



COURSE IMPLEMENTATION DATE: September 2012
 COURSE REVISED IMPLEMENTATION DATE: _____
 COURSE TO BE REVIEWED: November 2017
(six years after UEC approval) *(month, year)*

OFFICIAL UNDERGRADUATE COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.
 Shaded headings are subject to change at the discretion of the department – see course syllabus available from instructor

<u>MATH 096</u>	<u>Faculty of Access and Continuing Studies / UUP</u>	<u>4</u>
COURSE NAME/NUMBER	FACULTY/DEPARTMENT	UFV CREDITS
<u>Algebra and Trigonometry</u>		
COURSE DESCRIPTIVE TITLE		

CALENDAR DESCRIPTION:

This is a fast-pace course, recommended for upgrading students who need to complete their grade 12 requirements in one semester. MATH 096 serves as an equivalent to Principles of Math 12 or Pre-calculus 12.

In this course students will examine various functions (polynomial, rational, radical, exponential, logarithmic, trigonometric, and inverse trigonometric) and operations on functions with emphasis on notation and graphs; solve a variety of equations and practical problems; solve combinatorial problems including using The Binomial Theorem; and evaluate sums of finite or infinite series, using summation notation.

PREREQUISITES: One of the following: Principles of Math 12, Pre-calculus 12, or MATH 094; or at least a C+ in one of MATH 085, Principles of Math 11, or Pre-calculus 11; or UUP assessment.

COREQUISITES:
 PRE or COREQUISITES:

SYNONYMOUS COURSE(S):

- (a) Replaces: _____
- (b) Cross-listed with: _____
- (c) Cannot take: _____ for further credit.

SERVICE COURSE TO: *(department/program)*

TOTAL HOURS PER TERM: 90

STRUCTURE OF HOURS:

Lectures:	<u>75</u>	Hrs
Seminar:	_____	Hrs
Laboratory:	_____	Hrs
Field experience:	_____	Hrs
Student directed learning:	_____	Hrs
Other (specify): Individual and small group work	<u>15</u>	Hrs

TRAINING DAY-BASED INSTRUCTION:

Length of course: _____
 Hours per day: _____

OTHER:

Maximum enrolment: 24
 Expected frequency of course offerings: Annually
(every semester, annually, every other year, etc.)

WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only) Yes No
 WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department) Yes No
 TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE: Yes No

Course designer(s): <u>Anna Kuczynska, Judy Larsen, Greg St. Hilaire</u>	
Department Head: <u>Trudy Archie</u>	Date approved: <u>October 2011</u>
Supporting area consultation (Pre-UEC)	Date of meeting: <u>October 7, 2011</u>
Curriculum Committee chair: _____	Date approved: <u>October 2011</u>
Dean/Associate VP: <u>Sue Brigden</u>	Date approved: <u>November 2, 2011</u>
Undergraduate Education Committee (UEC) approval	Date of meeting: <u>November 25, 2011</u>

LEARNING OUTCOMES:

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

1. Manipulate algebraic expressions and solve rational equations. (review)
2. Solve absolute value and rational inequalities. (review)
3. Perform operations on functions including compositions and analyze domains and ranges.
4. Analyze the effects of transformations, such as vertical and horizontal translations, dilations, and reflections through x-axis, y-axis, and the diagonal $y = x$ on the graphs of functions and their related equations.
5. Find inverses of relations and functions and analyze their properties and graphs.
6. Simplify logarithmic expressions, using definition and properties of logarithms.
7. Solve exponential and logarithmic equations.
8. Graph and analyze exponential and logarithmic functions.
9. Solve applied problems, using exponential and logarithmic concepts.
10. Factor polynomials of degree greater than 2, using the Factor Theorem and the Remainder Theorem.
11. Graph and analyze polynomial, rational, and radical functions.
12. Develop the equation of the circle with centre (0, 0) and radius r and apply the circle to describe the six trigonometric ratios in terms of x , y , and r .
13. Solve problems, using the six trigonometric ratios for angles expressed in radians and degrees.
14. Simplify trigonometric expressions and verify trigonometric identities using fundamental identities, including sum, difference, and double-angle identities.
15. Solve first and second degree trigonometric equations in degrees and radians, including determining the general solution.
16. Graph and analyze the trigonometric functions, including determining the characteristics and transformations of graphs to solve problems.
17. Apply the Fundamental Counting Principle to solve problems.
18. Determine the number of permutations of n elements taken r at a time to solve problems including solving equations that involve ${}_n P_r$ notation.
19. Determine the number of combinations of n elements taken r at a time to solve problems, including solving equations that involve ${}_n C_r$ or $\binom{n}{r}$ notation.
20. Expand natural powers of binomials using Binomial Theorem.
21. Analyze and evaluate sums of finite or infinite series, using summation notation.
22. Use technology to enhance understanding of topics in this course.

The above objectives are a more concise version of the official ABE articulated objectives found on pg. 95 of www.aved.gov.bc.ca/abe/docs/handbook.pdf

METHODS: (Guest lecturers, presentations, online instruction, field trips, etc.)

Lectures with problem practice sessions and guided individual and small group work. Graphing calculators are used to aid in the understanding of topics. Homework may have a web-assisted component.

METHODS OF OBTAINING PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

- Examination(s) Portfolio assessment Interview(s) Other (specify):

TEXTBOOKS, REFERENCES, MATERIALS: [Textbook selection varies by instructor. Examples for this course might be:]

“Algebra and Trigonometry” 2nd edition, J. Stewart, L Redlin, S Watson, Brooks/Cole, 2010, or
“College Algebra and Trigonometry”, 7th edition, R. Aufman, V. Barker, R. Nation, Brooks/Cole, 2011

SUPPLIES / MATERIALS:

Graphing calculator TI83 Plus
WebAssign access

STUDENT EVALUATION: [An example of student evaluation for this course might be:]

Assignments	15%
Quizzes	10%
Tests	35%
Final exam	40% (Students must achieve at least 40% on the final exam in order to receive credit for this course.)

COURSE CONTENT: *[Course content varies by instructor. An example of course content might be:]*

1. Operations on, and compositions of functions
2. Transformations of graphs
3. Trigonometric functions and equations
4. Exponential and logarithmic functions and equations
5. Polynomial functions
6. Rational functions
7. Radical functions
8. Combinatorics
9. Binomial Theorem