

**MATH161****Discrete Mathematics and Logic****2014 (2/3)**

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**Course Content**

This course covers ideas in discrete (finite) mathematics and logic. We will study propositional logic, proofs, induction, sets, relations, functions, elementary number theory, polynomials, and introductory graph theory.

**Learning Outcomes**

By the end of the course you should know the important definitions and results in introductory discrete mathematics, and understand their significance. You should be able to demonstrate your understanding by stating definitions and results, and solving simple problems. You will also be required to demonstrate an ability to create mathematical arguments and communicate them.

**Lecturers**

Name:	Rod Downey	Geoff Whittle (coordinator)
Room:	Cotton 324	Cotton 320
Phone:	463-5067	463-5650

To call a VUW phone number from an internal line, omit the 463.

Steven Archer (Cotton 363, phone 463-5233 extension 8316) is the administrator for first-year courses. He is the person to contact if you have a missing assignment or any other course associated problem.

Any VUW staff member can be contacted using the standard email address: `firstname.lastname@vuw.ac.nz`.

**Lectures and Tutorials**

Trimester 2 runs between 14 July and 17 October, with a break from 25 August to 5 September. During the trimester, there will be 30 lectures, which take place on Mondays, Wednesdays, and Thursdays, between 12.00 pm and 12.50 pm, in New Kirk 303.

Tutorials start in the second week of the trimester. By 3pm on Wednesday July 16, you are required to sign up for a tutorial at <https://signups.victoria.ac.nz/>. The tutorial timetable will be advertised in the first week of lectures, and then posted on the course website. You can go to as many tutorials as you like. It is strongly advised that you go to at least one.

**Week one deadlines**

By 5pm on Wednesday July 16, you are required to have sat the online core-skills inquiry on blackboard. For more details, see [http://msor.victoria.ac.nz/Courses/MATH161\\_2014T2/CoreSkills](http://msor.victoria.ac.nz/Courses/MATH161_2014T2/CoreSkills). To sit the inquiry, see <https://blackboard.vuw.ac.nz/>

By 3pm on Wednesday July 16, you are required to have signed up for a Math 161 tutorial on s-cubed. See <https://signups.victoria.ac.nz/>

Failure to meet either requirement indicates to us that you have disengaged from the course. This will result in your name being sent to your faculty, who will start the process of disenrolling you from Math 161.

## **Helpdesk**

The helpdesk schedule shows when staff members are available to provide one-on-one assistance with undergraduate courses, including MATH161. The timetable for the helpdesk will be posted on the website early in the trimester.

## **Withdrawals**

If you choose to withdraw from the course, you should do so before the deadline of 25 July, or you will be liable for course fees. More information is available at <http://www.victoria.ac.nz/home/admisenrol/payments/withdrawalsrefunds.aspx>

## **Terms test**

There will be two one-hour terms tests. The first will be on 14 August at 6pm, and the second will be on 9 October at 6pm. The first terms test will cover material taught from Week 1 to Week 4, while the second will cover material taught from Week 7 to Week 10. Rooms will be announced later.

## **Assignments**

Assignments will be handed out in class and posted on the website by 10am each Friday. Completed assignments are due at 1.00pm on the Friday a week later. The first assignment will be due on Friday 25 July. Each assignment will receive a mark out of twenty. Assignments may be submitted by posting them in the box in the corridor of the Cotton building (third floor).

If you choose to nominate a tutorial on your assignment cover sheet, then your marked assignment will be returned to you in that class. Otherwise, you can pick up your assignment from the school office (Cotton 358), but only during the times listed at <http://msor.victoria.ac.nz/Main/MarkedAssignments>.

You will be awarded one mark for each satisfactory assignment solution handed in on time. An assignment is generally regarded as satisfactory if you get at least 8 out of 20.

Marks for assignments and the terms tests will be posted on blackboard. All other information will be posted on the course website.

## **Assessment**

Assessment will be based on ten weekly assignments, the terms tests, and the final exam.

The final grade will be based on the maximum of the following:

- (i) The mark from the final exam; or,
- (ii) 60% of the mark of the final exam, plus 40% of the mark of the terms tests; or
- (iii) 60% of the mark of the final exam, plus 30% of the mark of the terms tests plus 10% for assignments.

The final exam will be 3 hours long, and will take place during the examination period between 28 October and 15 November.

In the event of an aegrotat application, assessment will be made on the basis of the weekly assignments and the terms test. You are strongly advised to complete fully and on time all assignments. Work submitted late may not be marked. If you need an extension you must see the relevant lecturer as soon as possible.

## **Mandatory Course Requirements**

To complete the course requirements you must:

- (i) Sit the online core-skills inquiry, no later than 5pm on Wednesday July 16;
- (ii) Sign up for a tutorial, no later than 3pm on Wednesday July 16;
- (iii) Hand in at least nine of the ten weekly assignments;
- (iv) Sit the terms test; and
- (v) Sit the final exam.

