

MAT186H1F CALCULUS I: Course Information as of**September 7, 2017**

MAT186H1F is an introduction to calculus and its applications. A lot of Chapters 1, 2, 3 & 4 will be review of high school material, but not *all* of it; you must pay attention and assimilate the new material as well. We do assume that everything in Chapters 5 and 6 is new to you. To intersperse the new and old material, we will be covering the textbook in a non-linear fashion, introducing some of the ideas from Chapter 5 as soon as possible. See the course outline on the reverse of this page.

Section Instructors: by now you should be scheduled into one of the following Sections:

LEC0101 Cohen	LEC0102 Palasciano	LEC0103 Matviichuk	LEC0104 Burbulla
LEC0105 Amelotte	LEC0106 Bischoff	LEC0107 Enns	LEC0108 Pham

Textbook: the textbook for this course is Briggs, Cochrane & Gillet's *Calculus for Scientists and Engineers*, Early Transcendentals, published by Pearson.

Suggested Homework: see the back of this page for a list of suggested¹ exercises selected from each section of the textbook. In math, to be successful, you *must* do your homework.

Tutorials: start Monday, September 11 and end Monday, December 4. There are no tutorials on Monday, October 9. Each tutorial group will meet twelve times. Tutorials are run by two or three Teaching Assistants and will feature problem-solving sessions with students working in small groups. You should attend your tutorial on a regular basis as it is one place where you can get help with your mathematical problems.

Marking Scheme: Diagnostic Tests: 5%; WeBWorK: 5%; Test 1: 20%; Test 2: 20%; Exam: 50%

Diagnostic Tests: to be written on Tuesday, September 12, between 1:10 and 3 PM in locations to be announced. The purpose of these tests is to determine if any students have gaps in their high school math. Then we can offer help to these students before the *real* tests start.

WeBWorK: information regarding this on-line homework website will be posted on the course website in the second week of classes, when WeBWorK homework will first become available.

Test 1: a 100-minute term test is scheduled for Tuesday, October 3, between 1:15 and 2:55 PM in locations to be announced.

Test 2: a 100-minute term test is scheduled for Tuesday, November 21, between 1:15 and 2:55 PM in locations to be announced.

Final Exam: there will be a common final exam, 150 min long, during the exam period, Dec 8-20.

Math Aid Office: GB 149. Hours: MTWRF 12:30-2:30PM

GEARS: Guided Engineering Academic Review Sessions are weekly sessions led by highly successful upper year students who provide a venue for students to work through their homework and to share study tips and strategies. See <http://uoft.me/gears>

Calculators: use of a Casio FX-991 or Sharp EL-520 calculator will be permitted during all quizzes, tests and exams. However, it is still your responsibility to explain your work. A correct answer with no justification will receive no marks.

Course Coordinator: D. Burbulla. Office: GB 149

email: burbulla@math.toronto.edu; office hours: MTWRF 12:30-2:30PM

¹These represent a minimum of questions you should do. You can do more if you want!

Course Outline and Lecture Schedule: below is the approximate schedule of lecture topics, by week. There are 13 weeks of lectures to a full term. Sections marked with an asterisk (*) are optional.

