



Course Outline

UNIVERSITY STUDIES

**MATH 1113A
Elementary Calculus I
Fall 2014**

**3 CREDITS
4 HOURS PER WEEK**

INSTRUCTOR: Matthew Morin

Instructor Information

Name: Matthew Morin
Phone Number: 780-791-4831
Email: matthew.morin@keyano.ca
Office Number: S211E
Office Hours: Monday: 11:00 - 11:50
Tuesday: 11:00 - 11:50
Wednesday: 11:00 - 11:50
Thursday: 11:00 - 11:50
Friday: 11:00 - 11:50

Hours of Instruction

Monday	10:00 - 10:50	Room 207	(Tutorial)
Tuesday	13:00 - 13:50	Room 216	(Lecture)
Thursday	08:00 - 08:50	Room 207	(Lecture)
Friday	08:00 - 08:50	Room 212	(Lecture)

Course Description

This course is an introduction to the differential and integral calculus of algebraic functions of a single variable. Topics include limits and continuity of functions, techniques and applications of differentiation and definition and properties of the definite integral.

Prerequisites

Math 30-1 or equivalent.

Required Resources

Textbook: *Calculus, Early Transcendentals*; James Stewart (7th edition).

Moodle: Course information will be available through Moodle.
<http://ilearn.keyano.ca>

WebAssign: Subscription to WebAssign (<http://webassign.net/>) is required for the completion of the online homework. This subscription comes packaged with the textbook from the bookstore.

Recommended Resources

Calculator: No calculators allowed during tests. A scientific calculator (or graphing calculator) can be helpful for homework problems.

SKILL CENTER: Free tutoring is available on a drop-in basis at Keyano's SKILL center (Room 119). (Check with the tutors in the SKILL Center to find out when a calculus expert will be on-duty.)

More information can be found at
<http://www.keyano.ca/Services/SkillCentre>

Course Outcomes

The student will be able to:

- Setup and evaluate limit problems
- Apply the derivative rules to differentiate complex combinations of these functions.
- Apply derivatives to solve problems involving rates of change.
- Given a formula for a function, determine the intervals where it is
 - Increasing or decreasing
 - Concave upward or concave downwardand determine the function's
 - Maximum and minimum values
 - Points of inflection.
- Create a reasonable sketch of the function given information about its derivatives.
- Apply knowledge of derivatives to find the optimal solution to a variety of word problems.
- Explain the difference between the definite and indefinite integral.
- Use integrals to solve area problems, initial value problems, and net-change problems.
- Recognize and employ the substitution method to evaluate more complex integrals.
- Demonstrate an ability to communicate a solution using the language and theory of calculus.

Evaluation

Assignments	Online Problems (WebAssign)	5%
	Traditional Problems	5%
	Presentation	5%
Tests	Quizzes	15%
	Midterm Examination	25%
	Final Examination	45%
Total:		100%

Assignments

In any mathematics course *the best way “to learn” is “to do.”* The instructor can teach you about the course ideas and demonstrate the mechanics of solving the problems (and can make it look very easy), but in order to grow adept at solving these problems take a lot of practice (and can at times be a struggle). Although the assignments may not count for much of your final grade *they are essential in preparing you for the types of problems you will be expected to solve on the tests.*

The online assignments will be assigned on an approximately week-by-week basis and will be weighted equally. Assignments will be completed using *WebAssign*, a software program that our textbook uses. Students are responsible to pay attention in-class or check WebAssign often to keep apprised of the due dates of these assignments.

Even for these online assignments it is recommended that you work out these problems by hand (on paper) before attempting to submit your solution through WebAssign. It is strongly recommended that you keep all this written work together in a notebook so that you have it to refer to for studying purposes.

To supplement the WebAssign problems, there will be three traditional (not online) assignments that are to be solved on paper and handed in for grading. The first before the midterm, the second when we focus on curve sketching, and the third at the end of term. This will give you more experience at writing out your solutions and give you more direct feedback on the quality of your work.

During our tutorial hours we will be supplementing the lectures by looking at applying our concepts to specific applied problems. Over the semester each student will be expected to choose and present the solution to (at least) two short problems. The list of presentation problems will be supplied near the start of term. Students are required to discuss with the instructor which problems they would like to present. Each of the two presentations will be worth 2.5% of the final grade and will be graded on a pass/fail basis. (A successful presentation will merit full marks; an unsuccessful presentation—such as failing to correctly answer the given problem—will be granted a repeated attempt.)

Tests

All tests will be written and are closed-book. No calculators are allowed, nor should they be needed. The topics covered by each test will be described in advance in-class and will be posted on Moodle. These tests are meant to test how well you have “mastered” the subject matter. Satisfactory completion of the relevant assignment problems is the very minimum amount of work that should prepare you for the types of problems that could appear on a test. Testing requires that you will need to be adept at solving these sorts of

problems, so practicing the methods with additional problems is recommended.

Quizzes will be short (approximately 20 minutes) and will take place during tutorial times. Quizzes will be equally weighted, except the lowest quiz score will be dropped. The midterm exam will take place during a lecture hour (50 minutes). The final exam will be 3 hours in length and will be cumulative. The date/time of the final exam will be set near the middle of the term.

