

University of Toronto
MAT 136H1F: Calculus I (B)
Fall 2015
Course Outline

Welcome to MAT136F! This is a first-year Introduction to Integral Calculus course containing some applications to the sciences. In general, theorems will be stated precisely, mostly without proofs but with an indication of the mathematical ideas involved. This course has two main objectives:

- First, we want you to become familiar with various concepts in integral calculus and their applications to science.
- Second, we want to train you in the art of problem solving. In your future career, we would like you to be able to attack new problems that you have never seen before, to figure out by yourself how to adjust old methods to new situations, and to learn how to be confident with your answers. You will achieve this not by memorizing a lot of formulas and methods, but by understanding why they work.

The topics to be covered in this course 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.

We look forward to getting to know all of you,

Beatriz Navarro Lamedada (Course Coordinator)
Zhifei Zhu

1. LECTURES AND INSTRUCTORS

There are two lecture sections. Each section meets for three weekly hours.

Section	Time	Location	Instructor
L0101	MWF 9	MP 102	Beatriz <u>Navarro Lamedada</u>
L5101	R 6-9	MP 103	Zhifei <u>Zhu</u>

2. CONTACT INFORMATION, OFFICE HOURS AND MATH AID CENTRE

Sometimes lectures and tutorials are not enough to address all your concerns. For this reason, we will hold regular office hours throughout the term. There are two instructors in this course. For math-related questions, you are welcome to talk to any of us; you are not restricted to only your lecturer.

Instructor	Email	Office Hours	Location
Beatriz Navarro Lameda	beatriz@math.utoronto.ca	See Website	See Website
Zhifei Zhu	zhifei.zhu@mail.utoronto.ca	See Website	See Website

You do not need an appointment to come during our regularly scheduled office hours. If you cannot make any of our office hours, ask us for an appointment by email or by talking to us at the end of a lecture. We are always happy to talk to students!

In addition to our office hours, there will be MAT136F TAs on duty in the Math Aid Centre (SS 1071) at various times. For the exact schedule, see the [course website](#).

TA	Email
John Enns	john.enns@mail.utoronto.ca
Francisco Guevara Parra	guevara.guevaraparra@mail.utoronto.ca
Fang Shalev Housfater	fang.gu@mail.toronto.edu

Please remember to check the [course website](#) regularly for up-to-date hours.

Math Aid Centres: Additional to the office hours by your instructors and TAs, there are various Math Aid Centres throughout the campus. If you have math problems, you should visit one of these Math Aid Centres, where TAs will be able to help you. Please see

<http://www.math.toronto.edu/cms/math-aid-centres/>.

3. LOGISTICS

Course website and Communication

- The official course site is <http://www.math.toronto.edu/beatriz/MAT136.html>. You are responsible for checking it regularly. All official announcements and course materials will be posted on it.
- We will be using Blackboard to post course grades.
- There is an online forum for this course on Piazza. This group is a resource for students to meet other MAT136F students, ask questions, discuss problems, make study groups, and in general help each other. Past-year students found the online forum a useful resource. Sign up here:
<https://piazza.com/utoronto.ca/fall2015/mat136f>
- Please make sure that you check your University of Toronto email every day so that you don't miss any important announcements.

Very Important: When you email your instructors or one of your TAs, **you must always use your official University of Toronto email address, and you must write "MAT136" in the subject of any email you send to us.** Emails sent from a non-university address (e.g. Hotmail, Gmail, Yahoo) will be ignored.

Prerequisites

To be eligible to enrol 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 enrol in MAT136H1F without having passed MAT135H1 or MAT125H1, you will eventually be removed from MAT136H1F.

Textbook

The text for this course is

SINGLE VARIABLE CALCULUS, EARLY TRANSCENDENTALS VERSION - 8TH EDITION,
by James Stewart: Cengage Learning © 2016.

If you wish, you may buy the Student Solutions Manual at the University Bookstore (as a package with the textbook) which contains full solutions to the odd-numbered exercises in the book.

Note: Throughout the academic term, it will be assumed that you have either bought the Textbook (**8th edition**) or will be able to borrow them from a friend of yours on a weekly basis.

Note that the 8th edition is not the same as the 7th edition, with many new exercises among other changes. Of course, only the new Student Solutions Manual has the solutions to the new exercises of the 8th edition.

Important dates

September 14	First day of classes
September 27	Last day to add and change meeting sections in F and Y section code courses.
October 09	Examination timetable for F section code courses posted on the Arts & Science website
October 12	Thanksgiving holiday (University closed)
November 08	Last day to drop F section code courses from academic record and GPA. Last day to add or remove a CR/NCR option for F section code courses.
November 09 - 10	Fall break (no classes)
December 08	Classes end in F section code courses. Deadline to request Late Withdrawal (LWD) from F section code courses at College Registrar's Office
December 09	Makeup Monday classes
December 10	Study break
December 11 - 22	Final examinations in F section code courses
December 22	Last day to file a petition regarding term work in 2015 fall session F section courses

More information can be found at

http://www.artsandscience.utoronto.ca/ofr/calendar/Sessional_Dates.html.

