
MATH 100 - COURSE OUTLINE

INSTRUCTOR: Simon Geoffroy-Gagnon

E-MAIL: sgeoffroygagnon@yukonu.ca

OFFICE LOCATION: YRC 48

CLASSROOM: A2202

CLASS TIMES: Mon/Wed/Fri, 9 – 10:20am

DATES: Sept 4 – Dec 9, 2023

COURSE DESCRIPTION

This is a first course in calculus. The topics include limits and continuity; the derivatives of elementary, trigonometric and logarithmic/exponential functions; applications of the derivative in solving problems and graphing; and integration of elementary and trigonometric functions. Also covered are the Mean Value Theorem and the first and second fundamental theorems of calculus.

COURSE REQUIREMENTS

Prerequisite(s): 65% or better in either MATH 060 or MATH 12

EQUIVALENCY OR TRANSFERABILITY

Receiving institutions determine course transferability. Find further information at:

<https://www.yukonu.ca/admissions/transfer-credit>

LEARNING OUTCOMES

Upon successful completion of the course, students will be able to:

- Apply the concept of the limit of a function in order to determine the continuity and end behaviour of a function.
- Establish the concept of the derivative in terms of limits and demonstrate proficiency in basic differentiation techniques, including: power rule, product rule, quotient rule, chain rule and trigonometric differentiation.
- Use graphing techniques related to differentiation and solve applied differentiation problems such as related rates and optimization.
- Apply the Fundamental Theorem of Calculus and demonstrate the relationship between the area as a limit and the definite and indefinite integral.
- Demonstrate basic integration techniques, including the antiderivative and substitution methods.
- Apply integration techniques to problems involving areas and volumes.

COURSE FORMAT

Weekly breakdown of instructional hours

Lectures: 3 hours per week

Tutorial: 1 hour per week

The course content is covered through lectures, in-class tutorials, and homework / practice assignments using the prescribed textbook. Students with a sound mathematical background can expect to spend 2—4 hours in preparation and study for every hour spent in class.

Delivery format

In-person

Course material will be posted on Moodle, including weekly lecture notes, textbook readings, homework problems, announcements, and other useful or interesting material related to the course.

EVALUATION

Weekly Quizzes	35%
Midterm Test	25%
Final Exam	40%
Total	100%

Weekly Quizzes (35%)

There will be weekly quizzes during the term, worth a total of 35% of the final grade. These quizzes will use some modified practice questions of the same week and happen on Fridays.

Midterm Test (25%)

There will be one midterm test worth 25% of the final mark.

Final Examination (40%)

The final examination will cover the entire course and is worth 40% of the final grade. It will be held at the end of the term during the exam period. The exact date of the exam will be announced as soon as it is set by the School of Science. **A minimum mark of 50% on the final exam is required in order to pass the course.**

COURSE WITHDRAWAL INFORMATION

Refer to the YukonU website for important dates.

TEXTBOOKS & LEARNING MATERIALS

- Non-graphing scientific calculator
- Free Textbook: [Calculus 1 Textbook](#)

ACADEMIC INTEGRITY

Students are expected to contribute toward a positive and supportive environment and are required to conduct themselves in a responsible manner. Academic misconduct includes all forms of academic dishonesty such as cheating, plagiarism, fabrication, fraud, deceit, using the work of others without their permission, aiding other students in committing academic offences, misrepresenting academic assignments prepared by others as one's own, or any other forms of academic dishonesty including falsification of any information on any Yukon University document.

Please refer to Academic Regulations & Procedures for further details about academic standing and student rights and responsibilities.

ACADEMIC ACCOMMODATION

Reasonable accommodations are available for students requiring an academic accommodation to fully participate in this class. These accommodations are available for students with a documented disability, chronic condition or any other grounds specified in section 8.0 of the Yukon University Academic Regulations (available on the Yukon University website). It is the student's responsibility to seek these accommodations by contacting the Learning Assistance Centre (LAC): LearningAssistanceCentre@yukonu.ca.

TOPIC OUTLINE

Week	Content (numbers refer to textbook sections)
1	Review: Functions, transformations, and graphing (Appendices B–E, Web Appendices F–H)
2	Limits of algebraic functions (1.1–1.3)
3	Continuity (1.5); Continuity of trigonometric functions (1.6)
4	Differentiation (2.1–2.3)
5	Differentiation cont'd (2.4–2.6)
6	Differentiation cont'd (2.7–2.8)
7	Analysis of functions and their graphs (3.1–3.2)
8	Analysis of functions and their graphs cont'd (3.3); MIDTERM
9	Applications of the derivative (3.4, 3.5)
10	Integration (4.1–4.3)
11	Reading Week
12	Integration cont'd (4.5, 4.6, 4.9)
13	Applications of integration (5.1–5.2)
14	Applications of integration cont'd (5.3–5.5)
15	Review

Specific dates of topic coverage and assessments may be subject to change.