MAT186H1F CALCULUS I: Course Information as of   **August 27, 2013**

MAT186H1F is an introduction to calculus and its applications. We assume only that you have seen limits and some derivatives in your high school courses. We will start the course with a 'review' of trigonometric formulas, and inverse trigonometric functions.

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

LEC0101	Cohen, S.	LEC0102	Tyros, K.
LEC0103	Burbulla, D.	LEC0104	Shorser, L.

Textbook: The textbook for this course is Anton, Bivens & Davis's *Calculus,* Early Transcendentals Version, 10*th* edition. Any version of this book will do, be it hardcover or binder-ready softcover.

Marking Scheme: WeBWorK Assignments: 5%; Quiz: 15%; Test: 30%; Exam: 50%

Tutorials: You should attend attend your tutorial on a regular basis; it is one place you can get help with your homework, and it is the **only** place you can pick up your graded tests and have the solutions taken up. One tutorial will be devoted to general advice. Another tutorial will 'review' conics, since these are no longer covered in high school. Tutorials start Monday, Sep 9*th* and end Monday, Dec 2*nd*. There are no tutorials on Monday, Oct 14*th.*

Homework: All the odd-numbered exercises have answers in the back; consider them all as homework, although the ones that require a graphing utility or a computer algebra system are optional.

WeBWorK: Information regarding this on-line homework website will be posted on the course website in the second week of classes. WeBWorK homework will not begin until September 23.

Quiz: One 50-min quiz is scheduled in **your** tutorial during the week of Nov 11-15.

Test: a 100-minute term test is scheduled for Tuesday, Oct 15, 12:10-1:55 PM, locations TBA.

Final Exam: There will be a common final exam, 150 min long, during the exam period, Dec 9-20.

Math Aid Office: GB 149. Hours: MTWRF 12:10-2 PM

Calculators: Use of a Casio FX-991MS or Sharp EL-520X 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 12:10-2 PM.

Course Websites: In addition to the course websites which can be accessed through the U of T portal there is the coordinator's home page: `http://www.math.toronto.edu/burbulla/`

Lecture and Tutorial Schedule: see the back of this page for an approximate schedule of lecture and tutorial topics.

Chapter	Section	Topic	Lectures
Before Calculus	Appx B	Trigonometry Review	2
	Sec 0.4	Inverse Functions; Inverse Trigonometric Functions	2
Limits and Continuity	Sec 1.1	Limits (An Intuitive Approach)	1
	Sec 1.2	Computing Limits	1
	Sec 1.3	Limits at Infinity; End Behavior of a Function	1
	Sec 1.5	Continuity	1
	Sec 1.6	Continuity of Trig, Exponential and Inverse Functions	1
The Derivative (high school review)	Sec 2.1	Tangent Lines and Rates of Change	1/2
	Sec 2.2	The Derivative Function	1/2
	Sec 2.3	Introduction to Techniques of Differentiation	1/2
	Sec 2.4	The Product and Quotient Rules	1/2
	Sec 2.5	Derivatives of Trigonometric Functions	1/2
	Sec 2.6	The Chain Rule	1/2
Topics in Differentiation	Sec 3.1	Implicit Differentiation	1
	Sec 3.2	Derivatives of Logarithmic Functions	1
	Sec 3.3	Derivatives of Exponential & Inverse Trig Functions	1
	Sec 3.4	Related Rates	1
	Sec 3.5	Local Linear Approximation; Differentials	1
	Sec 3.6	L'Hôpital's Rule; Indeterminate Forms	1
The Derivative in Graphing and Applications	Sec 4.1	Increase, Decrease and Concavity	1
	Sec 4.2	Relative Extrema; Graphing Polynomials	1
	Sec 4.3	Rational Functions, Cusps and Vertical Tangents	1
	Sec 4.4	Absolute Maxima and Minima	1
	Sec 4.5	Applied Maximum and Minimum Problems	1
	Sec 4.6	Rectilinear Motion	1
	Sec 4.7	Newton's Method	1
	Sec 4.8	Rolle's Theorem; Mean Value Theorem	optional
Integration	Sec 5.1	An Overview of the Area Problem	optional
	Sec 5.2	The Indefinite Integral	1
	Sec 5.3	Integration by Substitution	1
	Sec 5.4	The Definition of Area as a Limit; Sigma Notation	1
	Sec 5.5	The Definite Integral	1
	Sec 5.6	The Fundamental Theorem of Calculus	1
	Sec 5.7	Rectilinear Motion Revisited Using Integration	1/2
	Sec 5.8	Average Value of a Function and its Applications	1/2
	Sec 5.9	Evaluating Definite Integrals by Substitution	1
Applications of the Definite Integral in Geometry, Science and Engineering	Sec 6.1	Area Between Two Curves	1
	Sec 6.2	Volumes By Slicing; Discs and Washers	1
	Sec 6.3	Volumes By Cylindrical Shells	1
	Sec 6.4	Length of a Plane Curve	1/2
	Sec 6.5	Area of a Surface of Revolution	1/2
	Sec 6.6	Work	1
	Sec 6.9	Hyprebolic Functions and Hanging Cables	1

Tut 1: diagnostic tests	Tut 2: general advice	Tut 3: conics	Tut 4: continuity
Tut 5: pre-test Q & A	Tut 6: related rates	Tut 7: test returned	Tut 8: L'Hopital's rule
Tut 9: pre-quiz Q & A	Tut 10: quiz	Tut 11: quiz returned	Tut 12: pre-exam Q & A