School of Academic & Skill Development

Yukon University

Math 051
Introductory Algebra
Winter, 2026

6 Credits

Course Outline

INSTRUCTOR	Julie Hawkins	**OFFICE HOURS**	Fridays – 1:00 – 3:00
OFFICE	A2304 (inside Lab A2301)	**CLASSROOM**	A2103
E-MAIL	jhawkins@yukonu.ca	**CLASS TIME**	Mon – Fri 8:30 – 10:00 am
TELEPHONE	867-456-8606	**CRN**	20048
Liberal Arts office: Ayamdigut Campus A2501, liberalarts@yukonu.ca, 867-668-8770			

COURSE DESCRIPTION

Introductory Algebra consists of operations with real numbers, first degree equations and inequalities, linear equations, systems of linear equations, polynomials, rational expressions, radical expressions, and right-angle trigonometry. In addition, at least one option chosen from quadratic equations, statistics, financial mathematics, and geometry will be selected depending on the goals of the class.

Introductory Algebra is intended to provide students with the necessary skills to enter Yukon University courses and programs requiring Workplace or Foundations of Mathematics 11. This course will also prepare students for Math 050 or an equivalent grade 11 algebra. 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

Yukon University Math 051 is articulated as Advanced Developmental Mathematics in the Adult Basic Education system (ABE) in British Columbia and Yukon.
Advanced Developmental Mathematics 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 four 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

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

- meet the competencies as stated for ABE Advanced Level-Developmental located in the BC Adult Basic Education BC Articulation Handbook
- obtain the prerequisite body of knowledge and skills that will provide a basis for further academic and career/vocational training
- communicate and reason mathematically
- make connections between mathematics and its applications
- make informed decisions as contributors to society
- appreciate and value mathematics

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 via Zoom. Students may complete both asynchronous online and in-class activities. All classes will be taught using a lecture format, and all lectures will be recorded. Zoom is a synchronous (real-time) virtual format that enables face-to-face teaching and learning and supports the recording of lectures. These classes take place at specified times. Students should plan to arrive or sign in a few minutes before class begins.

All 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. Instructional hours for this course are 1.5 hours per day, five days per week, for a total of 7.5 hours per week. It is expected that students will need to spend approximately 1-2 hours per day on homework. It is important to note that the time required to complete the course successfully will vary by individual.

EVALUATION

Participation, Quizzes & Homework

Students should either attend in person or join the class through Zoom at the assigned times. Attendance will be recorded. Attendance, online quizzes 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 video or contact the instructor to learn what was covered.

Assignments

There are 11 assignments which account for 35% of the course mark.

Assignments submitted after the due date will incur a 10% deduction, unless approved by the instructor. Late assignments will not be accepted and will receive a grade of zero after the marked assignments have been returned to the class. A student planning to be away on the due date must submit the assignment before leaving, submit online on the due date, or make arrangements with the instructor in advance. If the due date is missed due to an emergency, an alternative assignment may be assigned.

Exams

There will be one midterm exam covering chapters R through 4, and one final exam covering all chapters, with emphasis on the chapters after the midterm. The midterm exam is worth 25% of the final course grade, and the final exam is worth 30%.

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 date. The rewrite mark will be recorded whether it is higher or lower than the original. Note that a maximum mark of 65% will be awarded on any re-write.

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.

Marks

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

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, and 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 that students can use to work through unlimited tutorial exercises aligned with the exercises in their textbook. The system also contains multimedia tutorials.
- Video Organizer for *Introductory Algebra*, 6th edition. The Video Organizer encourages students to take notes and work practice exercises while watching Elayn Martin-Gay's lecture series (available in MyMathLab® and on DVD). All content in the Video Organizer is presented in the same order as in the videos. Students follow along with Elayn for some exercises while attempting others independently.
- Khan Academy videos (links will be provided for each chapter on the Moodle page0

It is recommended that all students have access to a computer or other device and the 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 the withdrawal dates of their program. 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 to a positive and supportive environment and to conduct themselves responsibly. 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 form of academic dishonesty, including falsification of any information on any Yukon University document.

Please refer to Academic Regulations & Procedures (updated biannually) for further details about academic standing, and student rights and responsibilities: www.yukonu.ca/policies/academic-regulations

ACADEMIC ACCOMMODATION

Reasonable accommodations are available to students who require them to participate in this class fully. 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 2018/2019 edition of the ABE Articulation Handbook at http://www.bctransferguide.ca/search/abe

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

Rational Expressions and Equations

a) simplify, by factoring, rational expressions consisting of polynomial numerators and either monomial, binomial, or trinomial denominators
b) determine values for which a rational expression is undefined
c) multiply and divide rational expressions
d) add and subtract rational expressions consisting of monomial and/or binomial denominators
e) solve simple rational equations and check solutions

Linear Equations

a) graph a linear equation including the forms x = a and y = b
b) given a linear equation or its graph, determine its
    i. slope
    ii. x- and y-intercepts
c) determine the equation of a line, y = mx + b, given
    i. its graph
    ii. its slope and a point on the line
    iii. two points on the line

Systems of Linear Equations

a) solve a system of first degree equations in two unknowns by graphing, substitution, and elimination methods
b) solve practical problems that can be solved using a system of equations

Radical Expressions and Equations

a) simplify square roots with variable radicands
b) add, subtract, multiply and divide square roots with variable radicands
c) solve equations with one square root containing a polynomial radicand and check for extraneous solutions

Geometry

a) classify triangles according to angles and sides
b) use the properties of triangles to determine the measure of sides and angles
c) determine the measure and/or congruence of angles given a transversal and two parallel lines
d) use the triangle congruence theorems in simple guided proofs

Trigonometry

a) solve right triangles using one or more of
    i. the sine ratio
    ii. the cosine ratio
    iii. the tangent ratio
    iv. the Pythagorean theorem
    v. the angle sum property of triangles

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