APPLIED ARTS DIVISION
Math 060
Credit Course
Fall, 2018

COURSE OUTLINE

MATH 060

ADVANCED ALGEBRA AND TRIGONOMETRY

105 HOURS
3 CREDITS

PREPARED BY: Dr. Robert Ferro — DATE: June 11, 2018
APPROVED BY: — DATE

APPROVED BY ACADEMIC COUNCIL:

RENEWED BY ACADEMIC COUNCIL:

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The Course Outline Template is approved by the Academic Council on June 20, 2018

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Advanced Algebra and Trigonometry

INSTRUCTOR:	Robert Ferro	**OFFICE HOURS:**	TBA
OFFICE LOCATION:	A2303B	**CLASSROOM:**	A2103
E-MAIL:	rferro@yukoncollege.yk.ca	**TIME:**	M-F 8:30-10:00 a.m.
TELEPHONE:	867.668.8841	**DATES:**	Sept. 5- Dec. 20, 2018

COURSE DESCRIPTION

Advanced Algebra and Trigonometry reviews basic concepts of algebra and teaches equations, inequalities, problem solving; relations, functions and transformations; linear, quadratic, and polynomial functions; exponential and logarithmic functions; trigonometric or circular functions; trigonometric identities; inverse functions and equations, triangles; systems of equations and inequalities, conic sections; polynomial and rational functions; sequences and series.

PREREQUISITES

Yukon College Math 050, or Principles of Mathematics 11, or Pre-Calculus 11, or the equivalent (either one passed at 65%); or the passing of a challenge test for Math 050 with at least 55%.

EQUIVALENCY OR TRANSFERABILITY

Yukon College Math 060 is articulated as Provincial Mathematics in the Adult Basic Education system (ABE) in British Columbia and Yukon. For more information see the current year's publication "Adult Basic Education: A Guide to Upgrading in British Columbia's Public Post-Secondary Institutions, An Articulation Handbook."

http://www.bctransferguide.ca/search/abe

ABE Provincial Mathematics is deemed equivalent to the British Columbia Ministry of Education course Pre-Calculus 12. For more information see "Adult Basic Education: A Guide to Upgrading in British Columbia's Public Post-Secondary Institutions, An

Articulation Handbook" or chapter two of the British Columbia Ministry of Education's "Handbook of Procedures for the Graduation Program."

https://www2.gov.bc.ca/gov/content/education-training/administration/kindergarten-to-grade-12/graduation#handbook

LEARNING OUTCOMES

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

1. To prepare students for university-level mathematics courses and appropriate vocational, technical, and career programs which require Principles of Mathematics 12 or Pre-Calculus 12.

2. To prepare students who are proceeding to calculus courses or to technical/vocational areas requiring trigonometry.

3. To prepare students entering business or social science programs.

COURSE FORMAT

Lecture-based instruction: There will be five one-and-a-half hour classes per week. Course content will be covered primarily through lectures with the aid of a self-study textbook/workbook. The instructor sets the schedule.

Self-paced format: Course content will be covered with the aid of a self-study textbook/workbook. The instructor will supply and organize the materials and help set up a pacing schedule for the student.

ASSESSMENTS:

Attendance & Participation
Assignments

There are eleven assignments to be completed. The introductory chapters each have two assignments owing to the length of the chapters. Late assignments will be docked 10%; however, assignments cannot be accepted after they have been returned to the class. A student planning to be away on the due date must submit the assignment

prior to leaving. If the due date is missed owing to an emergency, an alternate assignment may be given.

Tests

There are three tests covering the contents. Each exam covers two or more chapters. The third exam is a cumulative final exam.

Other

EVALUATION:

Assignments (12)	35%
Test 1	20%
Test 2	20%
Test 3	25%
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 date of the original examination. The mark of the rewrite will be recorded whether or not it is higher or lower than the original; however, a maximum mark of 65% will be recorded.

"No Shows":
A student who misses an examination will receive a mark of zero for that examination, but may be permitted a rewrite. Exceptions may 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.

Letter Grading: Yukon College standard letter-grade system will be used for Math 060.

REQUIRED TEXTBOOKS AND MATERIALS

Stewart, James; Redlin, Lothar; and Watson, Saleem. (2016). *Precalculus: Mathematics for Calculus* (7th ed), Brooks/Cole, Thomson Learning; Canada.

Student Solutions Manual (recommended)
Stewart, James; Redlin, Lothar; and Watson, Saleem. (2016). *Precalculus: Mathematics for Calculus Student Solutions Manual* (7th ed), Brooks/Cole, Thomson Learning; Canada.

Writing paper, graph paper, ruler, pencils, and scientific calculator

ACADEMIC AND STUDENT CONDUCT

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

PLAGIARISM

Plagiarism is a serious academic offence. Plagiarism occurs when a student submits work for credit that includes the words, ideas, or data of others, without citing the source from which the material is taken. Plagiarism can be the deliberate use of a whole piece of work, but more frequently it occurs when students fail to acknowledge and document sources from which they have taken material according to an accepted manuscript style (e.g., APA, CSE, MLA, etc.). Students may use sources which are public domain or licensed under Creative Commons; however, academic documentation standards must still be followed. Except with explicit permission of the instructor, resubmitting work 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): lac@yukoncollege.yk.ca.

TOPIC OUTLINE

1. **Review of basic concepts of algebra**
   a. the real-number system
   b. exponents and radicals
   c. algebraic expressions
   d. fractional expressions
   e. equations
   f. modeling with equations
   g. inequalities
   h. coordinate geometry
   i. solving equations and inequalities graphically
   j. lines

2. **Functions**
   a. definition of a function
   b. graphs of functions
   c. variation
   d. transformations of functions
   e. extreme values of functions
   f. combining functions
   g. one-to-one functions and their inverses

3. **Polynomial and rational functions**
   a. polynomial functions and their graphs
   b. dividing polynomials
   c. real zeros of polynomials
   d. complex numbers
   e. complex zeros and the fundamental theorem of algebra
   f. rational functions

4. **Exponential and logarithmic functions**
   a. exponential functions
   b. logarithmic functions

c. laws of logarithms
d. exponential and logarithmic equations
e. modeling with exponential and logarithmic functions

5. **Trigonometric functions of real numbers**
   a. the unit circle
   b. trigonometric functions of real numbers
   c. trigonometric graphs of sine, cosine, and tangent functions

6. **Trigonometric functions of angles**
   a. angle measure
   b. trigonometry of right triangles
   c. trigonometric functions of angles
   d. the law of sines
   e. the law of cosines

7. **Analytic trigonometry**
   a. trigonometric identities
   b. addition and subtraction formulas
   c. double-angle formulas
   d. inverse trigonometric functions
   e. trigonometric equations

8. **Systems of equations**
   a. methods for solving systems of equations
   b. systems of linear equations in two variables
   c. systems of linear equations in several variables
   d. systems of inequalities

9. **Topics in analytic geometry**
   a. parabolas
   b. ellipses
   c. hyperbolas

10. **Sequences and series**
    a. sequences and summation notation
    b. arithmetic sequences
    c. geometric sequences