Wk	Topics	Sections	Suggested Homework Exercises
1	Inverse Functions	Sec 1.3 Sec 1.4	11, 17, 25, 28, 29, 37, 51, 57, 73, 79, 83 13, 36, 39, 59, 61, 79, 85, 95, 101, 103, 106
2	The Tangent Line Problem and the Area Problem	Sec 2.1 Sec 5.1 Sec 5.2	1, 3, 4, 10, 16, 25, 28, 29, 31, 32, 33 9, 13, 17, 21, 32, 33, 37, 41, 45, 65, 67, 71 16, 23, 29, 33, 39, 43, 49, 67, 71, 73, 75
3	Calculating Limits; some review from high school.	Sec 2.2 Sec 2.3 Sec 2.4 Sec 2.5	2, 3, 5, 7, 9, 11, 17, 21, 22, 27, 28, 35, 45 3, 5, 29, 37, 41, 47, 51, 57, 63, 67, 73, 79 3, 4, 11, 15, 19, 21, 24, 31, 39, 44, 49, 53 11, 23, 29, 32, 35, 37, 41, 43, 55, 59, 67, 69
4	Continuity; Derivatives; and the Definite Integral. State Theorems 2.15, 3.1, 5.2 & 5.3, Part 2	Sec 2.6 Sec 3.1 Sec 5.3	1, 9, 17, 19, 25, 31, 35, 55, 59, 67, 80, 95 5, 9, 15, 21, 31, 39, 49, 53, 54, 55, 65, 69 29, 31, 33, 35, 41 (use Thm 5.3, Part 2)
5	Differentiation, mostly review of high school. (two weeks)	Sec 3.2 Sec 3.3 Sec 3.4 Sec 3.5 Sec 3.6	2, 27, 31, 37, 41, 43, 47, 61, 63, 69, 71, 77 17, 18, 25, 27, 33, 39, 43, 53, 55, 60, 61, 81 8, 10, 15, 22, 23, 34, 49, 59, 67, 71, 77, 79 3, 9, 13, 15, 17, 25, 30, 31, 39, 45, 47, 49 6, 15, 29, 33, 35, 37, 47, 60, 63, 77, 79, 85
6		Sec 3.7 Sec 3.10 Sec 3.8 Sec 3.9	1, 9, 10, 17, 21, 27, 35, 41, 53, 57, 65, 72 5, 9, 13, 19, 23, 25, 29, 41, 49, 51, 53, 55 10, 15, 27, 41, 49, 53, 63, 67, 77, 81, 93 1, 5, 9, 13, 19, 25, 31, 35, 42, 45, 47, 67
7	Antiderivatives and the Fundamental Theorem of Calculus	Sec 4.9 Sec 5.3	11, 25, 27, 35, 41, 51, 63, 66, 71, 93, 97, 99 11, 21, 24, 39, 47, 59, 63, 65, 69, 81, 89, 111
8	Applications of the Derivative, some review from high school. (two weeks)	Sec 4.1 Sec 4.6* Sec 4.2 Sec 4.3 Sec 4.4	1, 5, 17, 21, 29, 39, 40, 47, 61, 71, 75, 81 3, 5, 7, 11, 17, 22, 27, 31, 33, 35, 37, 39 13, 23, 34, 45, 47, 49, 55, 57, 65, 81, 87, 95 11, 19, 25, 27, 29, 30, 45, 47, 49, 69, 71, 77 7, 14, 21, 22, 27, 31, 33, 37, 47, 53, 65, 69
9		Sec 4.5 Sec 4.8 Sec 4.7	16, 17, 25, 27, 29, 32, 36, 41, 43, 51, 53, 54 6, 11, 13, 16, 17, 20, 25, 29, 31, 35, 37, 43 15, 19, 27, 35, 41, 43, 51, 57, 59, 65, 85, 96
10	Working with Integrals	Sec 5.4 Sec 5.5	11, 14, 19, 23, 25, 39, 45, 47, 48, 49, 57, 61 14, 19, 25, 27, 35, 36, 45, 47, 57, 71, 77, 79
11	Applications of Integration (three weeks)	Sec 6.1 Sec 6.2 Sec 6.3	8, 11, 17, 21, 23, 28, 31, 35, 39, 53, 56, 65 8, 11, 15, 17, 24, 29, 37, 45, 47, 55, 63, 65 3, 9, 13, 19, 23, 29, 32, 39, 41, 49, 54, 59
12		Sec 6.4 Sec 6.5 Sec 6.6 Sec 6.7	7, 14, 17, 24, 29, 31, 33, 35, 43, 45, 57, 59 3, 7, 8, 9, 13(a), 19(a), 27, 30, 33, 35 7, 11, 14, 17, 19, 22, 23, 24, 31, 32, 33 11, 15, 18, 21, 25, 27, 31, 32, 33, 35, 53
13		Sec 6.8* Sec 6.9 Sec 6.10	9, 16, 23, 25, 29, 38, 54, 57, 62, 65 9, 13, 15, 21, 23, 27, 28, 29, 30, 38, 45 27, 29, 33, 35, 39, 55, 57, 61, 64, 65, 87, 93