Mathematics 1210　　　　Calculus I　　　　Course Outline for Autumn 2009

Maths 1210–020　　　　　　4.0 units of credit

University of Utah, Bountiful　　　　Mondays and Wednesdays, 8.00 – 10.00 p.m.

Instructor: Dr Christopher Stone　　　Associate Professor (Lecturer), Department of Physics

Consultation: after class, or before class by appointment
　　　　　　telephone at Bountiful High School (with voice mail): 801 – 402 – 3910
　　　　　　e-mail: cstone@dsdmail.net

Textbook: *Calculus* (9th ed.) by Varberg, Purcell, and Rigdon (Pearson Prentice Hall, 2007).

Prerequisite: Maths ACT score of at least 28, or grades of C or better in Maths 1050 and 1060.

　　We shall begin with the hand-out notes 'Introduction to Polynomial Calculus', then cover Chapters 1 – 5 in the textbook, some sections in more detail than others. (It is assumed that you are already familiar with the algebra and trigonometry summarized in Chapter 0. You ought to look at it to make sure that this is indeed the case; let me know if it is not.) Although homework will not be collected or marked, it is extremely important that students do homework problems regularly and faithfully, keeping up with the various sections of the textbook as we cover them in class. Answers to odd-numbered problems are given at the back of the book, and the exams will consist of problems similar to those in the book.

　　The lectures will concentrate mostly on examples and problem-solving techniques. If we hope to get through the syllabus we shall have to move fairly quickly, without much time for formal theory and derivations. Therefore, it will be very helpful if you can read the relevant sections in your textbook *before* we cover them in class. This prior exposure to the material will make it easier for you to follow along if I have to hurry a bit. Also, I encourage you to ask questions or make comments in class concerning any of the material that you find difficult.

　　The use of a graphing calculator is allowed, and may prove quite useful in certain problems, but it is not required.

　　Four ordinary exams and one final exam determine the course grade, with each student's lowest ordinary exam score being eliminated. Practice problems will be given before each exam, and you will be allowed to use one standard sheet of paper (both sides) with notes during the exam. The relative weights are:

Best Three Ordinary Exams (120 marks each):	360
Final Examination:	<u>140</u>
Total:	500

　　Tentative dates and coverage for the ordinary exams are as follows:

Wednesday 16 September	Exam 1	Hand-Out Notes and Chapter 1
Wednesday 7 October	Exam 2	Chapter 2
Wednesday 4 November	Exam 3	Chapter 3
Monday 23 November	Exam 4	Chapter 4

　　The (take-home) Final Examination will be comprehensive, but weighted towards the Ch. 5 material not covered on the first four exams, and will be handed out in class on Wednesday 9 December. The course grading scale will be approximately as follows (in per cent):

E	50	D⁻	54	D	60	D+	64	C⁻	68	C	74
74	C+	78	B⁻	81	B	87	B+	90	A⁻	93	A

Maths 1210   **Timetable for Autumn Term 2009**   **Stone**
(subject to change, with notice given in class)

Monday 24 August	Introduction and Hand-Out Notes
Wednesday 26 August	Hand-Out Notes and sections 1.1, 1.2
Monday 31 August	1.3, 1.4, 1.5
Wednesday 2 September	1.6, 2.1, 2.2, 2.3
Monday 7 September	Holiday (no classes held today)
Wednesday 9 September	2.4, 2.5, 2.6
Monday 14 September	Review for Exam 1
Wednesday 16 September	**Exam 1** (Hand-Out Notes and Chapter 1)
Monday 21 September	2.7, 2.8
Wednesday 23 September	2.9, 3.1
Monday 28 September	3.2, 3.3
Wednesday 30 September	3.4, 3.5
Monday 5 October	Review for Exam 2
Wednesday 7 October	**Exam 2** (Chapter 2)

Autumn Break: 12–17 October

Monday 19 October	3.6, 3.7
Wednesday 21 October	3.8, 3.9
Monday 26 October	4.1, 4.2
Wednesday 28 October	4.3, 4.4
Monday 2 November	Review for Exam 3
Wednesday 4 November	**Exam 3** (Chapter 3)
Monday 9 November	4.5, 4.6
Wednesday 11 November	5.1, 5.2
Monday 16 November	5.3, 5.4
Wednesday 18 November	Review for Exam 4
Monday 23 November	**Exam 4** (Chapter 4)
Wednesday 25 November	No class held tonight (Thanksgiving Eve)
Monday 30 November	5.5
Wednesday 2 December	5.6
Monday 7 December	5.7
Wednesday 9 December	Review for Final; hand out **Final Exam**
Monday 14 December	Hand in Final Exam tonight if possible
Wednesday 16 December	Hand in Final Exam by tonight at the latest

    You may collect your Final Exam paper from the receptionists (probably by 28 December, but phone 581–8821 to make sure the papers are indeed ready). Be prepared to show picture ID.

Maths 1210 (Calculus I)   **Recommended Problems**   **Stone**

From 'Introduction to Polynomial Calculus': ***all*** problems from each of the four problem sets.

From ***Calculus*** (ninth edition, 2007) by Dale Varberg, Edwin J. Purcell, and Steven E. Rigdon:

In the following, only the *odd*-numbered problems are meant, since their answers are given at the back of the book. Realistically, you may not have time to complete all the recommended problems, but do as many as you can (be sure to try at least of few of each different type), since practice really does make perfect in this subject.

Section	Problems		Section	Problems
1.1	1 − 43			
1.2	1 − 21			
1.3	1 − 33, 41 − 47			
1.4	1 − 19, 23			
1.5	1 − 49, 55			
1.6	1 − 35, 41 − 47, 53, 59 − 63			
2.1	1 − 33 (use the *numerical derivative* capability of a graphing calculator for 33)			
2.2	3 − 11, 23, 27 − 47, 51, 57 − 65			
2.3	1 − 61			
2.4	1 − 29			
2.5	1 − 83			
2.6	1 − 37			
2.7	1 − 49			
2.8	1 − 31			
2.9	1 − 9, 15 − 27, 33 − 43			
3.1	1 − 25, 29			
3.2	1 − 31, 35, 41, 47 − 53			
3.3	1 − 37			
3.4	1 − 45, 55, 59 − 63			
3.5	1 − 25			
3.6	1 − 21, 47, 51, 53			
3.7	1 − 13, 21, 25, 27			
3.8	1 − 41		Section	Problems
3.9	1 − 37		5.1	1 − 27, 31, 33
4.1	1 − 23, 43, 45, 55		5.2	1 − 25, 33
4.2	13, 14, 29		5.3	1 − 25
4.3	1, 3, 9 − 35		5.4	1 − 11, 21 − 29
4.4	1 − 57, 61, 69, 71		5.5	1 − 13, 19, 21, 25 − 33
4.5	1 − 27, 35 − 45		5.6	1 − 5, 9 − 15, 21 − 27
4.6	1 − 5, 11 − 15		5.7	1 − 17, 21 − 25