

# MATHEMATICS FOURTH YEAR HONOURS, 2009/2010

## Guidelines for Students

Department of Mathematics  
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Please see the [Honours Year in Mathematics Home Page](http://www.maths.anu.edu.au/DoM/FourthYear) at <http://www.maths.anu.edu.au/DoM/FourthYear>. Other information is available in links from this site. In particular, detailed information on the organisation and assessment of the Honours Year can be found in the document [Honours in Mathematics](http://www.maths.anu.edu.au/DoM/FourthYear/FourthYearGuide.pdf) at <http://www.maths.anu.edu.au/DoM/FourthYear/FourthYearGuide.pdf>.

I will be the coordinator for 2009/2010, my office is Room 1183, my e-mail is [Alexander.Isaev@anu.edu.au](mailto:Alexander.Isaev@anu.edu.au), my phone is (612)54575. The Departmental Administrator, Kelly Wicks, is contactable at (612) 52908; Dept FAX is (612) 54984; e-mail: [MathsAdmin@maths.anu.edu.au](mailto:MathsAdmin@maths.anu.edu.au).

### Important Dates

1. The Honours Year begins on *6 July*. Classes begin on *20 July*. The period of time between the beginning of the year and the beginning of classes must be used efficiently to discuss your future thesis with your advisor and to start working on it.
2. An agreed outline of the aims and objectives of your project should be provided to you by your supervisor *Monday 27 July*. Please give me a copy signed by you and your supervisor. **Submitting a project outline is a milestone of your honours program recently introduced by the College of Physical Sciences.** On *Monday 20 July* at 10:00 am there will be meetings in the main seminar room G35 to discuss courses.
3. Student seminars will begin shortly after the year starts and will normally be held each Wednesday at 4 pm. You will give two talks, one 25 minutes and one 50 minutes. The 50-minute talk will be on some aspect of your project, but the 25-minute talk may be on any topic (I will need a title at least one week before each talk). I will contact you personally to schedule the talks. Note that attending the Honours Seminar is part of your Honours Program and you must be present at every talk. The 50-minute talk serves as your mid-program progress report. It must be signed off by your supervisor, so the supervisor must be present at your 50-minute talk (and ideally at the 25-minute talk as well). **Submitting a mid-program progress report is a milestone of your honours program recently introduced by the College of Physical Sciences.**
4. A draft of your thesis must be submitted to your supervisor at the beginning of April, 2010 and returned to you with the supervisor's comments and signed off by 23 April, 2010. **Obtaining the supervisor's comments is a milestone of your honours program recently introduced by the College of Physical Sciences.** All the mathematical work should be complete by this time. Note that writing up takes *much* longer than you expect and is less fun than doing more mathematics. You are, however, judged not only on the mathematics you present but the way in which you present it; essays that are sloppily written with many minor errors and proofreading slips tend to be marked down. The purpose of this deadline is to give you plenty of time to write up your work carefully and to allow the supervisor to give detailed help with suggestions, corrections, polishing, etc. Please take note of the length restrictions. It is not the purpose of the essay to record everything you have done this year. If it seems likely that your essay will be more than 100 pages, your supervisor should notify me justifying the length by the beginning of April, 2010.
5. **Your thesis must be submitted by Friday May 7, 2010. One copy must be submitted to the College of Physical Sciences by 3 pm and three copies and a pdf file of your thesis must be submitted directly to me by 5 pm. Extensions other than on medical grounds will be difficult to justify. Even if you do have good reasons for obtaining an extension, it will not be granted unless the three milestones listed above have been met.**

### Thesis & Coursework

See the document [Honours in Mathematics](http://www.maths.anu.edu.au/DoM/FourthYear/FourthYearGuide.pdf) at <http://www.maths.anu.edu.au/DoM/FourthYear/FourthYearGuide.pdf>. In addition:

1. One important point primarily concerns theses done under the supervision of advisors outside the department. Such theses are frequently concerned with applications of mathematics to other disciplines, and we encourage students to consider this possibility. However, since the degree *is* an Honours degree in mathematics, it is important that the thesis work not only involve a considerable amount of mathematics, and that you of course understand this mathematics, but also that this fact be clear from a reading of the thesis. In particular, the thesis should contain a substantial development of the underlying mathematics and/or a substantial amount of mathematical modelling of data or of the relevant phenomena in the discipline concerned. This may mean that the thesis would present less applications than would be the case if it were done in another department, but this will be balanced by the increased amount of mathematics and will be taken into account in the assessment. Please contact me early if you have any queries.
2. Your essay must be typed for submission. Some help will be provided in the use of LaTeX, which we recommend, but you may use another word-processor. We will also provide access to machines; some resources to help you with

using TeX will be available online from the Fourth Year web site at

<http://www.maths.anu.edu.au/DoM/FourthYear/Resources>.

