SCHOOL OF MATHEMATICS, STATISTICS AND OPERATIONS RESEARCH

MATH 141 **CALCULUS 1A** **2014 (1/3)**

Course Content

The properties of functions of one variable, and their use for modelling continuous phenomena, including ideas and applications of differential and integral calculus.

Learning Outcomes

Students will gain an understanding of and familiarity with:

- Coordinates and continuity — basic concepts.
- Differentiation — basic concepts and techniques.
- Integration — basic concepts and techniques.

Lecturers

Course coordinator and lecturer (second half — integration):
Matt Visser, Cotton 321, 463-5115, matt.visser@msor.vuw.ac.nz

Lecturer (first half — differentiation):
BD Kim (Byoung Du Kim), Cotton 434, 463-5665, byoung.du.kim@msor.vuw.ac.nz

Course administrator (assignments and the like):
Steven Archer, Cotton 363, 463-5233 extn 8316, steven.archer@msor.vuw.ac.nz

Lectures

Warning: Lectures are three times a week, in three different lecture rooms, and at two different times of day.

- Monday 12:00—12:50 Mclaurin LT 101
- Tuesday 12:00—12:50 Mclaurin LT 103
- Friday 10:00—10:50 Hugh Mackenzie LT 205

The trimester has 12 teaching weeks: Monday 3 March — Friday 6 June.

There is a combined (2-week + Easter) break starting on Friday 18 April (Good Friday).

After the break, classes recommence on Monday 5 May.

— The first half of the course, (Mon 3 March to Thur 17 April), will concentrate on differentiation and will be taught by BD Kim.

— The second half of the course, (Mon 5 May to Fri 7 June), will concentrate on integration and will be taught by Matt Visser.

There will be approximately 30 lectures, and several review sessions, during the allotted lecture times.

Tutorials

Times and rooms as follows:

- Monday 13:10–14:00 Alan MacDairmid 102
- Monday 14:10–16:00 Cotton 228
- Tuesday 16:10–17:00 KP22/104
- Wednesday 12:00-12:50 Cotton 228
- Thursday 14:10–15:00 Cotton 228

Tutorials will commence in the second week of classes (Monday 10 March).

By 16:00 on Friday 7th March you are required to sign up for a tutorial.
Do this at https://signups.victoria.ac.nz/admin

You are very strongly encouraged to attend at least one tutorial per week.

Note: The single best predictor we have of final outcome for the course is student engagement with the course — attend the lectures, attend tutorials, do the assignments.

Diagnostic Survey

Some of you may still not be sufficiently fluent in basic algebra, and perhaps should instead be enrolled in MATH 132.

To determine your abilities, you are *required* to sit a diagnostic survey.

- Firstly, reset the password associated with your ITS/myVictoria user-name (near the top right of your Confirmation of Study) as explained in the "New Student Guide" page 7.
- Secondly, log in to
  https://blackboard.vuw.ac.nz
  and complete the diagnostic survey before 12:00 on Thursday 6th March.

The diagnostic survey will not affect your final grade, but you must take it by 12:00 on Thursday to remain in the MATH 141 class. Later, an e-mail will explain whether you need to attend special extra tutorials. More details are linked to the course home page.

Taking the diagnostic survey by the deadline is mandatory.

Withdrawals

Students should be aware of the regulations regarding withdrawals from University courses, at
`http://www.victoria.ac.nz/home/admisenrol/payments/withdrawlsrefunds.aspx`

If you are at all in doubt about continuing the course to completion, you should withdraw before the end of the second week of classes (that is, by Friday 14 March 2014) to minimize financial repercussions.

Assessment

There are compulsory weekly assignments (worth 10% of the final grade); a compulsory mid term test (worth 30%), and a final exam (worth 60%). If you do better on the final exam than the midterm test then the final exam will count for 90%; the assignments will still count for 10%.

Assignments will be handed out in class on Fridays, and copies placed on the course website. Assignments will be due the following Friday afternoon at 13:00 in the hand-in box on the 3rd floor of the Cotton building. Late work should be handed in to the course administrator (Steven Archer) on Cotton Level 3.

NOTE: Work submitted late (without the prior agreement of the course administrator) will be marked out of a lower total mark, or even remain unmarked. If you need an extension you *must* see the course administrator (Steven Archer) as soon as possible.

The mid-term test is tentatively scheduled for the evening of Wednesday 16 April. It will be a two-hour test 18:00–20:00, location TBA.

The final exam will be a three-hour exam held during the examination period (Monday 9 June to Wednesday 3 July). Date, time, and location TBA.

Aegrotats: In the event of an aegrotat application, assessment will be made on the basis of the compulsory assessments (assignments and mid-term test). You are *very* strongly advised to complete fully and on time all assignments and tests which are set.

Mandatory Course Requirements

To pass the course you must:

- Complete the diagnostic survey (by 12:00 Thursday 6 March),
  and complete any necessary follow-up.
- Sign up for a tutorial (by 16:00 on Friday 7th March).
  Do this at: https://signups.victoria.ac.nz/admin
- Hand in on time a genuine attempt at (almost) all the assignments (see below).
- Sit the mid-term test (provisionally scheduled for Wednesday 17th April, 18:00–20:00).
  If a serious problem (usually illness) prevents you from sitting the term test, then discuss it with Matt Visser as soon as possible. Obtain a medical certificate where appropriate.
- Sit the final examination — sometime between 14th June and 3rd July — and obtain at least 40% for it.
- Obtain a satisfactory final grade.

