

MAT136H1F Calculus I (B)

Fall 2014
Department of Mathematics
University of Toronto

COURSE DESCRIPTION

This course is an introduction to integral calculus with some applications to the sciences. The topics covered include:

- antiderivatives
- integration and the fundamental theorem of calculus
- techniques of integration
- applications: areas, volumes, arc lengths, etc.
- introduction to differential equations and their applications: predator-prey systems, models for population growth, etc.
- sequences and series, Taylor series.

Theorems will be stated precisely and mostly without proofs but with an indication of the ideas involved.

PREREQUISITES

To be eligible to enroll in MAT136H1F, **you must have passed MAT135H1 or MAT125H1** in a previous semester (or have obtained special transfer credit for MAT135H1 or MAT125H1). If you enroll in MAT136H1F without having passed MAT135H1 or MAT125H1, you will eventually be removed from MAT136H1F.

TEXTBOOK

Single Variable Calculus, Early Transcendentals, 7th edition, by James Stewart,
(Publishers: Brooks/Cole) and *Student Solutions Manual* for the above textbook.

Note: the textbook is recommended as it serves as a reference for the material covered by the course as well as for practice problems. However, no submitted material requires access to the textbook.

WEBSITE

All information regarding the course will be posted on the official course website:

<http://www.math.toronto.edu/~dsoukup/mat136.htm>.

You will find your term marks uploaded on Blackboard.

COURSE ADMINISTRATION

Course Coordinator: Daniel Rowe

Email: drowe@math.toronto.edu

Please use your university email address and write in the topic line:

“MAT136: (the topic of your email here).”

LECTURES AND OFFICE HOURS

All MAT136H1F students must enroll in one lecture section. **Lectures start on September 8. The last day to change your lecture section is September 21.** If you want to enroll in a lecture section or change your lecture section after the deadline you must go to your College Registrar to make a special request that may or may not be granted. The **last day to drop courses** with F section codes is **November 3**.

The MAT136H1F **lecture sections** are as follows:

Lecture	Time	Location	Instructor
LEC 0101	MWF 9	SS 1087	Daniel Rowe drowe@math.toronto.edu
LEC 5101	R 6-9	MP 202	Daniel Soukup daniel.soukup@mail.utoronto.ca

The instructors have **office hours** as follows:

Time	Location	Instructor
F 10-12	HU 1018	Daniel Rowe
W 3-5	BA 6180	Daniel Soukup

Instructor office hours will begin the **second week of classes**.

TUTORIALS

All MAT136H1F students must enroll in **one of the four** tutorial sections corresponding to their lecture section. **Attendance is mandatory, as you will write Quizzes in the tutorials.** Tutorials start the week of September 22. The last day to enroll in a tutorial is October 3.

Tutorial	Time	Location	TA
TUT 0101	M 3-4	SS 2110	Ioannis Angelopoulos
TUT 0201	R 4-5	MP 118	Beatriz Navarro Lameda
TUT 5101	T 5-6	MP 137	Andrew Stewart

TUT 5201	R 5-6	MP 137	Beatriz Navarro Lameda
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The duration of each tutorial is 50 minutes (each tutorial **starts 10 minutes past the hour** and ends on the hour). The purpose of the tutorials is to give you a chance to ask questions, to discuss, and review the course material in more detail. You will see several problems in the tutorials that will help you prepare for the term test and final exam.

Note: tutorial change is not allowed once a student has been assigned to a Tutorial section. Exceptions will be given only to those students who have a verifiable timetable conflict with another course. Such students, as well as those who need to enroll in a MAT136H1F tutorial after the deadline, must contact the course coordinator.

QUIZZES

You will write **6 quizzes** (3 question on each) in your tutorials during the semester; the exact dates are listed in the course schedule. Each quiz will take place in the **last 15 minutes of your tutorial**. The quiz aims at checking whether you are familiar with the basic notions and techniques covered by the lectures and tutorials. In the end, **we count the 5 best marks out of the 6 written quizzes**.

If you missed a quiz for a legitimate reason (illness, family emergency) you should contact the course coordinator as soon as possible. If you can support your absence with valid documentation, <http://www.illnessverification.utoronto.ca/>, within one week of the due date then the weight of the missed quiz will be put towards your final exam mark. In any other cases, you will receive a grade of zero.

TERM TEST

The term test will be written **Wednesday October 22, 6-8pm**. Students with time conflicts will have the chance to write an **early sitting 4-6pm** the same day. **Please note** that the only students who can write the early sitting are those that contacted the course coordinator at least one week prior to October 22 and received special permission. Locations for the term test will be announced later.

Note: you are **not allowed to use any aids** (calculator, notes, scrap paper, etc.) on the term test or the final examination.

MARKING SCHEME

- **Quizzes:** 15% (5 quizzes, 3 questions on each with 1% weight)
- **Term Test:** 40%
- **Final Exam:** 45%

MAKE-UP TEST

You should contact the course coordinator as soon as you know that you cannot make the regular term test. Any student who **misses the term test because of illness or other reasons deemed legitimate** by the course coordinator and who provides appropriate documentation <http://www.illnessverification.utoronto.ca/> for his or her absence will be **required to write a make-up test**.

Information about the make-up test (date, time, location, format, etc.) will be posted on the MAT136H1F website.