Whom to contact?

- For math-related questions about MAT136F, you may ask any of the instructors or TAs. See our [contact information](#).
- For tutorial enrolment or tutorial changes after September 27, 2015, contact the course coordinator Beatriz Navarro Lameda (beatriz@math.utoronto.ca)
- If you have a conflict with a test date or any other logistical questions about MAT136F, contact the course coordinator Beatriz Navarro Lameda (beatriz@math.utoronto.ca)
- For questions about which math course is right for you, contact the Undergraduate Administrator Donna Birch (dbirch@math.utoronto.ca, BA6291, 416-978-5082).
- If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom, or course materials, please contact **Accessibility Services**:
disability.services@utoronto.ca or <http://www.accessibility.utoronto.ca>
- If you have a personal situation and are concerned about how it will affect your academic performance, please contact your [college registrar](#).

Code of Conduct

We ask that you respect each other's right to learn and fully engage in this course. For more information, please visit this website: <http://life.utoronto.ca/get-help/rights-responsibilities/>.

Academic Integrity

Your TAs and invigilators will carefully and diligently check for instances of cheating on quizzes and exams. All suspected cases of academic dishonesty will be investigated following the procedures outlined in the [Code of Behaviour on Academic Matters](#).

We know that the vast majority of students are honest and hard-working. But sometimes even honest people make bad decisions and accidents sometimes happen. Even if you think you know the rules, double-check. As a student, you alone are responsible for ensuring the integrity of your work and for understanding what constitutes an academic offence. The consequences of academic misconduct can be severe, and not knowing the University's expectations is not an excuse. Educate yourself! If you have questions or concerns about what constitutes appropriate academic behaviour, please read the University policy on academic misconduct at the following links:

<http://www.artsci.utoronto.ca/newstudents/transition/academic/plagiarism>
<http://www.artsci.utoronto.ca/osai/students>

Use of Calculators: Calculators are neither required nor permitted for quizzes, the midterm exam, or the final exam. **We do not permit use of any type of calculator or any other electronic device during term tests or the final exam.** Having them with you on your desk or on your person during a term test or final exam is an academic offence.

4. TUTORIALS

In addition to lectures, you will have one weekly tutorial. All MAT136H1F students must enrol in one of the four tutorial sections.

Notice that you need to enrol both in a lecture section and in a tutorial section separately. For tutorials, you need to enrol on ROSI to choose a specific tutorial section. You need to enrol in a tutorial section by September 27. After this date, we handle tutorial changes manually and ROSI does not update these changes. If you need to enrol in a tutorial or change a tutorial after this date, contact the course coordinator.

Tutorials			
Section	Time	Room	TA
T0101	M 3	GB 304	TBA
T0201	R 4	GB 303	TBA
T0301	T 4	GB 303	TBA
T5101	T 5	SS 1074	TBA
T5201	R 5	GB 412	TBA

Attendance is mandatory, as you will write Quizzes in the tutorials. For each tutorial we will select topics that are particularly important or that we know students struggle with, and you will have the opportunity during the tutorials to get very useful practice and to get help from your TA or your classmates. During the tutorials you will see several problems that will help you prepare for the term test and final exam.

Tutorials begin the week of September 28.

5. PRACTICE PROBLEMS AND QUIZZES

Quizzes

You will write four short quizzes and two long quizzes in your tutorials during the semester. The exact dates are listed in the [course schedule](#) we will post the material to be covered in each quiz on the course website one week before each quiz.

- **Short Quizzes:** Each short quiz will take place in the last 5 to 10 minutes of your tutorial. Each short quiz will consist of just one question. The short quiz questions will be very similar to the questions in the Practice Problems. The purpose of the short quizzes is to encourage the students to do the homework problems and to come to the tutorials.
- **Long Quizzes:** Each long quiz is roughly 20 minutes long, and consists of approximately four questions. The questions are short but require full answers. The long quizzes aim at checking whether you are familiar with the basic notions and techniques covered by the lectures and tutorials and help you prepare for the term test and final exam.

If you missed a quiz for a legitimate reason (illness, family emergency) you should contact the course coordinator as soon as possible. Anyone expecting to miss a quiz because of very special non-medical reasons must obtain special approval from B. Navarro Lameda before the day of the quiz. If you miss

a quiz due to illness, you must see a health care provider right away, then you must submit to the course coordinator the [University of Toronto Verification of Illness or Injury form](#) within forty eight hours of the quiz date. (You may submit it electronically, if necessary, but you must bring a hard copy at a later time.)

