

MATH 1113: Elementary Calculus I*3 Credits, 3 hours lecture, 1 hour lab*

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

Instructor

Instructor Name: Matthew Morin

Office location: S211E

Phone number: 780-791-4831

matthew.morin@keyano.ca

Office Hours

Monday 9:00 - 10:00

Wednesday 9:00 - 10:00

Friday 9:00 - 10:00

Hours of Instruction

Monday 10:30 - 11:50 (S112)

Tuesday 10:30 - 11:50 (S112)

Wednesday 10:00 - 11:50 (S112)

Thursday 10:30 - 11:50 (S112)

Friday 10:30 - 11:50 (S112)

Required Resources

Subscription to WebAssign (<http://webassign.net/>) is required for the completion of the online homework. An e-version of the textbook (**Calculus: Early Transcendentals**, 9th edition, by Stewart, Clegg, and Watson) is viewable through the WebAssign system. WebAssign access can be purchased directly through their website (details in class) or access can come packaged bundled with a physical textbook (Warning: an incorrect edition might not come with the correct access code.)

Course Outcomes

Upon successful completion of this course, the student shall be able to:

- Evaluate a variety of limits
- Apply the derivative rules to differentiate complex combinations of transcendental 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 using 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	15% (WebAssign: Online Assignments)
Midterm Exams	35% (Two Midterms, 17.5% each)
Final Exam	50%
Total	100%

A grade of C- is required for progression or transfer.

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 growing adept at solving these problems will take a lot of practice and can be a struggle. Although the assignments do not count for a large part of your final grade they are essential in preparing you for the types of problems you will be solving on the exams.

Assignment completion is a requirement of the course. Failure to complete all the assignments may result in a failing grade for the course.

The “Homework Sets” are sets of problems you will solve at home then hand in your solutions in-class. (As opposed to the online “WebAssign” assignments and “In-Lab” assignments.) A cover page is not required, but the assignment number, the course number, and your name should be clearly written on the front page. Homework problems should be presented in the order that they were listed. If more than one page is needed, then the pages should be stapled together (in the proper order). A late assignment may be accepted, or may incur a penalty depending on the circumstances. Once marked assignments are returned to the class, no further late assignments can be submitted.

In addition to the submitted paper copy, **a digital version of each homework set must also be uploaded to our course’s Moodle page.** If your solutions are handwritten, you may scan your work at one of the college photocopiers (such as the Library, the Skill Center, or the Info Commons), have the copier email the scan(s) to your Keyano email account, and then upload to our Moodle page.

Although you are permitted to work with other students while completing assignments, it is essential that the work you present is your own—see the section on Academic Misconduct later in this outline for more information. Presenting other students’ solutions as your own may result in serious academic penalties. If you are working together with other students on a problem, it is vital that at the end of the process YOU know how to solve the problem and that YOU write out your own solution in your own way. If there is suspicion of academic misconduct, you will be required to defend the work you have submitted.

It is recommended that you attempt the assignments yourself before talking over problems with your classmates. If you need help with a problem you can come to office hours, visit the Skill Center, and (yes) talk to your classmates. However, this does not mean looking through a classmate’s solution.

Rather, it is best if you talk about the problem. If you do not understand what the problem is asking for, then it could be useful to read through the relevant sections of the textbook and the course notes.

Tests:

All tests will be written and are closed-book. No calculators are allowed, nor should they be needed. The dates of most tests will be announced in-class and on Moodle well in advance of the test date. The details of the topics covered by tests will be given and a sample test will usually be provided. These tests are meant to test how well you have “mastered” the subject matter. Satisfactory completion of the relevant assignment problems, reading the relevant textbook sections, and studying the course notes is the very minimum amount of work that should prepare you for the types of problems that could appear on a test. However, as the larger tests are cumulative in nature, you may be solving problems that require ideas that bridge across several sections of the course.

Grading System

Descriptor	Alpha Grade	4.0 Scale	Percent	Rubric for Letter Grades
Excellent	A+	4.0	> 92.9	Work shows in-depth and critical analysis, well developed ideas, creativity, excellent writing, clarity and proper format.
	A	4.0	85 – 92.9	
	A-	3.7	80 – 84.9	
Good	B+	3.3	77 – 79.9	Work is generally of high quality, well developed, well written, has clarity, and uses proper format.
	B	3.0	74 – 76.9	
	B-	2.7	70 – 73.9	
Satisfactory Progression	C+	2.3	67 – 69.9	Work has some developed ideas but needs more attention to clarity, style and formatting.
	C	2.0	64 – 66.9	
	C-	1.7	60 – 63.9	
Poor	D+	1.3	55 – 59.9	Work is completed in a general way with minimal support, or is poorly written or did not use proper format.
Minimum Pass	D	1.0	50 – 54.9	
Failure	F	0.0	< 50	Responses fail to demonstrate appropriate understanding or are fundamentally incomplete.

