone claiming payment must therefore have a CamCORS Supervisors Account (see <http://www.camcors.cam.ac.uk/register/>). Full details of the CamCORS system, including how to apply for a CamCORS Supervisors Account are available at <http://www.camcors.cam.ac.uk/>. You are advised to read the relevant online documentation <http://www.camcors.cam.ac.uk/docs/>. Note that many students can read the reports written on them. The CamCORS documentation advises that 'Supervisors who wish to make comments about a student which they would not wish to be disclosed to the student are advised to do so over the phone rather than via email or CamCORS'.

If you do not yet have a CamCORS Supervisors Account you are recommended to apply for one as soon as possible. Graduate students should be able to arrange this through their own College; alternatively, if you wish the Faculty to apply for you, please email the Graduate Office at partiii-secretary@maths.cam.ac.uk giving details of your full name and @cam.ac.uk email address.⁶

- As soon as you know which students will be attending your examples class you are advised to set up a report form for each of them on the CamCORS system. Each student has a 'CRSid' which is their @cam.ac.uk email identifier (with the @cam.ac.uk part deleted).
- To use CamCORS, log in to the system and select the *Supervisor* role. You will get to a *Main Menu for Supervisors*. Once a year you will encounter the message

Note: supervisors are asked to confirm their status, training and college once a year. You cannot do anything else until you have done so, using the 'Confirm or Update Personal Details' page.

⁶ The Graduate Office will then email these details to camcors-registration@ucs.cam.ac.uk asking for you to be issued with a CamCORS Supervisor Account.

If you encounter this message, click on the *Confirm or update personal details* link.

To create new supervision reports, click on the *Create new supervision reports* link. You should then choose a Term and list the CRSids of your students (one per line) in the box provided; note that you may need to list students doing Part III of the Mathematical Tripos and, say, students doing Part III of the Physics Tripos separately. On the next page you need to choose a Tripos, and on the following page a Paper. Finally confirm that you wish to create the supervision reports.

- If CamCORS does not know about a student, the student needs either to contact his or her College administration directly, or to ask his or her Director of Studies to do so.
- If perchance the relevant Paper is missing from CamCORS, please contact the Graduate Office by email at partiii-secretary@maths.cam.ac.uk.
- The Colleges will require completion of a report form for each student before payment. Each student's report form has various boxes that may be completed, together with a space for written comments.
 - You must complete the total number of hours by group size. For Part III examples classes where payment is being claimed from the Colleges, the number of students is normally between 6 and 12. You must edit the right-most Group Size (the report form's default number here is 6) to give the correct number in the class (so that the cost is spread correctly between the relevant Colleges), and you should enter the number of hours. If the Group Size changes, then you may need to complete multiple report forms (one for each Group Size). Under the agreement with the Senior Tutors, **Colleges will reject any supervision claim for a group size greater than 15.**
 - If you wish, you may complete the boxes that ask about the student's Industry, Progress and Interest. You should **not** complete the Estimate of Term's Work, as this is in terms of expected Degree Class. Degree Classes are for undergraduates are not relevant for Part III.
 - The Colleges will require completion of *individualised* academic written comments for each student on their report form before payment. These should be based on the attendance record for the particular student, the contents of their self-assessment forms for the examples sheets, on any marked questions, and on any contributions they may have made during the examples class. Under the current agreement with the Senior Tutors, **Colleges will reject any report that contains no report comments, or contains only generic or non-academic comments.** In addition to stating say how many classes the student has attended and whether there were classes for which the student was expected but which he or she did not attend, at a minimum the report should
 - * say whether the student has done any work for the class and with what success (the instructor might summarize the information on the self-assessment forms and give some assessment of any marked work);
 - * highlight the fact if a student has apparently completed none or very little, say less than 33%, of the examples-sheet questions.

More specifically, marked questions and self assessment forms collected in the Examples Classes might be used to write a report of the form:

A. Student has attended m classes out of n given. He/she attempted $p\%$ of the questions and completed $q\%$. This was substantially less than the average student at the class [or whatever is appropriate]. Their solutions to marked work show good understanding of the material [or other appropriate comment].

If the student is doing poorly then the instructor might add

I am concerned about his/her progress and recommend that the College investigates further.

Alternatively, click the 'College action recommended' box on the CamCORS report. Instructors who have reason to be concerned that a student is a potential failure should contact the relevant Part III Course Director by email as soon as possible.

- Feedback suggests that students prefer a more leisurely paced 2-hour class in a group of 12, to a more rushed 1-hour class in a group of 6. Hence, instructors are welcome, even encouraged, to combine

two smaller 1-hour classes into a larger class.⁷ Consult the relevant Part III Course Director if you have any questions on this point.

