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

<table>
<thead>
<tr>
<th>Name:</th>
<th>Rod Downey (coordinator)</th>
<th>Byoung Du Kim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room:</td>
<td>Cotton 324</td>
<td>Cotton 434</td>
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<tr>
<td>Phone:</td>
<td>463-5067</td>
<td>463-5665</td>
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</table>

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 11 July and 16 October, with a break from 22 August to 4 September. During the trimester, there will be 30 lectures, which take place on Mondays, Tuesdays, and Thursdays, between 2.10 pm and 3.00 pm, in New Kirk 301.

Tutorials start in the second week of the trimester. By 3pm on Thursday July 14, you are required to sign up for a tutorial at [https://student-sa.victoria.ac.nz/](https://student-sa.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.

Lecture Attendance

Last year in Math 161, the school compared attendance at lectures with performance at terms tests. There in the B/C band there was a 20% difference in scores. The message is that you should try to attend all lectures and interact with the material as much as you can.
Week one deadlines

By 3pm on Wednesday July 13, you are required to have sat the online core-skills inquiry on blackboard. For more details, see http://msor.victoria.ac.nz/Courses/MATH161_2016T2/CoreSkills. To sit the inquiry, see https://blackboard.vuw.ac.nz/

By 3pm on Thursday July 14, you are required to have signed up for a Math 161 tutorial on myAllocator. See https://student-sa.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 24 July, or you will be liable for course fees. More information is available at http://www.victoria.ac.nz/home/admisenrol/payments/withdrawlsrefunds.aspx

Mid-course tests

There will be a two tests, the first on THURSDAY August 11 and the second on MONDAY September 26. Both will be in the evening, in KKLT 303, 18.10-20.00

Assessment

Assessment will be based on nine weekly assignments, the two 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) 70% of the mark of the final exam, plus 15% of the mark of each test; or

(iii) 70% of the mark of the final exam, plus 20% of the mark of the best test, plus 10% for assignments; or

(iv) 60% of the mark of the final exam, plus 15% of the mark of each test plus 10% for assignments.

For assignments to contribute you must do 8 of the 9 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 22 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.

Marks for assignments and the test will be posted on blackboard. (But all other information will be posted on the course website.)

The final exam will be 3 hours long, and will take place during the examination period between 17 October and 11 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 3pm on Wednesday July 15;
(ii) Sign up for a tutorial, no later than 3pm on Thursday July 16;
(iii) Sit both tests; and
(v) Sit the final exam.

We have removed the assignment requirements used hitherto from the mandatory requirements.

**If you want to use the assignment marks, however, for the final grade you must do 8 of them at least.**

**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 expect 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**

All notices will be posted on the course website [http://msor.victoria.ac.nz/Courses/MATH161_2016T2/](http://msor.victoria.ac.nz/Courses/MATH161_2016T2/). Handouts, assignments, model solutions, and details of tutorials will also be posted there.

**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 and Statistics (SMS) 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](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](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