Proposed Schedule of Topics

Week	Dates	Topic	Chapter Sections
1	May 8 – May 12	Limits, Limit Laws, Continuity, Calculating Limits	2.2, 2.3, 2.5, 2.6
2	May 15 – May 19	Limits at Infinity, Asymptotes, The Derivative, Derivative Rules	2.7, 2.8, 3.1, 3.3, 3.6
3	May 22 – May 26 (No classes Monday, May 22)	Midterm 1 (Wednesday, May 24) Product and Quotient Rule, Chain Rule, Implicit Differentiation, Derivatives of Inverse Functions	3.2, 3.4, 3.5
4	May 29 – June 2 (No classes Wednesday, May 31)	Rates of Change, Related Rates, Maximum and Minimum Values, How Derivatives Affect the Shape of a Curve	3.7, 3.9, 4.1, 4.3

Week	Dates	Topic	Chapter Sections
5	June 5 – June 9	Curve Sketching, Optimization, Mean Value Theorem, Antiderivatives Midterm 2 (Wednesday, June 7)	4.5, 4.7, 4.2, 4.9
6	June 12 – June 16	Definite Integrals, Fundamental Theorem of Calculus, Indefinite Integrals, Substitution Rule	5.1, 5.2, 5.3, 5.4, 5.5
	June 19	Final Exam: Monday, June 19th, 9:00am-12:00noon	

Please Note:

Date and time allotted to each topic is subject to change.

Performance Requirements and Student Services**Student Responsibilities**

As a student, it is your responsibility to contact the Office of the Registrar to complete the required forms, including the [Withdrawal/Drop Form](#). All forms are available on the [College website](#). Please refer to the important dates listed in the Academic Schedule in the [Keyano College credit calendar](#) and/or on the [College website](#). It is the responsibility of each student to be aware of the guidelines outlined in the [Student and Academic Policies](#).

Student Attendance

Class attendance is helpful for two reasons: First, class attendance maximizes a student's learning experience. Second, attending class is an excellent way to keep informed of matters relating to the course administration (e.g., the timing of assignments and exams). Ultimately, you are responsible for your learning and performance in this course. It is the responsibility of each student to be prepared for all classes. Absent students are responsible for the material covered in those classes, and students must ensure they are ready for their next class, including completing any missed assignments and notes.

Course Evaluation

Midterm exams and term work is to be completed at the time/date indicated in your course syllabus. It is the expectation of the College that students make every reasonable effort to complete all course evaluation, including, quizzes, midterms, and exams, as scheduled. In the event of an emergency, rescheduling of exams and/or extensions are only provided at the discretion of the course instructor. Students should contact the instructor as soon as they are able, to notify them of missing an evaluative component. Instructors will use discretion in deciding whether circumstances justify granting a reschedule and/or extension.

Regular term quizzes, midterms, and exams are not eligible for deferral and/or date extension accommodations. Students with accommodations, please refer to Accessibility Services.

Final Exams are subject to deferral processes, please refer to the current [Keyano College Credit Calendar](#).

Academic Integrity & Misconduct

Academic integrity requires commitment to the values of honesty, trust, fairness, respect, and responsibility. It is expected that students at Keyano College will adhere to these ethical values in all activities related to learning, teaching, research, and service. Any action that contravenes this standard,

including misrepresentation, falsification, or deception, undermines the intention and worth of scholarly work and violates the fundamental academic rights of members of our community.

Academic dishonesty takes many forms:

- Plagiarism or the submission of another person's work as their own,
- The use of unauthorized aids in assignments or examinations (cheating),
- Using Artificial Intelligence (AI) to complete coursework (without instructor approval),
- Collusion or the unauthorized collaboration with others in preparing work,
- The deliberate misrepresentation of qualifications,
- The willful distortion of results or data,
- Substitution in an examination by another person,
- Submitting unchanged work for another assignment, and
- Breach of confidentiality.

In all academic work, the ideas and contributions of others must be appropriately acknowledged and work that is presented as original must be, in fact, original. Using an AI-content generator (such as ChatGPT) to complete coursework without proper attribution or authorization is a form of academic dishonesty. If you are unsure about whether something may be plagiarism or academic dishonesty, please contact your instructor to discuss the issue.

The consequences for academic misconduct range from a verbal reprimand to expulsion from the College. More specific descriptions and details are found in the *Student & Academic Policies* section of the [Keyano College credit calendar](#). It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights, Academic Integrity, and Non-Academic Misconduct Policies.

To ensure your understanding of plagiarism, you may be required to complete the online [Understanding Plagiarism tutorial](#) and submit the certificate of completion.

Online Learning

Technology and internet connectivity will impact your online learning experience. You may be required to watch online videos, take online quizzes, or participate in live online classes. Live/virtual courses will be hosted in Microsoft Teams or Zoom. For all course delivery types, you will access your course resources on Keyano's learning management system: Moodle (iLearn). Login in using your [Keyano username and password](#). Keyano College operates in a Windows-based environment and having access to the correct tools for online learning is essential.

Internet Speed

Minimum download and upload speeds of 10 Mbps. Recommended download speeds of 25 Mbps and upload speeds of 10 Mbps (if you are sharing your internet at home). You can check your internet speed with [Speedtest by Ookla](#).

Computer System Requirements

Keyano College software are Windows based.

