MATHS 190 and MATHS 190G
2007, First Semester

Lecturers: Anthony Blaom, Ivan Reilly, James Sneyd

Maths 190 and Maths 190G 2007 S1 C
Studyguide

Lecturers & Contacts

The lecturers for this course are:
Dr Anthony Blaom:
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Professor James Sneyd:
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Professor Ivan Reilly:
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Times & Rooms

The course has two hours of lectures and one tutorial per week. The lectures are 12:00pm-1:00pm on Mondays and Wednesdays. Tutorials are 12:00-1:00pm on Thursdays or Fridays (students pick one of these days). Lectures are in ARL4 (Architecture Building). Tutorial rooms have yet to be finalised.

Course Description

Mathematics contains many powerful and beautiful ideas that have shaped the way we understand our world. This course explores the development and use of some of the grand successes of mathematical thinking, covering topics such as infinity, knots and fractals, cryptography and data communication.

Pre-requisites and Restrictions

No formal mathematics background is required for this course. You may take this course at the same time or before or after any other Mathematics course, although you will not be able to use Maths 190 to satisfy the General Education requirements of your degree if you enrol or have previously enrolled in other Mathematics courses.

Aims

The goals of this course are summarised nicely by Edward Burger, one of the authors of the textbook we use: "Mathematics is an artistic endeavour which requires both imagination and creativity. In this course, we will experience what mathematics is all about by examining some beautiful and intriguing issues. There are three basic goals for this course:

- To attain a better understanding of some rich mathematical ideas.
- To build sharper skills for analyzing life issues that transcend mathematics.
- To develop a new perspective and outlook on the way you view the world.

The overriding theme of the course is to gain an appreciation for mathematics and to discover the power of mathematical thinking in your everyday life."

Expectations

It is expected that students in this course will spend 10 hours per week working on this course. The normal pattern of student study is expected to be (each week):
- 2 hours lectures
- 1 hour tutorial
- 4 hours lecture and tutorial preparation and review
- 3 hours assignments and exam preparation.

Students are expected to attend all lectures and tutorials.

Lectures are designed around your participation, and there will frequently be activities for you to try in class. You are expected to be an active participant in all classroom activities. When questions are posed in class, you are expected to try to think of an answer. If you don't know an answer then guess. Don't be afraid to make lots of mistakes – it is better to guess wrong that not to think about the question at all.

After each lecture you should review the material from the lecture and try any examples recommended in the lecture. Details of material to be covered in the next lecture will be announced in class – you are expected to preview the material in the text before you come to the lecture.

The tutorials are an integral part of the course. During tutorials you will be expected to work collaboratively with one or two other students, discussing puzzles and problems or issues raised in lectures. Part of your final mark for the course will depend on your participation and enthusiasm in tutorials. Written reports on tutorial work will be handed in and marked, with the mark contributing to your final mark for the course. (See below for details about assessment in the course.)

Resources

Textbook

The textbook for this course is:
The Heart of Mathematics, 2nd Edition, by Edward Burger and Michael Starbird.

This textbook is very good and the course will make extensive use of the text. **YOU MUST READ THE TEXTBOOK.** The book is accompanied by a CD containing software that can be used to help with understanding the course material. Both the text and the CD are available on short loan in the Kate Edgar Information Commons.

If you buy a copy of the textbook, you will also get access to resources on the publishers website (see below). The textbook is available new for $139.50 (including delivery) from the distributor. To order a copy of the text, download the order form at:
http://www.math.auckland.ac.nz/class190/textorder.pdf.
Fill out the form, then mail or fax it to the book distributor. There may also be a few second hand copies of the text available.

Textbook website.

Students that buy a copy of the textbook will be able to visit the publisher's website, and use any material available there. The website is:
http://www.keycollege.com/online
You will need the access code from the back cover of your textbook to use the website.

CECIL and course website

CECIL is the main source of information about the running of the course. All announcements made in lectures will also be made on CECIL. Students are requested to log on to CECIL on a regular basis, and use it to get information about the coursework marks, about due dates for coursework, and about any matters concerning rooms, resources, or assessments.
Access Cecil at http://www.cecil.auckland.ac.nz

Information about the content of the course will be available from the course website:
http://www.math.auckland.ac.nz/class190
This is the place to look for copies of assignments, lecture handouts and tutorial sheets. The course website can be accessed from CECIL.

