

Hints on choosing courses in Part II

This is the advice given by Dr Julia Gog (Queens' College), September 2012. These are mainly just opinions, not rules set in stone. Any information in the schedules or advice from your own DoS should trump this!

How do I choose courses?

Ideally, make a plan for both Michaelmas and Lent before you start Michaelmas lectures. You can always change things later, but best to start with a workable plan.

Maybe you have already started to look at Part II courses, their syllabuses (in the booklet), the more detailed descriptions in the Courses in Part II document, and maybe looked at the notes and examples sheets online. You probably need no help in identifying the courses you are most interested in taking, but you may be wondering just how many you should take. There are no formal maximum or minimum numbers of courses. There is no fixed number of questions you need to answer in the exams. So, this may all appear a bit puzzling. Here are some opinions on how you should approach this. The two main things to consider are presented first (maximising exam performance and making sensible workload), and some minor considerations are later. You can use these hints in conjunction with Dr Taylor's course-o-meter, which is available from his website:

<http://tartarus.org/gareth/maths/course-o-meter/ii>

1. Maximising exam performance

Start by forgetting alpha counting. This was the old way, and supervisors who went through Tripos not so recently may emphasize alphas, but that's not what you are trying to optimise these days. There are the two types of merit marks:

MM2 = marks + 5 x betas + 30 x alphas -120

MM1 = marks + 5 x betas + 15 x alphas

The -120 is there for the sake of continuity in the class list and official transcripts. It's a fiddly annoyance but I've got it here for consistency with the schedules (it is included also in the course-o-meter). Focus on MM2 if you're going for a first, otherwise focus on MM1.

There are long and short questions and they work the same as in previous years (max 10 marks and a beta for a short, max 20 marks and an alpha for a long). There are three types of courses in Part II which offer some combination of long and short questions over the four papers:

C courses (all 24 lectures): 2 longs and 4 shorts

D courses (24 lectures): 4 longs

D courses (16 lectures): 3 longs

Combining all these, you can see the maximum a course can contribute to your merit mark:

	MM1	MM2
C course (24)	130	160
D course (16)	105	150
D course (24)	140	200

So... **Don't dismiss C courses!** If you're going for II-1 or II-2, it doesn't really matter if a 24-lecture course is C or D. If you're going for a first, C courses are still valuable, and indeed as they're supposed to be more approachable they can turn out to be better value for effort.

You can try combinations of courses in the course-o-meter, and see what your maximum merit mark looks like (or just add by hand). Based on recent years, for a minimal first you want about 630 in MM2 (which includes the -120), for a minimal II-1 you want about 400 in MM1, and below that you just want to do your best in MM1. Based on what past students have done, it's not unreasonable to aim for getting 50% of the merit mark out of the courses you revise, if you've stayed on top of the course and prepared well from past Tripos questions. So, you basically need to double the merit mark you want, and take enough courses to add up to at least that in whichever of MM1 or MM2 applies for your target. **This is obviously very approximate!**

Example 1:

$2 \times \text{C courses} + 2 \times \text{D course (16 lectures)} + 5 \times \text{D courses (24 lectures)} - 120 = 1500 \text{ MM2 max}$

This would be sensible for someone going for a low but safe first. It still leaves open the possibility of reaching a high first if things go very well.

Example 2:

$2 \times \text{C courses} + 4 \times \text{D courses (24 lectures)} = 820 \text{ MM1 max}$

This would be just about OK for someone who wanting a chance to skim into a minimal II-1. They would be wise to do the full amount of CATAM to boost their mark and provide some insurance against complete exam disaster.

Note, unlike Part Ib, there's no real worry about balancing number of questions across papers. Any sensible combination of courses will lead to a workable distribution across papers. You might want to look at what this distribution is before exams, so you know what to expect on different days, but I haven't yet seen any situations in which it makes sense for someone to change their course choices as a result of question distribution across papers.

