

University of Wollongong
School of Mathematics and Applied Statistics

Information Sheet for
MATH222 Continuous and Finite Mathematics

Autumn Session 2007
Wollongong Campus

Subject Coordinator and Lecturer:

David Pask (Room 15.124)
Email: david_pask@uow.edu.au
Phone: (02) 4221 3844
Consultation: (Weeks 1-4, 6-8)
Tuesday 15.30–17.30
Friday 08.30–10.30

Lecturer:

Aidan Sims (Room 15.207)
Email: aidan_sims@uow.edu.au
Phone: (02) 4221 3845
Consultation: (Weeks 5, 9-13)
Tuesday 11:30–12:30
Thursday 12:30–1:30

Subject Prerequisites: MATH101 or MATH188 or MATH110
or a mark of at least 65 in MATH142 or MATH162 or MATH144

This information sheet must be read in conjunction with the general information on educational issues and student matters provided in the document “Policies and Services of the University, Faculty and School” published by the School of Mathematics and Applied Statistics. A copy may be obtained from the subject coordinator or at <http://www.math.uow.edu.au/current/generic.html>.

Topics, Outline and Lecturers

Continuous Mathematics

Lecturers: David Pask and Aidan Sims
This topic deals the properties of the real number line, and especially with convergent sequences and continuous functions on the line. Careful attention to precision in definitions and arguments is an important aspect of the presentation.

Finite Mathematics

Lecturer: Aidan Sims
This topic deals with the set of natural numbers: primes, divisors, modular arithmetic, and recurrence relations. We will cover some powerful and beautiful theorems, and develop the skills and creativity to produce your own theorems.

Textbook and Reference Books

Text: There is no assigned text for this subject.

References: You are not required to purchase reference books. A list of reference books which are available in the Library will be handed out in lectures, and can also be downloaded from the subject web site. Copies of these references will be placed in Closed Reserve if demand for them proves to be high. Numerous other books with similar contents can also be found in the Library, and may be equally helpful.

Lecture Notes: A bound set of lecture notes “MATH222 Continuous and Finite Mathematics” is on sale in the bookshop at a cost of approximately \$16. The bulk of the material covered in class is in these notes, though the notes are summaries of the material only. Additional examples, explanations, and so on will be introduced in lectures, and reading the notes is not a substitute for lecture attendance. A few additional topics, not represented in the notes at all, may also be introduced in class.

Notices

The subject coordinator may need to contact you at short notice. Messages will be sent to your University email address via the SOLS system, and will be deemed to have been read. *You should check your University email account at least once a week.*

MATH222 has a WeCT site which can be accessed via SOLS. Tutorial solutions and other handouts will be posted at this site during the session. Most files will be in pdf format for downloading. *You should visit this site on a regular basis.*

Subject Learning Outcomes

After successful completion of this subject, students should be able to:

- (i) understand and construct proofs relating to convergent sequences and series;
- (ii) understand and construct proofs relating to continuous functions and sequences of continuous functions;
- (iii) explain the role and significance of the least upper bound axiom in the set of real numbers;
- (iv) understand the concepts of elementary number theory and combinatorics;
- (v) use combinatorial identities and generating functions to count sets of objects;
- (vi) define and identify the mathematical concepts studied proficiently;
- (vii) put the concepts studied into their own words, and use the ideas covered to solve problems and extend theory.

Finally, four over-arching objectives are to be able, in the context of the specific subject content, to:

- (i) demonstrate an appreciation and understanding of the role of definitions and proofs in mathematics;
- (ii) apply problem-solving skills;
- (iii) demonstrate an appreciation of the need for clarity of argument in a mathematical context; and
- (iv) display skills in constructing clear mathematical arguments.

Lectures and Tutorials

The scheduled class times for MATH222 are

Tuesday 08:30–10:30 in 19.2103 and
Thursday 10:30–12:30 in 15.206.

These four hours will normally consist of three lecture hours and one tutorial hour, but the time devoted to tutorial work may vary from week to week. Tutorials in will begin in Week 2.

You are required to attend all lectures and tutorials in MATH222, and attendance will be monitored from time to time. Experience has shown that poor attendance leads to poor performance. Also, attendance and performance at lectures tutorials may be taken into account in determining your final grade if you are on a borderline

Assessment

Your final mark in MATH222 will be determined as follows (as noted, class attendance and performance may be taken into account in borderline cases):

3 Assignments (see below) @ 10 marks	–	30%
Final Exam	–	70%
		Total – 100%

Scaling of marks is not a standard procedure in this subject.

Note that you are not required to pass each individual assessable component of the subject to receive a Pass grade in MATH222. However, you will seriously jeopardize your chances of passing the subject if you do not aim to be successful in each component.

Calculators

Calculators will not be permitted (or needed) in the final examination for this subject, though they may be of use for some tutorial and assignment questions.

Assignments

There will be three assignments, two in Continuous Mathematics and one in Finite Mathematics. Each assignment is worth 10% of the final mark.

It is anticipated that assignments will be set in Weeks 3, 6 and 11, and that they will be collected in class exactly two weeks later. Any changes to these arrangements will be advertised in class and by email.

Note the following points in relation to assignment work.

- You must show working for each question in an assignment, unless indicated otherwise.
- All arguments should read in sentences—even though many of the ‘words’ in the sentences may be symbols.
- Work which is very untidy or illegible may not be assessed, and will then be awarded a mark of 0.
- Assignments will not be accepted outside classes or after the due date (unless you are successful in applying for special consideration—see later).

- Assignments must be submitted with the assignment cover sheet provided and you should make sure your receipt is initialed.
- Faxed or emailed assignments will not be accepted; you must submit your assignments in person.
- Assignments are only part of the expected weekly workload.
- You should keep a copy of all work submitted.
- Assignments will be returned, in class, within seven days of their submission.

Every assignment submitted will contribute towards your final assessment. However, the primary purpose of the assignments is to give you feedback on your progress and understanding of the work, and hence to promote attainment of the Objectives listed earlier.

If you wish to seek special consideration for a late assignment, you must apply for special consideration via SOLS, submit your documentation to the University Administration and then you should obtain a Special Consideration Form from the School Admin Assistant (Room 15.110). Submit the assignment with the completed form to the Admin Assistant as early as possible. In any case, assignments submitted more than 7 days after the original due date will not be accepted and other arrangements may be necessary. In this instance, contact the subject coordinator immediately.

Final Examination

The final examination in MATH222 will be as follows:

Duration:	3 hours and 15 minutes
Value:	70% of final mark.

The examination will be held during the examination period in June, at a time to be advised by the University. As a student enrolled in the University of Wollongong, you are required to be available for the entire examination period in June.

Cheating and Plagiarism

The University does not tolerate cheating nor plagiarism and regards them very seriously. For more information, see the document “Policies and Services of the University, Faculty and School” and the section in the University Undergraduate Handbook entitled “Acknowledgement Practice/Plagiarism”, or visit <http://www.uow.edu.au/handbook/course/rules/plagiarism.html> .

Consultation

If you are having difficulty with MATH222, you are encouraged to seek advice from the relevant lecturer. (For administrative matters, you should see the subject coordinator.)

If you cannot come at the listed consultation times, contact the subject coordinator to arrange an appointment at a mutually convenient time.