ORIGINAL COURSE IMPLEMENTATION DATE: September 2017

REVISED COURSE IMPLEMENTATION DATE:

COURSE TO BE REVIEWED: (six years after UEC approval) March 2023

Course outline form version: 09/15/14

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: MATH 092	**Number of Credits:** 3 Course credit policy (105)
Course Full Title: Algebra and Functions **Course Short Title (if title exceeds 30 characters):**	
Faculty: Faculty of Access and Continuing Education	**Department (or program if no department):** Upgrading and University Preparation

Calendar Description:

Provides students with the algebraic background of pre-calculus 12. Content includes absolute value, polynomial, rational, radical, exponential and logarithmic expressions, equations, and functions, including graph transformations. A focus is placed on properties of functions and their applications in word problems.

Prerequisites (or NONE):	One of the following: MATH 085, (Principles of Mathematics 11 or Pre-calculus 11 with a C+ or higher), Principles of Mathematics 12, Pre-calculus 12, or Upgrading and University Preparation assessment.
Corequisites (if applicable, or NONE):	NONE
Pre/corequisites (if applicable, or NONE):	NONE

Equivalent Courses (cannot be taken for additional credit)

Former course code/number: **NONE**

Cross-listed with: **NONE**

Equivalent course(s): **NONE**

Note: Equivalent course(s) should be included in the calendar description by way of a note that students with credit for the equivalent course(s) cannot take this course for further credit.

Transfer Credit

Transfer credit already exists: ☐ Yes ☒ No

Transfer credit requested (OReg to submit to BCCAT):
☐ Yes ☒ No (if yes, fill in transfer credit form)

Resubmit revised outline for articulation: ☐ Yes ☐ No

To find out how this course transfers, see **bctransferguide.ca**.

Total Hours: 90

Typical structure of instructional hours:

Lecture hours	60
Seminars/tutorials/workshops	
Laboratory hours	
Field experience hours	
Experiential (practicum, internship, etc.)	
Online learning activities	
Other contact hours: individual and small group work (in class)	30
Total	**90**

Special Topics

Will the course be offered with different topics?
☐ Yes ☒ No

If yes, different lettered courses may be taken for credit:
☐ No ☐ Yes, repeat(s) ☐ Yes, no limit

Note: The specific topic will be recorded when offered.

Maximum enrolment (for information only): 24

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

Department / Program Head or Director: Greg St. Hilaire	**Date approved:**	January 4, 2017
Faculty Council approval	**Date approved:**	February 10, 2017
Campus-Wide Consultation (CWC)	**Date of posting:**	March 17, 2017
Dean/Associate VP: Susan Brigden	**Date approved:**	February 10, 2017
Undergraduate Education Committee (UEC) approval	**Date of meeting:**	March 24, 2017

Learning Outcomes

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

1. Utilize algebraic skills in manipulating algebraic expressions
2. Solve polynomial, absolute value, rational, radical, exponential, and logarithmic equations
3. Perform operations on complex numbers
4. Compose various functions
5. Find inverses of invertible functions
6. Recognize, formulate, solve, and interpret a variety of applied problems
7. Solve problems using the language of functions
8. Graph and analyze polynomial, radical, rational, exponential, and logarithmic functions
9. Identify and use the sequence of transformations of a basic function to obtain the graph of a given function
10. Use sigma notation to record and evaluate finite and infinite series
11. Identify and analyse arithmetic and geometric sequences and series
12. Solve combinational problems involving permutations or combinations
13. Expand natural powers of binomials using Binomial Theorem
14. Use technology to enhance understanding of topics represented by graphs

After completion of MATH 092 and MATH 093, students will meet outcomes identified for Provincial Level – Algebra and Trigonometry in the 2015-2016 Adult Basic Education Articulation Guide available at http://www2.gov.bc.ca/assets/gov/education/post-secondary-education/adult-education/2016-17_abe_guide.pdf (accessed February 2017).

Prior Learning Assessment and Recognition (PLAR)

☒ Yes ☐ No, PLAR cannot be awarded for this course because

Typical Instructional Methods (guest lecturers, presentations, online instruction, field trips, etc.; may vary at department's discretion)

Lectures, online instruction, and problem solving sessions.

Grading system: Letter Grades: ☒ Credit/No Credit: ☐ Labs to be scheduled independent of lecture hours: Yes ☐ No ☒

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Typical Text(s) and Resource Materials (if more space is required, download Supplemental Texts and Resource Materials form)

	Author (surname, initials)	Title (article, book, journal, etc.)	Current ed.	Publisher	Year
1.	Aufman, Barker, Nation	College Algebra and Trigonometry W/ Webassign	☒	Brooks/Cole	2011
2.			☐		

Required Additional Supplies and Materials (software, hardware, tools, specialized clothing, etc.)

Graphing calculator

Typical Evaluation Methods and Weighting

Final exam:	40%	Assignments:	20%	Midterm exam:	30%	Practicum:	%
Quizzes/tests:	10%	Lab work:	%	Field experience:	%	Shop work:	%
Other:	%	Other:	%	Other:	%	Total:	100%

Typical Course Content and Topics

1. Basic algebra skills: rational exponents, factoring, rational expressions, radicals
2. Operations on complex numbers
3. Solving equations: linear, absolute value, quadratic, polynomial, power, radical, rational, exponential, and logarithmic
4. Zeros of polynomials: The Remainder Theorem, The Factor Theorem, and The Fundamental Theorem of Algebra
5. Solving inequalities in two variables: polynomial, absolute value, rational
6. Solving formulas for a given variable
7. Solving variety of application problems, including variation, optimization, and growth and decay problems
8. Functions, their properties and graphs: linear, quadratic, polynomial, rational, exponential, logarithmic
9. Transformations of graphs
10. Algebra of functions including composition (with emphasis on function notation)
11. Regression models that best fit the given data (optional)
12. Inverse Functions
13. Properties of logarithms
14. Arithmetic and geometric sequences and series
15. Summation Notation
16. Permutations and Combinations
17. Binomial Theorem
18. Using a graphing calculator to analyse graphs by finding their zeros, maximum, minimum, intercepts, asymptotes, end-behaviour, etc,