2. Making a sensible workload

Make sure your courses split sensibly across Michaelmas and Lent terms. If things are a bit unbalanced, you might want to change your course choices, or otherwise you should find ways of living with it. For example, you can read ahead during the vacation if you can find good notes for a course from the crowded term. You can use the quieter term to crack on with CATAM (though easier said than done!) or know that you need to do CATAM in the vacations. You can try negotiating with supervisors to spread out supervision deadlines sensibly in the busy term (but do this well ahead of time, not like just two days before work is due in).

The key thing is really not so much the lecture load itself (it is not much harder to sit through 14 hours of lectures than 10 really), but keeping on top of examples sheets. Count how many example sheets you'll need to do per week on average. In Part Ia you were doing two sheets per week, and that should have kept you fairly busy. Can you really do much more than that? Would you do better to focus on a smaller number of sheets and doing them well? Or can you pull out the stops this year and really go for it consistently each week? Bear in mind, in Part II you'll need time to spend reviewing and reworking your lecture notes between lectures, if you're doing things right.

3. Choose courses that go well together

Mainly you should be going for courses that you are most interested in, and feel some enthusiasm for taking. Do not be too much swayed by how you did on courses in previous years' Tripos exams (they reflect the quirks of a few particular questions). Instead, if you must use your past performance as a guide, look again at CamCORS and see what your past supervisors felt your strengths were. If you choose courses that you are most interested in, you'll probably find they cluster into one or two areas. This is good. It won't be too bad flicking between courses in the exams then. If you find your courses are all over the mathematical spectrum, you might want to think about narrowing your focus. If you're making a marginal decision about which courses to take, you might bias your decision to picking courses most closely related the ones you have already chosen.

4. Make a sensible timetable

Have a look at the lecture timetable, and make sure things sit sensibly in terms of hourly lecture schedule. For some students, sitting through four lectures in a row one day is just fine, and they're happy to have alternate days free. For others this would be a complete disaster. Some prefer 9am lectures and lose focus by 12 noon. For others, 9am lectures are never going to be ideal concentrating time. Again, considerations of timing should not be super important, but may tweak marginal decisions.

5. The lecturer, available notes, good text books

Based on your experiences in previous years, you may have thoughts on which lecturers you might learn best from. You might also discover that some courses have superb notes available to you right from the start, and that will be valuable to you if you are capable of reading ahead independently. For some courses, there may be a textbook that is particularly helpful and close to the course (especially if the lecturer wrote it!). If you are undecided about a course before lectures start, consider going to the first one or two lectures. However, you can't do this for too many spare courses, and you should decide quickly which you're taking and which you're dropping and *tell your DoS* as soon as possible, so they don't have to find more supervisors than necessary.

6. Talk to previous students

There may be students around who did Part II last year who you could ask for suggestions about which courses were particularly good or bad. While this is valuable inside knowledge, do bear in mind that what works for another student may not be ideal for you. Still, no harm in asking for tips from previous students, and weighing them up among your decisions.

7. Non-optimal behaviour!

This document has really been written assuming you are simply trying to maximise your Tripos result. Of course, that is not the only reason you are here, I hope. You may want to take a course which doesn't fit the strategy I have set out above, just for the sake of broader scholarship, or curiosity for a course even when you know it doesn't play to your strengths. You might choose ahead of time that you will simply attend the lectures and work through things at your own pace without having the usual examples sheets supervisions. You might plan to do the examples sheets for a course, but not be banking on revising it for exams later. Whichever, you should discuss it with your DoS and check your plan with them.

8. Dropping courses later

You could choose to drop courses after term has started, but you should make sure your supervisors know with plenty of warning. *Do not do this just before a work deadline is due*. It will be clear that you have simply not faced up to the workload in front of you, and this is your organisational failings. Instead, you must make sure your supervisor has several days warning. They may well need to rearrange other peoples' supervision pairings or times as a result, so it might be polite to apologise for any disruption. You should also tell/ask your DoS before you drop any course (the supervisor will have to inform your DoS anyway). Much better than dropping courses mid-term would be to start with a manageable workload, and stick with it, even during that wave of tricky second examples sheets which hits almost everyone.