School of Academic & Skill Development

Math 051A

Introductory Algebra

Date

3 Credits

Course Outline

INSTRUCTOR		**OFFICE HOURS**	
OFFICE		**CLASSROOM**	
E-MAIL		**CLASS TIME**	
TELEPHONE		**CRN**	
Liberal Arts office: Ayamdigut Campus A2501, liberalarts@yukonu.ca, 867-668-8770			

COURSE DESCRIPTION

This course provides a comprehensive review of foundational math skills essential for success in algebra. Topics include fractions, decimals, percents, graph interpretation, real numbers, algebraic expressions, linear equations and inequalities, exponents, polynomials, and factoring, including solving quadratic equations. Emphasis is placed on building confidence and fluency with core concepts to support future mathematical learning. This course will prepare students for Math 051B.

Introductory Algebra (Math 051 A & Math 051B) is intended to provide students with the necessary skills to allow them to enter Yukon University courses and programs requiring Workplace or Foundations of Mathematics 11. Math 051 is not a prerequisite for Math 060.

COURSE REQUIREMENTS

High school Mathematics Foundations and Pre-Calculus 10, Yukon University Math 030, or any college equivalent.

EQUIVALENCY OR TRANSFERABILITY

Together with Yukon University Math 051B: Introductory Algebra fulfils the Advanced Developmental Mathematics requirements in the Adult Basic Education system (ABE) in British Columbia and Yukon.

Advanced Developmental Mathematics is equivalent to Math 11 Foundations and qualifies as the mathematics requirement for the BC Adult Graduation Diploma or the Adult Dogwood.

Advanced Developmental Mathematics is considered to meet “Foundation Studies Mathematics” with 4 credits by the British Columbia Ministry of Education and satisfies the Grade 12 Graduation Requirements.

For more information, please refer to the BC Adult Basic Education Articulation Handbook which may be found at http://www.bctransferguide.ca/ Find further information at: https://www.yukonu.ca/admissions/transfer-credit

LEARNING OUTCOMES

Math 051A covers learning outcomes 1 to 3 of Mathematics: Advanced Level—Developmental course of the Adult Basic Education program found in the 2024/2025 edition of the ABE Articulation Handbook at https://www.bctransferguide.ca/transfer-options/adult-basic-education/past-abe-guides/.

For specific topics covered, see the Topic Outline section.

COURSE FORMAT

Delivery format

This course is delivered in a blended HyFlex format. Students are expected to attend face-to-face sessions on-campus or may attend through Zoom. Students may complete some asynchronous online activities as well as in-class activities. All classes will be taught using a lecture format and all lectures will be recorded. Zoom is a synchronous (in real time) virtual format that enables face-to-face approaches to teaching and learning and allows the recording of the lectures. These classes take place at specified times. Students should plan on arriving or signing in a few minutes before class starts. Course materials will be available on the course Moodle page for students to access and print.

Workload

Students must attend all classes either in person or through Zoom. It is expected that students will need to apply approximately 2 hours per day of homework. It is important to note that the time required for successful course completion will vary by individual.

EVALUATION

Attendance, Participation & Homework

Students should either attend in person or be signed into class at assigned times. Attendance will be recorded. Attendance, on-line activities and homework checks will count towards 10% of the final course grade. If a class is missed, it is the student's responsibility to watch the recorded class video or contact the instructor to find out what was missed.

Assignments

There are 3 assignments which account for 35% of the course mark.

Assignments submitted after the due date will receive a deduction of 10%. Late assignments cannot be accepted and will receive a grade of zero after the marked ones have been returned to the class (generally 3 - 5 days). A student planning to be away on the due date must submit the assignment prior to leaving,

submit on-line or make arrangements with the instructor in advance. If the due date is missed owing to an emergency, an alternate assignment may be given.

Exams

There will be one mid-term exam covering the content from chapters R, 1 & 2, and one final exam covering all chapters, with an emphasis on chapters 3 - 4. The mid-term exam is worth 25% of the final course grade, while the final exam is worth 30% of the final grade.

Exam

Attendance, Quizzes & Homework	10 %
Assignments	35 %
Midterm Exam	25 %
Final Exam	30 %
Total	**100%**

Rewrites

A rewrite for a failing grade on an examination (less than 50%) may be permitted at the instructor's discretion. These examinations will be written no earlier than two weeks after the original examination. The rewrite mark will be recorded as higher or lower than the original. However, a maximum mark of 65% will be awarded.

No Shows

A student who misses an examination without notice will receive a mark of zero for that examination but may be permitted a rewrite. Exceptions will be made if a student receives prior permission from the instructor or faces an emergency. Some form of documentation of the emergency may be required.