Grading System

Standing	Letter Grade	Grade Points
Excellent	A+	4.0
	A	4.0
	A-	3.7
Good	B+	3.3
	B	3.0
	B-	2.7
Satisfactory	C+	2.3
	C	2.0
	C-	1.7
Poor	D+	1.3
Min Pass	D	1.0
Failure	F	0.0

Performance Requirements

Student Attendance

Class attendance is essential for two reasons. First, class attendance is the primary way that we, as instructors, can facilitate a student's learning experience. Second, attending class is a good way to keep informed of matters relating the administration of the course (e.g., the timing of assignments and exams). Ultimately, you are responsible for your own learning and performance in this course.

As is stated in the *Student Rights and Responsibilities* section of the Credit Calendar, "**Excessive or inexcusable absences can result in a poor or failing grade, loss or reduction of sponsor allowances, and/or probation or suspension.**"

Student Preparation

It is the responsibility of each student to be prepared for all classes. To get the most out of the classroom experience, students should have read the appropriate section of the textbook prior to the class that it is covered.

Students who miss classes are responsible for the material covered in those classes and for ensuring that they are prepared for the next class,

including the completion of any assignments and/or readings that may be due.

Plagiarism and Cheating

Every student expects to be treated and evaluated fairly in a course. Plagiarism and cheating robs everyone of this right.

No student may submit words, ideas or data of another student or person as his or her own in any writing, project, assignment, quiz, electronic presentation, exam etc. Any work used that is not the student's own must be clearly cited as belonging to someone else. There are penalties for using other's work and not citing it. The Student's Rights & Responsibilities document clearly outlines these penalties and the appeal process.

- No learner can obtain information from another student during an exam.
- No learner can bring unauthorized information (paper or electronic) into an exam or quiz.
- No student can submit work done in another course for grading in this course without the written prior approval of the course instructor.
- No student can submit copyright protected or commercially produced materials as part or all of an assignment without proper citation & permission.

COLLEGE POLICIES

Equality, Equity and Respect

The Keyano College is committed to providing an environment of equality, equity and respect for all people within the College community. All members of this community are considered partners in developing teaching and learning contexts that are welcoming to all. Faculty, staff, and students are encouraged to use inclusive language to create a classroom atmosphere in which students' experiences and views are treated with equal respect and valued in relation to their gender, ethnic and cultural background, and sexual orientation.

Students should consult:

<http://www.keyano.ca/StudentLife/StudentConduct/IndividualRightsPolicy>

Accommodation for Students with Disabilities

Counselling and Disability Services

Counselling Services provides a wide range of specialized counselling services to prospective and registered students, including personal, career, and academic counselling.

Disability Services provides educational services to students with disabilities. Both Counselling and Disability Services are located in CC167.

APPROXIMATE COURSE SCHEDULE

Week	Dates	Topic	Chapter Sections
1	Sept. 2—Sept. 5 (Classes begin Sept. 3)	Review	
2	Sept. 8—Sept. 12	Review, Ave. Rates of Change	2.1
3	Sept. 15—Sept. 19	Limits, Limit Laws	2.2, 2.3
4	Sept. 22—Sept. 26	Continuity, Limits at Infinity	2.5, 2.6
5	Sept. 29—Oct. 3	The Derivative	2.7, 2.8
6	Oct. 6—Oct. 10	Derivative Rules	3.1, 3.2, 3.3
7	Oct. 13—Oct. 17 (No Classes on Monday— Thanksgiving)	Chain Rule, Implicit Differentiation Midterm	3.4, 3.5
8	Oct. 20—Oct. 24	Derivatives of Logarithms, Rates of Change	3.6, 3.7
9	Oct. 27—Oct. 31	Exp. Growth/Decay, Related Rates	3.8, 3.9
10	Nov. 3—Nov. 7	Max/Min, How Derivatives Affect the Shape of a Curve	4.1, 4.3
11	Nov. 10—Nov. 14 (No Classes on Tuesday— Remembrance Day)	Curve Sketching, Optimization Problems	4.3(cont.), 4.5
12	Nov. 17—Nov. 21	Optimization Problems, Mean Value Theorem, Antiderivatives	4.7, 4.2, 4.9
13	Nov. 24—Nov. 28	Area/Distance Problem, Def. Integrals	4.9 (cont.) 5.1, 5.2, 5.3
14	Dec. 1—Dec. 5	Indef. Integrals, Substitution Rule	5.3 (cont.) 5.4, 5.5
	Dec. 8 - Dec. 17	Exam Period	

Please Note: This course outline may be modified to facilitate unforeseen time constraints. Date and time allotted to each topic is subject to change.

IMPORTANT DATES TO REMEMBER

Sept. 1	Labour Day, College closed
Sept. 2	Orientation Day, No classes.
Sept. 16	Last day to DROP courses with full refund (%100 deposit is non-refundable)
Oct. 10	Last day to WITHDRAW with a refund (50%)
Oct. 13	Thanksgiving Day, College closed.
Nov. 11	Remembrance Day Holiday, No classes.
Nov. 26	Last day to WITHDRAW (Grade of W)
Dec. 5	Last day of classes
Dec. 8-12	FINAL EXAM PERIOD.

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**3 CREDITS
4 HOURS PER WEEK**

Matthew Morin, Instructor

Date

Reviewed and approved by:

Louis Dingley, Chair

Date

Guy Harmer, Dean

Date