If you fail either of the assignment or mid-term requirements for a serious reason such as illness, you should see the course coordinator, who may require a doctor's certificate for you to be excused or for alternative arrangements to be made. However, to avoid excessive inconvenience to everybody, we allow you to miss TWO (out of ten) assignments (not the test or the final examination) on the mere assumption that you were ill. You should not exploit this concession without very good cause. Assignments are not primarily intended as a mode of assessment; their primary purpose is to help you to learn, and missing them, or skimping on them, means you have not learnt something you should.

If you fail to sit the final examination, the only way to pass the course is to apply for an aegrotat — see Section 4.5 of the Assessment Statute in the Calendar. There are rigorous conditions on aegrotat applications.

It is also possible under the aegrotat regulations to apply for "special consideration" if you did sit the examination but can provide evidence that your performance was affected by illness or by other seriously disturbing circumstances in the immediately preceding period. This may mean awarding an aegrotat pass despite your failing the examination, or, if you passed the examination but with a lower grade than might confidently have been expected, endorsing your transcript with a remark that your performance in this course had been affected by illness or whatever the circumstances were.

Aegrotat passes are denoted by an undifferentiated G grade. They are an exceptional provision for people who are known to have done most of the work expected, and at a satisfactory level, and would definitely have been expected to pass had they not suffered some misfortune late in the course. They are granted only after serious investigation. Consequently, a poor assignment record and a poor or missing test result will make an aegrotat pass overwhelmingly unlikely, no matter how reasonable the excuse. A passing grade is supposed to assert that you have mastered the material of the course to a standard sufficient for further study; an aegrotat pass indicates only that this mastery was not demonstrated in the usual way. But the University must be satisfied that it is there. An aegrotat cannot be conferred just on the basis of your good intentions or your bad luck. Late assignments may sometimes be accepted for the mandatory course requirements, but they will not necessarily be marked or taken into account in the course mark.

Workload

Four hours of lectures and tutorials, plus an expected 5–8 hours a week studying for the course. Better-prepared students may need less, and some may need significantly more. Spend at least two hours a week studying your lecture notes, and at least two hours on the assignment — even if you find it straightforward. Most students will need much more, and if you think less is enough you are perhaps not treating it with due seriousness. Many students who fail because they do not establish serious study habits early enough.

So overall: Although the workload will vary from week to week, you should expect to spend approximately 10-12 hours per week on the course. [15 point courses should be 150 hours all up — including lectures, tutorials, labs, homework, assignments and the exam — 10 hours per point]

Notices

All notices and additional information needed throughout the course will be posted on the course website `http://msor.victoria.ac.nz/Courses/MATH141_2014T1`.

Handouts, assignments and details of tutorials will also be posted there.

Computing

All students in SMSOR courses have computer accounts, but you must activate your account in the first 3 weeks or it will become disabled. Instructions about how to do this are here: `http://ecs.victoria.ac.nz/Support/TechNoteAccountRegistration`.

Regarding calculators: You will not need to do numerical calculations in this course. We will be concentrating on concepts, not numbers. Simple integer multiplication and division, with at worst few square roots and special constants, will be enough. Think $\sqrt{2}$, not 1.1414... Think π, not 3.14159... To help you think about concepts, not numbers, all calculators will be *completely forbidden* in both the midterm test and the final exam.

Recommended Reading

- The lecture notes will be broadly sufficient on their own, and will indicate precisely what we expect you to learn; but all of the essential material of the course will be found in the first few chapters of any recent edition of the "Calculus" textbook by Anton-Bivens-Davis.
- (This textbook will be used for the first 2 years of Calculus courses, you will get a lot of use out of it.)
- Second-hand textbooks are often available, and other authors generally cover quite similar material.

Class Representative

A class representative is chosen by the students in the class each trimester.

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 Notices/Home page.

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 8:30–17:00.
- 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 mistreat 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. Even if it is presented in your own style, you must acknowledge your sources fully and appropriately. This includes:

- Material from books, journals or any other printed source.
- The work of other students or staff.
- Information from the internet.
- Software programs and other electronic material.
- Designs and ideas.
- The organisation or structuring of any such material.

Find out more about plagiarism, how to avoid it and penalties, on the University's website:
http://www.victoria.ac.nz/students/study/exams/integrity-plagiarism

Use of Turnitin

Student work provided for assessment in this course may be checked for academic integrity by the electronic search engine http://www.turnitin.com. Turnitin is an online plagiarism prevention tool which compares submitted work with a very large database of existing material. At the discretion of the Head of School, handwritten work may be copy-typed by the School and subject to checking by Turnitin. Turnitin will retain a copy of submitted material on behalf of the University for detection of future plagiarism, but access to the full text of submissions is not made available to any other party.

General advice

Study the notes thoroughly soon after the lecture, and make sure you understand them. Attempt assignments well before they are due, and attend tutorials — which often clarify things that the lectures don't treat fully. (Students often say they would like more examples done in lectures; so should we, but in the time available we have to relegate many examples to tutorials). If you find you have a problem with the assignment, you can ask about it at the tutorial, or consult us, preferably during office hours. Try to complete assignments; if you don't, you have missed something which may turn out to be important. If a question does not work out at the first attempt, think why not, try to invent other methods, read the lecture notes again, sleep on it. Monday?s insoluble conundrum often becomes shamefully obvious on Tuesday. Talk to your friends about it. If we asked it, we believed it was doable; and though we may sometimes want to stretch you a little, we don't want to break you. Generally speaking, it is far more instructive to try hard to work a problem out yourself than to rush for help at the first sign of difficulty. The key to understanding is to engage with the material.

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

Further information about the University's academic processes can be found on the website of the the Academic Office at:
http://www.victoria.ac.nz/home/about/avcacademic