MARKING

Your TAs will mark the quizzes and the term test. You can write in either pen or pencil but **any submission that is written by pencil is not eligible for a remark**. For remarking of your quizzes, please talk to your TA at his or her office hours or after your tutorial.

After receiving a marked submission (term test, quiz), you have the option to ask your TA to take another look at your paper (if you think he/she missed part of your solution while marking) provided that you wrote your submission with a pen.

ACADEMIC INTEGRITY

Please visit the website <http://www.artsci.utoronto.ca/osai/students> for information about academic integrity and misconduct. Look up what constitutes plagiarism, unauthorized collaboration, possession or use of unauthorized aids. If you have any questions feel free to ask your instructor or TA.

MATH AID CENTRE

Additional to the regular office hours by your instructors and TAs, there will be regular MAC hours. Please see <http://www.math.toronto.edu/cms/math-aid-centres/>.

COURSE SCHEDULE

Week	Sections to be Covered	Additional Notes	Practice Problems
Sept 8-12	4.9 Antiderivatives 5.1 Areas and Distances	Tutorial enrollment.	[4.9] 3, 5, 7, 17, 21, 24, 33, 35, 49, 51, 63, 66, 75, 77 [5.1] 3, 13
Sept 15-19	5.2 The Definite Integral 5.3 The Fundamental Theorem of Calculus	Last day to change lecture sections: Sept 21.	[5.2] 1, 7, 29, 33, 37, 39, 41, 48, 53, 71, 72 [5.3] 3, 7, 8, 11, 15, 17, 30, 33, 35, 37, 39, 40, 55, 59, 69, 70
Sept 22-26	5.4 Indefinite Integrals 5.5 Substitution Rule 6.1 Areas Between Curves 6.2 Volumes	Tutorials start this week.	[5.4] 9, 15, 17, 18, 25, 27, 31, 35, 37, 41, 42, 43, 45, 53, 59, 61 [5.5] 7, 11, 17, 21, 25, 27, 30, 35 [6.1] 5, 9, 11, 15, 20, 22, 26, 27 [6.2] 1, 5, 9, 12, 19, 21, 27
Sept 29-3	6.3 Volumes of Cylindrical Shells 6.5 Average Value of a Function 7.1 Integration by Parts	Quiz 1. Last day to pick a tutorial on SWS: Oct 3.	[6.3] 5, 9, 11, 13, 15, 19, 38, 41 [6.5] 1, 5, 9, 10, 15, 17 [7.1] 1, 3, 5, 9, 10, 11, 13, 15, 17, 31, 35, 37, 41, 51,
Oct 6-10	7.2 Trig. Integrals 7.3 Trig. Substitution 7.4 Rational Functions	Quiz 2. Exam timetable released: Oct 10.	[7.2] 1, 4, 9, 11, 17, 25, 32, 33, 37, 41, 44, 45, 47, 48 [7.3] 1, 9, 12, 21, 23-27, 30, 35 [7.4] 7, 9, 13, 17, 19, 23, 29, 35, 41, 45, 47, 51, 54, 59, 61, 63
Oct 13-17	7.5 Strategies for Integration 7.8 Improper Integrals 8.1 Arc Length	University closed on October 13.	[7.5] 5, 13, 19, 21, 22, 31, 37, 45, 49, 51, 55, 56, 63, 67, 71, 77 [7.8] 9, 13, 21, 23, 27, 32, 33, 35, 49, 53, 55, 57 [8.1] 7, 9, 11, 13, 17
Oct 20-24	9.1 Modeling with Diff. Equations 9.2 Direction Fields (omit Euler's method) 9.3 Separable Equations	Term Test Wednesday October 22.	[9.1] 1, 3, 5, 15 [9.2] 1, 9, 11 [9.3] 1, 2, 3, 5, 7, 11, 12, 13, 15, 19, 45, 47
Oct 27-31	9.4 Models for Population Growth 9.6 Predator-Prey Systems 11.1 Sequences	Quiz 3.	[9.4] 1, 3, 7, 11 [9.6] 1, 5, 7 [11.1] 23, 25, 29, 35, 36, 37, 39, 42, 47, 50, 53, 79
Nov 3-7	11.2 Series 11.3 Integral Test and Estimates 11.4 The Comparison Test	Quiz 4. Last day to drop F courses: Nov 3.	[11.2] 1, 17, 23, 25, 27, 29, 32, 35, 37, 39, 42, 43, 61, 63, 67 [11.3] 3, 5, 11, 16, 17, 21, 22 [11.4] 3, 9, 13, 17, 19, 22, 23, 28, 29, 43
Nov 10-14	11.5 Alternating Series 11.6 Absolute Convergence and Tests 11.7 Strategy for Testing Convergence	Quiz 5.	[11.5] 3, 5, 11, 17 [11.6] 3, 9, 11, 15, 18, 23, 27, 29 [11.7] 3, 7, 13, 17, 23, 27, 31, 35
Nov 17-21	11.8 Power Series 11.9 Functions as Power Series	Fall break: Nov 17- 18.	[11.8] 5, 7, 9, 11, 15, 17, 23, 25 [11.9] 3, 5, 8, 15, 17, 19, 25
Nov 24-28	11.10 Taylor and MacLaurin Series.	Quiz 6.	[11.10] 6, 7, 9, 11, 15, 17, 19, 25, 29, 33, 37, 47, 49, 55, 57, 63, 65, 68
Dec 1-5	Review.	Classes end Dec 2. Extra Class: Dec 3.	