Topics covered in the course

The proposed topic schedule is:

- Fun and Games: Text Chapter 1 (1 lecture).
- Number Contemplations: Text Chapter 2 (2 and 1/2 weeks).
- Infinity: Text Chapter 3 (2 weeks).
- Geometric Gems: Text Chapter 4 (1 and 1/2 weeks).
- Contortions of Space: Text Chapter 5 (2 and 1/2 weeks)
- Chaos and Fractals: Text Chapter 6 (2 weeks)

Assessment

The final grade for the course will be calculated as follows:

- Final exam (2 hours)   50%
- Five assignments   25%
- Contribution to tutorials   10%
- Tutorial write-ups   15%

Assignment due dates are March 9, March 23, April 5, May 4, and May 18. If illness or other problems prevent you from completing any of the assignments you should contact your lecturer as soon as possible. A medical certificate will be required if you wish to apply for exemption from an assignment.

If you are ill at the time of the exam you should contact Student Health and Counselling (telephone 373-7599 extension 87681) immediately to obtain information on how to apply for an aegrotat or compassionate pass.

Doing well in Maths 190 and Maths 190G

You will be challenged and excited by this course when you meet new and profound ideas. Sometimes you will come up against ideas that you do not at first understand, but persist and you will understand them in the end. Here are some suggestions for doing well in this course:

- Come to lectures prepared to think and to ask questions when you do not understand. If the lecturer or other students ask questions during lectures, try to think of an answer – don't just wait for someone else to answer the question.

- Read the textbook. It is easy and entertaining to read, and we will follow it closely (although we will not cover all topics in the book). The relevant parts of the text will be announced in lectures.

- Talk about the ideas raised in this course as much as possible. Tutorial discussions with classmates are a good opportunity for this, but also try explaining the ideas to your friends and family – or anybody else who is interested.

- Talk to your lecturers about the course material and any ideas about or difficulties that you have with the material. Don't be scared to approach your lecturers – they are happy to talk to and help students who are trying to help themselves. A good time to talk to your lecturer is right after class or in office hours. Office hours for each lecturer will be announced in class. You can also make an appointment to meet with a lecturer by emailing your lecturer.

DELNA

DELNA is The University of Auckland's English Language testing programme. Information on the programme can be found at:
http://www.delna.auckland.ac.nz/

DELNA:

- Diagnoses your academic English language ability.
- Does not cost you anything.
- Directs you to the best language support for you.
- Does not exclude you from the courses you are enrolled in.
- Does not appear on your academic record.

The Department of Mathematics requires ALL first year students to undertake DELNA screening. This is a half-hour web-based test. Individual results are given only to you, although the Department gets a summary of the class results. Arrangements for sitting the test will be made through the Course Coordinator, who will advertise times and places where the screening can take place.

English Language Assistance

If students require assistance with English there are several services provided by the university and by the Department of Mathematics.

The main assistance is ELSAC, the English Language Assistance Centre, which has a website:
http://www.elsac.auckland.ac.nz/
This computer-laboratory based service is free and open seven days a week. Tutors are available to help. Alternatively, there are credit-bearing English language courses (ESOL 100/101/102—see p337 of the 2006 Calendar).

The Department of Mathematics offers special tutorial support for Maori and Pasifika students (contact Garry Nathan, telephone 373-7599 extension 84931, or Viliami Latu, telephone 373-7599 extension 83063), and occasionally runs Mandarin or Cantonese-speaking tutorials (contact Jamie Sneddon, telephone 373-7599 extension 82121).

Collaborating & Cheating

You are encouraged to discuss problems with one another and to work together on assignments, but you must not copy another person's assignment. Assignment marks contribute to the final mark you receive in this course. We view cheating on assignment work as seriously as cheating in an examination.
Generally acceptable forms of collaboration include:

- Getting help in understanding from staff and tutors.
- Discussing assignments and tutorial examples and methods of solution with other students.

Generally unacceptable forms of collaboration ("cheating") include:

- Copying all or part of another student's assignment, or allowing someone else to do all or part of your assignment for you.
- Allowing another student to copy all or part of your assignment, or doing all or part of an assignment for somebody else. This is treated as seriously as copying another student's assignment.

If you are in any doubt about the permissible degree of collaboration, then please discuss it with a staff member.

Harassment & Complaints

Complaints about assignment or tutorial marks are best made to your lecturer who is in a position to do something immediately. More general complaints can be taken up by your class representative who should be elected or appointed in the first couple of lectures. You may also approach the Head of Department or the Departmental Manager for Mathematics (telephone 373-7599 extension 88063).

Harassment on any grounds, such as racial, sexual, religious and academic is totally unacceptable. Complaints about harassment are best taken to the University Mediator (telephone 373-7599 extension 87478) or to any member of the Resolve Network whose names are displayed on posters around the campus.