## **Workload**

Although the workload will vary from week to week, you should expect to spend approximately 10-12 hours per week on the course. This includes time spent in lectures and tutorials, completing assignments, and reviewing notes.

## **A note on writing mathematics**

Writing mathematical arguments (proofs) is an important part of learning mathematics. You will be expected to write simple arguments during MATH161. It is a difficult skill to master, and it takes a lot of practice. Here are some tips.

Remember that you are writing in English. Writing a string of mathematical symbols is not adequate. You should write in complete sentences, with punctuation, just as you would if you were writing an essay. Just as in an essay, you are trying to convince your reader of something. In this case, you are trying to convince your reader that your mathematical argument is solid.

To develop your skills at writing mathematics, you need to get plenty of practice. The notes provided in lectures should give you plenty of examples of how to write. You might want to try the following exercise: take a proof from an assignment solution. Study it carefully, until you are sure you understand every step (ask someone if you don't). Then put the solution aside, and try to write it out again in your own words. After you have done this, compare the two copies. If yours is different, think about why the assignment solution was written the way it was. Is it

easier to understand? If so, why? If you feel brave, you could ask a friend to read your proofs, and comment on them.

Finally, do not worry if you find parts of the course difficult: you're not the only one. If you are confused about something, don't spend hours becoming frustrated; ask someone about it as soon as you can. Sometimes even a little bit of extra explanation can help.

## **Notices – website and forum**

All notices will be posted on the course website [http://msor.victoria.ac.nz/Courses/MATH161\\_2014T2/](http://msor.victoria.ac.nz/Courses/MATH161_2014T2/). Handouts, assignments, model solutions, and details of tutorials will also be posted there.

In addition, you can ask questions about the course and its contents at the course forum: [https://ecs.victoria.ac.nz/cgi-bin/yabb/YaBB.pl?board=MATH161\\_2014T2](https://ecs.victoria.ac.nz/cgi-bin/yabb/YaBB.pl?board=MATH161_2014T2). The teaching staff will monitor the forum, and respond to any questions that haven't been covered by your classmates. The course homepage contains a link to the forum.

## **Recommended Reading**

There is no required text for this course. The course will be self-contained, and you will be provided with some posted notes (which you are expected to study). However, if you wish to do additional reading, then you may wish to look at *Discrete and Combinatorial Mathematics*, by Ralph P. Grimaldi.

## **Class Representative**

Your class representative is available if you come across problems and for any reason the issue cannot be resolved directly with staff. If you would like to talk about a concern you have, please email your class rep and a meeting can be arranged. The name of the class rep will be put on the course webpage.

## **Information about the School**

The School of Mathematics, Statistics and Operations Research (SMSOR) is located in the Cotton Building on the Kelburn Campus.

- The School Office is in CO358, on the 3rd floor of the Cotton Building. The office is open from 8.30am-5.00pm
- The School website is <http://msor.victoria.ac.nz>
- Hand in boxes for assignments are on level 3 of the Cotton Building
- Assignments can only be collected from the office at certain times, listed on the Marked assignments page: <http://msor.victoria.ac.nz/Main/MarkedAssignments>
- There is a noticeboard opposite the School Office where students seeking and offering private tuition in mathematics and statistics can put requests and advertisements.

## **Academic integrity and plagiarism**

Academic integrity means that university staff and students, in their teaching and learning are expected to treat others honestly, fairly and with respect at all times. It is not acceptable to mis-treat academic, intellectual or creative work that has been done by other people by representing it as your own original work. Academic integrity is important because it is the core value on which the University's learning, teaching and research activities are based. Victoria University's reputation for academic integrity adds value to your qualification. The University defines plagiarism as presenting someone else's work as if it were your own, whether you mean to or not. "Someone else's work" means anything that is not your own idea.

Find out more about plagiarism, how to avoid it and penalties, on the University's website: <http://www.victoria.ac.nz/home/studying/plagiarism.html>

## **Where to find more detailed information**

Find key dates, explanations of grades and other useful information at <http://www.victoria.ac.nz/home/study>. Find out about academic progress and restricted enrolment at <http://www.victoria.ac.nz/home/study/academic-progress>.

The University's statutes and policies are available at <http://www.victoria.ac.nz/home/about/policy>, except qualification statutes, which are available via the Calendar webpage at <http://www.victoria.ac.nz/home/study/calendar.aspx> (see Section C).

Further information about the University's academic processes can be found on the website of the Assistant Vice-Chancellor (Academic) at [http://www.victoria.ac.nz/home/about\\_victoria/avcacademic/default.aspx](http://www.victoria.ac.nz/home/about_victoria/avcacademic/default.aspx).