Information sessions on TeX are provided by the Library — see <http://ilp.anu.edu.au/grad/courses/index.html>.

The Department will meet the cost of producing an original and two photocopies of the essay. You should provide a binder of some sort, but commercial binding is not required. Three copies are to be submitted directly to me, and one copy must be submitted to the College of Physical Sciences office by 3 pm on the submission day. In addition, I am asking you to submit to me by e-mail the pdf file of your thesis. There is no specific format for typesetting, any double-sided 12 point format with reasonable margins is acceptable. The normal length of a thesis is 60-70 pages, less than 50 pages or more than 100 pages is unusual. An example of a typical page can be found at

<http://www.maths.anu.edu.au/DoM/FourthYear/example.pdf>. Past Honours theses can be found in the MSI library and in the electronic form at [http://www.maths.anu.edu.au/MSIonly/honours\\_theses/](http://www.maths.anu.edu.au/MSIonly/honours_theses/) (MSI access only).

3. *The introduction to the essay must contain a statement indicating in general terms the source of the material presented and any claims to originality in either results or methods.*

4. Assessment of the Fourth Year Honours will be on the basis of a project and coursework with equal weightings. Courses totalling 24 units must be taken. You may take more courses, but should consult me before doing so. I need to know exactly which courses you are taking for assessment purposes. You should do either two 6 point courses each semester or three in the first and one in the second; but certainly not one in the first and three in the second, because in the second semester you will be very busy finalising your thesis. Reading courses serve a useful purpose; however they are an extra burden on the staff member offering one. *If you take a reading course it will normally be counted as part of your coursework for assessment.* Recently courses taught by AMSI (Australian Mathematical Sciences Institute) have become very popular. *Two four-week AMSI courses can be counted as a single course towards your Honours degree. You can take as many AMSI courses as you like, but only two four-week courses will be taken into account at the end of your Honours Year. No shorter AMSI courses can be counted towards your Honours degree.* Generally, if you plan to take courses taught outside of MSI, please discuss your plans with your supervisor and me. Note that not every such course is equivalent to a course taught in the MSI. For example, three Honours physics courses are equivalent to two MSI Honours courses.

5. During the normal term of your program, you have the right to expect regular access to your supervisor; if your supervisor is absent for any extended period, you should consult me. If it becomes necessary to suspend or extend your course for any reason, you should be aware that your supervisor may have other commitments on your return. The Department will endeavour to provide continuity of supervision wherever possible.

## Other Information

1. You will be provided with keys to the Honours rooms and a card to the John Dedman Building (obtainable from the Departmental Administrator). There is a Fourth Year Honours Students pigeonhole in the Departmental Office: check it reasonably frequently.
2. You will also be provided with a password for photocopying. *Photocopying is expensive, so please use this privilege conscientiously.*
3. There is a phone available for your use. Please use it sparingly.
4. You will have access to computing facilities. *Please follow any instructions you receive from the IT people in respect of usage etc.*
5. My intention is to keep in contact via e-mail. You will be given an account that will also provide you with access to LaTeX and other software. Please read your e-mail regularly. If you prefer to use an e-mail address kept outside of the MSI as your preferred address, please give it to me and the Departmental Administrator to ensure that you can be contacted by e-mail at any time.
6. You will receive the weekly bulletin of seminars. Please attend a seminar every week or two! You may find this daunting, particularly at first, but it is an important way in which to gain a broader perspective of mathematics. You will also learn how (and how not!) to give a seminar. The Thursday colloquium at 4 pm is intended for a broad audience and is particularly recommended. The other seminars may be either specialist or broader in scope. There is afternoon tea provided before the Thursday Colloquium at 3.30 in the common room on the first floor. You are also invited to this.

If you have any problems, please let me know.

I hope you have an enjoyable and productive year!

Alex Isaev