If you can support your absence with valid documentation, 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 (0) on that quiz.

Practice Problems

In addition to the tutorial problems, we will also post practice problems from each section of the textbook. It is important that you to work through them as we cover the sections in class. These do not have to be submitted for marking. However, students must do these weekly problems in order to prepare themselves for the quizzes, the term test and the final exam. You have answers to the odd-numbered exercises at the back of the book, full solutions in the solution manual, and you can always visit us during office hours or go to the Math Aid Centre for help.

6. TERM TEST AND FINAL EXAM

Term Test

There will be one term test.

Day	Time	Room
October 30	6:00pm - 8:00pm	EX 200

We will post detailed information about the term test on the [course website](#).

If you have an academic conflict for one of the tests (for example, a tutorial or a lab for a different course), then we will allow you to write an alternate sitting of the test. In order to take advantage of the alternate sitting, you will need to let us know at least one week before the date of the test. We will post more information on the course website.

If you are unable to write the term test for any other legitimate reason, we will also accommodate you but you must notify us as soon as possible (no more than forty eight hours after the test), and you will have to provide us with appropriate documentation. We will post more information on the course website.

If you miss the test due to an illness that prevents you from writing the test, you must see a health care provider right away, then you must submit to the course coordinator the [University of Toronto Verification of Illness or Injury form](#) within forty eight hours of the test. (You may submit it electronically, if necessary, but you must bring a hard copy at a later time.)

If you miss the midterm test but do not have a reason that is both valid and documented, then you will be assigned a grade of zero (0) on it.

For any questions about conflicts with test times or dates, please contact the course coordinator [Beatriz Navarro Lamedá](#).

Final Exam

There will be a three hour cumulative final exam during the December 2015 exam period. The exact date and time will be posted by the [Faculty of Arts & Science](#).

Please note that failure to attend the final exam is an extremely serious matter, and it will be handled by the Faculty of Arts and Science itself (not by the Course Instructors, nor by the Department of Mathematics). For more information, visit the following website

<http://www.artsci.utoronto.ca/current/exams/>

MARKING SCHEME

The marking scheme is the following:

- Short Quizzes: 4% (1% each)
- Long Quizzes: 16% (8% each)
- Term Test: 30%
- Final exam: 50%

TENTATIVE COURSE SCHEDULE

- The numbered sections refer to the textbook.

Week	Sections to be covered	Quiz / Test	Additional Notes
01 Sept. 14 - 18	4.9 Antiderivatives Appendix E: Sigma Notation ¹ 5.1 Areas and Distances 5.2 The Definite Integral		Tutorial enrolment.
02 Sept. 21 - 25	5.2 (Cont.) The Definite Integral 5.3 The Fundamental Theorem of Calculus 5.4 Indefinite Integrals		
03 Sept. 28 - - Oct. 02	5.5 Substitution Rule 6.1 Areas Between Curves 6.2 Volumes 6.3 Volumes of Cylindrical Shells		Tutorials begin this week.
04 Oct. 05 - 09	6.5 Average Value of a Function 7.1 Integration by Parts 7.2 Trigonometric Integrals	Short Quiz 1	Final Exam Timetable Posted: Oct. 9.
05 Oct. 12 - 16	7.3 Trigonometric Substitution 7.4 Rational Functions		Thanksgiving (University closed): Oct. 12. ²
06 Oct. 19 - 23	7.5 Strategies for Integration 7.8 Improper Integrals 8.1 Arc Length	Long Quiz 1	
07 Oct. 26 - 30	9.1 Modelling with Diff. Equations 9.2 Direction Fields (omit Euler's method) 9.3 Separable Equations	Term Test Friday Oct. 30	
08 Nov. 02 - 06	9.4 Models for Population Growth 9.6 Predator-Prey Systems 11.1 Sequences	Short Quiz 2	
09 Nov. 09 - 13	11.2 Series 11.3 Integral Test and Estimates		Fall break (no classes): Nov. 09 - 10. ²
10 Nov. 16 - 20	11.4 The Comparison Test 11.5 Alternating Series 11.6 Absolute Convergence and Tests	Short Quiz 3	
11 Nov. 23 - 27	11.7 Strategy for Testing Convergence 11.8 Power Series 11.9 Functions as Power Series	Short Quiz 4	
12 Nov. 30 - - Dec. 04	11.9 (Cont.) Functions as Power Series 11.10 Taylor and MacLaurin Series.	Long Quiz 2	
13 Dec. 07 - 11	Review		Classes end Dec. 08 Extra Class Dec. 09

¹Sigma notation will be introduced briefly. Students are expected to read Appendix E.

²No regular tutorials this week, instead the TAs will hold extra office hours on Tuesday and Thursday. Check course website for more information.