Minimum Requirements and Recommended Upgrades for Windows (preferred system) and Apple devices

These minimum standards are required for a Windows computer/laptop (OS 10 or 11) and a Macintosh (OS 10.14 or above).

1. Windows 10 Operating System or above
2. 4GB of RAM. Recommended upgrade to 8GB of RAM.
3. 10GB+ available hard drive storage space. Note installing Microsoft Office 365 requires 3GB of available hard drive space.
 - a. Install the Microsoft Office 365 suite (~3GB) *
4. Microphone, webcam, and speakers (All modern laptops have these three accessories built-in. However, a headset or earbuds with a microphone is also recommended.
5. Windows has built-in anti-virus/malware software. It is essential to install system updates to keep your device secured regularly.

*[Microsoft Office 365](#) is free to Keyano students.

Tablets, iPads, and Chromebooks are **not** recommended: they may not be compatible with the testing lockdown browsers and Microsoft Office 365.

Specific Department Requirements

Business and OA programs require Windows 10 or higher.
Other programs may utilize Windows-based tools as well.

Computer Software

Students have access to Microsoft Office 365 and Read & Write for free using Keyano credentials.

See [Recommended Technology](#) for more information.

Recording of Lectures and Intellectual Property

Students may only record a lecture if explicit permission is provided by the instructor or Accessibility Services. Even if students have permission to record a lecture or lecture materials, students may not share, distribute, or publish any of the lectures or course materials; this includes any recordings, slides, instructor notes, etc., on any platform. Thus, no student is allowed to share, distribute, publish, or sell course-related content without permission. It is important to recognize that the Canadian Copyright Act contains provisions for intellectual property. The [Academic Integrity Policy](#) provides additional information on Keyano College's expectations from students as members of the intellectual community.

ITS Helpdesk

If you have issues with your student account, you can contact the ITS Helpdesk by emailing its.helpdesk@keyano.ca or calling 780-791-4965.

Specialized Supports

Keyano College is committed to Keyano students and their academic success. There is a variety of student support available at Keyano. All student services are available during Keyano business hours: Monday to Friday, 8:30 a.m. to 4:30 p.m. The College is closed on statutory holidays. If you require support outside of regular business hours, please inform the support service team, and they will do their best to accommodate your needs.

Accessibility Services provides accommodations for students living with disabilities. Students with documented disabilities or who suspect a disability can meet with an Access Strategist to discuss their current learning barriers and possible accommodations. Students who have accessed accommodations in the past are encouraged to contact the department to request accommodations for the following semester. Please note that requesting accommodations is a process and requires time to arrange. Contact the department as soon as you know you may require accommodations. For accessibility

supports and disability-based funding, please book an appointment by emailing us at: accessibility.services@keyano.ca.

Accessibility Services also provides individual and group learning strategy instruction for all students and technology training and support to enhance learning. You can meet with an Access Strategist to learn studying and test-taking strategies. In addition, you can schedule an appointment with the Assistive Technology Specialist to explore technology tools for learning. Book an appointment today by emailing: accessibility.services@keyano.ca

Wellness Services offers a caring, inclusive, and respectful environment where students can access free group and individual support to meet academic and life challenges. Mental Health Coordinators provide a safe and confidential environment for you to seek help with personal concerns. Our Wellness Navigator offers support with basic needs such as housing, financial and nutritional support, and outside referrals when needed. Wellness Services welcomes students to participate in group sessions that address topics including mindfulness and test anxiety throughout the academic year. Individual appointments can be made by emailing wellness.services@keyano.ca.

Library Services provides students with research, information, and educational technology supports as they engage in their studies. Library staff are available to help you online and in person throughout the semester. Librarians offer individual and small group consultations booked using the online [Book A Librarian calendar](#). The library also provides virtual research and subject guides to help you with your studies. Find the guide that supports your course-related research by viewing the complete list of online [Subject Guides](#). To start your research and access citation guides (APA, MLA, Chicago, or IEEE), visit the [Research Help page](#). The library's collections (including print and online materials) are searchable using [OneSearch](#). The library offers a Loanable Technology collection to support students accessing and using technology. For an up-to-date list of technology available for borrowing, visit the library's [Loanable Technology webpage](#). For a detailed list of library resources and services, go to www.keyano.ca/library. For all inquiries, please email askthelibrary@keyano.ca or [chat with us online](#).

The **Academic Success Centre** at Keyano College (CC-119) provides free academic support services to registered students, such as tutoring, writing support, facilitated study groups, workshops, and study space. Academic Content Specialists are available in Mathematics, Science, Trades, Power Engineering, Upgrading/College Prep, Human Services, English, Humanities, and more. Students are encouraged to visit the Academic Success Centre to discuss study strategies and academic concerns.

Specialists in the Academic Success Centre also work with students to develop academic success plans, time management skills, study strategies, and homework plans. For additional information, please email Academic.Success@keyano.ca.

Authorization

This course outline has been reviewed and approved by the Program Chair.

Matthew Morin, Instructor

Marie-France Jones, Chair

Date Authorized

Coert Erasmus, Dean

Date Authorized

Signed copies to be delivered to:
Instructor