YukonCollege

COURSE OUTLINE

MATH 100

45 HOURS
3 CREDITS

PREPARED BY: Jaclyn Semple, Instructor   DATE: August 14, 2017

APPROVED BY: DATE:

APPROVED BY ACADEMIC COUNCIL: (date)

RENEWED BY ACADEMIC COUNCIL: (date)

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Course Outline prepared by Jaclyn Semple, August 2017.

Yukon College
P.O. Box 2799
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Single Variable Calculus I

INSTRUCTOR: Jaclyn Semple   **OFFICE HOURS:** Mon & Thurs, 10-11am

OFFICE LOCATION: A2433   **CLASSROOM:** A2601

E-MAIL: jsemple@yukoncollege.yk.ca   **TIME:** Mon – Fri (9am – 10am)

TELEPHONE: 867-456-8548   **DATES:** September 6 – December 21, 2017

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.

PREREQUISITES

MATH 070, or 65% or better in one of MATH 060, Principles of Math 12, or Pre-Calculus 12

EQUIVALENCY OR TRANSFERABILITY

UBC	Math 100 (3)	SFU	Math 151 (3)
UVIC	Math 100 (1.5)	UAF	Math 200 (3)
UAS	Math 200 (3)	URegina	Math 110 (3)
UNBC	Math 100 (3)	KWAN	Math 1120 (3)
OC	Math 112 (3)	TRU-OL	Math 1141 (3)
TRU	Math 1140 (3)	TWU	Math 123 (3)
UFV	Math 111 (3)		

For more information about transferability contact the School of Science office.

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

Lectures: 3 hours per week
Tutorials: 2 hours per week
The course content is covered through lectures, tutorials, and homework assignments using the prescribed textbook. Students with a sound mathematical background can expect to spend between two and four hours in preparation and study for every hour spent in class.

COURSE REQUIREMENTS

Assignments
Problems (not graded by the instructor) will be assigned each week and solutions will be available on the course Moodle page or in the textbook.

Tutorials
Students will be given problems (not graded) to work on during the tutorial sessions.

Quizzes (30%)
There will be eleven quizzes during the term, worth 30% of the final mark. Most questions on the quizzes will be drawn from the assigned problems, thus completing the assignments should guarantee good quiz results. Missed quizzes cannot be made up, but the lowest quiz result will be discarded.

Midterm Test (30%)
There will be one midterm test worth 30% of the final mark.

Final Examination (40%)
The final examination will cover the entire course and is worth 40% of the final mark. It will be held at the end of the term sometime during the exam period (December 8 – 21). The exact date of the exam will be announced as soon as it is set by the School of Science.

EVALUATION
The student's grade will be calculated as follows:

Quizzes	30%
Midterm Test	30%
Final Examination	40%

TEXTBOOK AND MATERIALS
Anton H, Bivens I, Davis S. *Calculus: Single Variable*. 11th Edition. New York: Wiley, 2016. ISBN 978-1-118-88561-1 (binder-ready version)

ACADEMIC AND STUDENT CONDUCT
Information on academic standing and student rights and responsibilities can be found in the Academic Regulations that are posted on the Student Services/Admissions & Regulations web page.

PLAGIARISM
Plagiarism is a serious academic offence. Plagiarism occurs when students present the words of someone else as their own. Plagiarism can be the deliberate use of a whole piece of another person's writing, but more frequently it occurs when students fail to acknowledge and document sources from which they have taken material. Whenever the words, research or ideas of others are directly quoted or paraphrased, they must be documented according to an accepted manuscript style (e.g., APA, CSE, MLA, etc.). Resubmitting a paper which has previously received credit is also considered plagiarism. Students who plagiarize material for assignments will receive a mark of zero (F) on the assignment and may fail the course. Plagiarism may also result in dismissal from a program of study or the College.

YUKON FIRST NATIONS CORE COMPETENCY
Yukon College recognizes that a greater understanding and awareness of Yukon First Nations history, culture and journey towards self-determination will help to build positive relationships among all Yukon citizens. As a result, to graduate from ANY Yukon College program, you will be required to achieve core competency in knowledge of Yukon First Nations. For details, please see www.yukoncollege.yk.ca/yfnccr.

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 College Academic Regulations (available on the Yukon College website). It is the student's responsibility to seek these accommodations. If a student requires an academic accommodation, he/she should contact the Learning Assistance Centre (LAC) at (867) 668-8785 or lassist@yukoncollege.yk.ca.

OUTLINE OF TOPICS

Week	Content (numbers refer to textbook sections)	Milestones
1	Review: Functions, transformations, and graphing (Appendices B–E, Web Appendices F–H)	
2	Limits of algebraic functions (1.1–1.3)	Quiz 1
3	Continuity (1.5); Continuity of trigonometric functions (1.6)	Quiz 2
4	Differentiation (2.1–2.3)	Quiz 3
5	Differentiation cont'd (2.4–2.6)	Quiz 4
6	Differentiation cont'd (2.7–2.9)	Quiz 5
7	Analysis of functions and their graphs (3.1–3.3)	Quiz 6
8	Applications of the derivative (3.5, 3.7, 3.8)	Quiz 7
9	Integration (4.1–4.3)	MIDTERM
10	Integration cont'd (4.4, 4.5)	Quiz 8
11	Integration cont'd (4.6, 4.9)	Quiz 9
12	Applications of integration (5.1–5.4)	Quiz 10
13	Applications of integration cont'd (5.5, 5.6)	Quiz 11
14	Review	