TEXTBOOKS & LEARNING MATERIALS

- Textbook: Elyan Martin Gay, Introductory Algebra (6th edition)
    - Available to borrow without cost from the Reserves Desk at Yukonu Library.
- Three-ring binder with dividers, writing paper, graph paper, ruler, pencils, scientific calculator.

Supplementary Materials

- Students' Solution Manual for *Introductory Algebra*, 6th edition *(posted on Moodle Page)*
- MyMathLab with EText for *Introductory Algebra*, 6th Ed. MyMathLab is an online system students can use to work through unlimited tutorial exercises correlated to the exercises in their textbook. The system also contains multimedia tutorials.
- Khan Academy

It is recommended that all students have access to a computer or other device and Internet to do their studies. The minimum specifications for a student device are as follows:

Requirement	**Windows-based PC**	**Apple Mac/macOS-based PC**
Operating System	Windows 10	macOS X
Web Browser	Firefox, Edge or Google Chrome	Firefox, Edge or Google Chrome
RAM/Memory	4 GB	4 GB
Storage	5 GB of available space	5 GB of available space

COURSE WITHDRAWAL INFORMATION

Students may officially withdraw from a course or program without academic penalty up until two-thirds of the course contact hours have been completed. Specific withdrawal dates vary, and students should become familiar with their program's withdrawal dates. See withdrawal information at www.yukonu.ca/admissions/money-matters

Refer to the YukonU website for important dates: www.yukonu.ca/admissions/important-dates

Refunds may be available. See the Refund policy and procedures at www.yukonu.ca/admissions/money-matters

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 (updated bi-annually) for further details about academic standing, and student rights and responsibilities: www.yukonu.ca/policies/academic-regulations

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 at www.yukonu.ca/policies/academic-regulations

It is the student's responsibility to seek these accommodations by contacting the Learning Assistance Centre (LAC): LearningAssistanceCentre@yukonu.ca.

TOPIC OUTLINE

Math 051 covers the learning outcomes and core topics of Advanced Developmental Mathematics of the Adult Basic Education found in the 2024/2025 edition of the ABE Articulation Handbook at https://www.bctransferguide.ca/transfer-options/adult-basic-education/abe-handbook/

All of the following required units will be completed.

Operations with Real Numbers

a) write fractions as decimals and repeating decimals as fractions
b) add, subtract, multiply and divide rational numbers
c) evaluate powers with rational bases and integer exponents
d) demonstrate the order of operations with rational numbers
e) evaluate radicals with rational radicands and distinguish between exact answers and approximate answers
f) simplify, add, subtract, multiply and divide square roots

First Degree Equations and Inequalities

a) solve first degree equations, in one variable, including those involving parentheses
b) solve formulas for a given variable when other variables are known
c) solve formulas for a given variable
d) solve first degree inequalities in one variable
e) solve practical problems that can be solved using a first degree equation

Polynomials

a) distinguish between monomials, binomials, trinomials and other polynomials (in one variable only)
b) apply the laws of exponents to variable expressions with integral exponents
c) evaluate polynomials by substitution
d) add, subtract, and multiply polynomials
e) factor polynomials by removing the largest common factor
f) factor binomials of the form $a^2x^2 - b^2y^2$ and trinomials of the form $x^2 + bx + c$
g) solve quadratic equations using the law of zero products
h) factor trinomials of the form $ax^2 + bx + c$

Statistics

a) determine the mean, median, mode, range and standard deviation of a set of data
b) represent data graphically using broken line graphs and bar graphs
c) understand how the normal curve can be used to describe a normally distributed population
d) calculate z-scores and determine areas under the normal curve
e) use areas under the normal curve to analyze data in terms of the probability of various events

The following units are optional.

The Quadratic Equation

a) solve quadratic equations by factoring
b) solve equations of the form x^2 + bx + c = 0 by completing the square
c) solve quadratic equations by using the quadratic formula
d) graph y = ax^2 + bx + c and determine its
   i. x- and y-intercepts
   ii. vertex
e) solve practical problems that can be solved using a quadratic equation

Financial Mathematics

a) solve simple interest problems using the formula, $I = prt$ (for any variable)
b) solve compound interest problems for A or P using $A = P\left(1 + \frac{r}{n}\right)^{nt}$
c) find the effective interest rate using $E.R. = \left(1 + \frac{r}{n}\right)^{n} - 1$
d) solve annuity problems using $A = \frac{nP\left[\left(1+\frac{r}{n}\right)^{n}-1\right]}{r}$ (for A or P only)
e) find periodic payment using $P = \frac{A\left(\frac{r}{n}\right)}{1-\left(1+\frac{r}{n}\right)^{-nt}}$
f) determine the finance charge on a loan
g) determine the interest on a loan using tables or appropriate technology