- **If a student has not attended a class without giving adequate advance notice** (as noted in Section 5, at least 48 hours) for alternative arrangements to be made then the instructor is entitled to claim for that student, but
 - the instructor must make it clear in the report what is being done;
 - the instructor must have contacted the student after the first absence to determine if the student had dropped the course, and contacted the student's Director of Studies for every subsequent class missed without 48hrs notice (see Section 5);
 - the instructor should not claim for students who have dropped the course.

9 Glossary

Part III Course Directors. The Part III Course Directors are responsible for the general running of Part III, for co-ordination between subjects, and for general advice to students. For 2020/2021, the Course Directors are:

DAMTP. David Stuart (room: B2.22; email: partiii-director@damtp.cam.ac.uk)

DPMMS. Imre Leader (room: C2.02; email: partiii-director@dpmms.cam.ac.uk)

Director of Taught Postgraduate Education. The Director of Taught Postgraduate Education (DTPE) is responsible for the operational and strategic development of Part III, and coordinates the provision of academic support. The DTPE is an ex-officio member of the Part III Committee. The DTPE for 2020/2021 is Julia Wolf (room: C2.07; email: director-tpe@maths.cam.ac.uk).

Part III Committee. The Part III Committee advises the Faculty Board on all aspects of the course. It reports annually to the Faculty Board on the examinations and at other times as required. The Chair for 2020/2021 is Eric Lauga (room: H0.07; email: partiii-chair@maths.cam.ac.uk).

DAMTP Part III Subject Advisers. DAMTP Subject Advisers coordinate lectures in their discipline, and are available to be consulted by students. The Subject Advisers for 2020/2021 are:

Subject	Adviser	Room	Email
Applied & Computational Analysis	Dr A. Hansen		A.Hansen@damtp.cam.ac.uk
Astrophysics	Dr H. Latter	F1.19	H.Latter@damtp.cam.ac.uk
Continuum Mechanics	Prof E. Lauga	H0.07	E.Lauga@damtp.cam.ac.uk
Particle Physics, Quantum Fields & Strings	Dr D. Skinner	B1.21	D.B.Skinner@damtp.cam.ac.uk
Quantum Computation, Information & Foundations	Prof A. Kent	F0.11	A.P.A.Kent@damtp.cam.ac.uk
Relativity & Gravitation	Prof. H.S. Reall	B2.02	H.S.Reall@damtp.cam.ac.uk
Philosophy of Physics	Dr J. Butterfield	Trinity College	jb56@cam.ac.uk
Mathematical Biology	Prof. J. Gog	G0.10	jrg20@damtp.cam.ac.uk

DPMMS Part III Subject Advisers. DPMMS Subject Advisers coordinate lectures in their discipline, and are available to be consulted by students. Students register with one adviser at the start of the academic year, and meet them for their Progress Interview. The Subject Advisers for 2020/2021 are:

⁷ As detailed half-way down the page at

<https://www.senior tutors.admin.cam.ac.uk/university-guidance-and-procedures/supervisions>,

where the URL is correct at the time of writing, the cost to the Colleges is the same whether it is a 1-hour class in a group of 6, or a 2-hour class in a group of 12; Directors of Studies may need to be reminded of this.

Subject	Adviser	Room	Email
Algebra	Dr C.J.B. Brookes	C1.06	C.J.B.Brookes@dpmms.cam.ac.uk
Algebraic Geometry	Prof I. Grojnowski	E1.03	Groj@maths.cam.ac.uk
Analysis & PDEs	Prof N. Wickramasekera	E1.11	N.Wickramasekera@dpmms.cam.ac.uk
Combinatorics	Prof I. Leader	C2.02	I.Leader@dpmms.cam.ac.uk
Differential Geometry & Topology	Prof I. Smith	E2.01	I.Smith@dpmms.cam.ac.uk
Foundations	Prof I. Leader	C2.02	I.Leader@dpmms.cam.ac.uk
Number Theory	Prof A.J. Scholl	D1.19	A.J.Scholl@dpmms.cam.ac.uk
Probability	D. R. Bauerschmidt	D1.19	rb812@cam.ac.uk
Statistics	Prof R.J. Samworth	D2.08	R.J.Samworth@statslab.cam.ac.uk

Undergraduate Office Room: B1.28; email undergrad-office@maths.cam.ac.uk; phone: (3)39144.

All queries about examples classes should be sent to examplesclasses@maths.cam.ac.uk.

Postgraduate Office Room: C0.15; email: partiii-secretary@maths.cam.ac.uk; phone: (3)37919.