

**UNIVERSITY OF WAIKATO**  
**Department of Mathematics (SCMS)**

**MATH101-09A - *Introduction to Calculus* - 2009**

**Lecturer**

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**Lectures**

<b>Tuesday</b>	<b>1.10pm</b>	<b>-</b>	<b>2.00pm</b>	<b>S.1.02</b>
<b>Thursday</b>	<b>3.10pm</b>	<b>-</b>	<b>4.00pm</b>	<b>A.G.30</b>
<b>Friday</b>	<b>12.00noon</b>	<b>-</b>	<b>12.50pm</b>	<b>A.G.30</b>

**Aim of paper**

To give students in mathematics, or in subjects that use mathematical methods, a comprehensive foundation in differential and integral calculus and examples of its applications.

**Textbook**

*Thomas' Calculus* (11<sup>th</sup> Edition), by Finney, Weir, Giordano, published by Addison-Wesley.

**Recommended Reading**

*Calculus Made Easy*, S. Thompson & M. Gardiner, MacMillan.

**Paper contents**

Depending on the time available, topics will be drawn from the following syllabus:

1. *Functions, limits and continuity; the derivative and its geometrical meaning; rules for differentiation,*
2. *The chain rule; Rolle's theorem and the Mean Value Theorem; maxima and minima; applications of differentiation: linear approximation, Taylor's Theorem, higher derivatives, curve sketching, modelling problems involving rates of change.*
3. *The integral as an area; fundamental theorem of calculus; techniques of integration including substitution and integration by parts, partial fractions; Riemann sums; applications of integration: volumes, arclength and surface area.*
4. *The logarithm, exponential and hyperbolic functions; inverse functions; differentiation of special functions.*

**Tutorials**

Learning mathematics requires practice at solving problems. In this paper, participation in tutorials is an integral part of the paper and is crucial to gaining experience in problem solving. There will be **weekly one-hour tutorials** beginning **Monday 9 March (SECOND WEEK of teaching)**. Blank tutorial lists will be displayed in the first week of semester or earlier on the MATH101A & B noticeboard on the third floor of G Block in the **foyer beside the lift**. Please choose **ONE** tutorial scheduled at a free hour of your timetable, and write your **name and ID clearly** on the list.

**You must be officially signed up to the tutorial you wish to attend or you may be refused entry.**

Assessment for the tutorials will occur on a week-by-week basis, and will take the form of a written assignment.

***Your best 8 (out of 10) weekly marks will contribute equally to your tutorial mark.***

**Lecture Notes**

Something similar to these will be available on the class website. **Notes are not a substitute for attending classes!**

**Class website:**                      **<http://www.math.waikato.ac.nz/~seano>**

**Assessment:**

Your final mark will be based on both internal assessment (c) and the final examination (f) with a *c:f* weighting of either 1/2:1/2 or 0:1, whichever works to your advantage. The internal assessment mark will consist of **TWO TESTS** held as follows:

<b>Tuesday</b>	<b>17 Mar</b>	<b>1-2pm</b>	<b>(during class)</b>	<b>(10%)</b>
<b>Tuesday</b>	<b>5 May</b>	<b>7-9pm</b>	<b>PWC (MSB1.04)</b>	<b>(70%)</b>

plus **ONE tutorial component** (20%).

**An unrestricted pass (ie. C or better) will not normally be awarded if the final examination mark is below a D grade (40%).**

**Important notes about assessment**

If you miss a test because of illness, you must supply a **Medical Certificate (MC)** (**signed by a Doctor NOT a Practice Nurse**) to the Mathematics Secretary (G3.19); *without such a certificate you will not obtain any credit for the test from which you were absent*. If you supply a MC (or other good excuse) in lieu of one test, then the other test will count for 80% of your internal assessment mark. If you supply MCs for both tests, the exam mark will replace both test marks.

If you have any doubts about the operation of these procedures, contact the paper coordinator.

**Please note: no credit** will be given for **missed tutorials without a MC**. With a MC you may gain permission to **catch-up** on missed assignment *at the discretion of the tutor*.

The date, time and location of the Final Examination at the end of the semester will be arranged by the University registry.

**Math Help sessions**

In addition to the tutorials, the Department will provide **FREE** Math Help sessions for all Level I & II **Mathematics** papers from **Monday 9 March (SECOND WEEK of teaching)** DAILY from **1-2pm** in **K.1.18**. These sessions provide an excellent opportunity for students to discuss difficulties with lectures and assignments.

**Noticeboard, paper handouts and return of assessed work**

All notices will be posted on a noticeboard situated on the 3rd Floor of G Block in the foyer area near the lift.

**This noticeboard should be consulted frequently as such notices are deemed to be official notifications.**

**Computer printouts of your internal assessment marks** will also be displayed on this noticeboard.

*It is YOUR RESPONSIBILITY to check your marks are correctly entered on the noticeboard.*

Tests will be returned via the **SCHOOL OFFICE (GG.19)** on the **GROUND FLOOR** of **G Block** and should be collected by **yourself within two weeks**. Tutorial work will be returned during the next tutorial session or in pigeon holes near 3<sup>rd</sup> floor lift and first year noticeboards.

**Mathematics Subject Forum**

The Mathematics Subject Forum, which consists of staff and student representatives, meets about twice each semester. It serves as an informal forum for discussion of matters concerning the subject of Mathematics in the University. The student representatives on the Committee also elect, from among themselves, one representative on each of the School Boards of Study.

Elections of two representatives from each undergraduate paper will be held in late March. The lecturers in charge will be responsible for the conduct of elections in their classes, and will act as returning officers.

Your attention is drawn to the following policies and regulations contained in the 2009 University Calendar.

Assessment Regulations 2006 (pg 127)  
Student Discipline Regulations 2009 (pg 753)  
Computer Systems Regulations 2006 (pg 773)  
Policy on the Use of Māori for Assessment (pg 135)  
Ethical Conduct in Human Research and Related Activities Regs 2008 (pg111)  
Student Research Regulations 2009 (pg 109)  
Student Complaints Policy 2004 (pg 769)

**For other information please refer to website: <http://www.math.waikato.ac.nz/studentinfo.html>**