



ORIGINAL COURSE IMPLEMENTATION DATE: January 2012
 REVISED COURSE IMPLEMENTATION DATE: September 2017
 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 085		Number of Credits: 3 Course credit policy (105)																	
Course Full Title: Intermediate Algebra and Trigonometry																			
Course Short Title (if title exceeds 30 characters): Interm Algebra & Trigonometry																			
Faculty: Faculty of Access and Continuing Education		Department: Upgrading and University Preparation																	
Calendar Description: Review of basic algebraic and trigonometric concepts. Study of linear, absolute value, polynomial, rational, radical, and quadratic expressions, equations, and functions. Use of function notation and graphs. Use of the laws of sines and cosines to solve practical problems.																			
Prerequisites (or NONE):		One of the following: MATH 084, (Foundations of Mathematics and Pre-calculus 10 with at least a B), (one of Principles of Mathematics 11, Applications of Mathematics 11, Foundations of Mathematics 11, or Pre-calculus 11 with at least a C), (one of Foundations of Mathematics 12 or Pre-Calculus 12 with at least a C-), or UUP department permission (assessment may be required).																	
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 <i>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.</i>		Transfer Credit Transfer credit already exists: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Transfer credit requested (OReg to submit to BCCAT): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (if yes, fill in transfer credit form) Resubmit revised outline for articulation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No To find out how this course transfers, see bctransferguide.ca .																	
Total Hours: 90 Typical structure of instructional hours: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr><td>Lecture hours</td><td style="text-align: center;">60</td></tr> <tr><td>Seminars/tutorials/workshops</td><td></td></tr> <tr><td>Laboratory hours</td><td></td></tr> <tr><td>Field experience hours</td><td></td></tr> <tr><td>Experiential (practicum, internship, etc.)</td><td></td></tr> <tr><td>Online learning activities</td><td></td></tr> <tr><td>Other contact hours: Individual and small group work (in class)</td><td style="text-align: center;">30</td></tr> <tr><td style="text-align: right;">Total</td><td style="text-align: center;">90</td></tr> </table>		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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, different lettered courses may be taken for credit: <input type="checkbox"/> No <input type="checkbox"/> Yes, repeat(s) <input type="checkbox"/> Yes, no limit <i>Note: The specific topic will be recorded when offered.</i>	
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Other contact hours: Individual and small group work (in class)	30																		
Total	90																		
		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: February 1, 2017																	
Faculty Council approval		Date approved: February 10, 2017																	
Campus-Wide Consultation (CWC)		Date of posting: n/a																	
Dean/Associate VP: Dr. Sue 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. Review properties of real numbers and order of operations including absolute value, root, and exponential notation.
2. Translate English phrases into algebraic expressions.
3. Evaluate algebraic expressions by substitution.
4. Solve formulas for a given variable.
5. Use set-builder and/or interval notation when describing a solution set, domain or range.
6. Find the union or intersection of two sets.
7. Solve and graph compound inequalities in one variable.
8. Solve absolute value equations and basic absolute value inequalities.
9. Review properties of a linear function.
10. Determine if a given relation is a function.
11. Use function notation to evaluate functions at given values or expressions, and find compositions of functions.
12. Determine the domain and range of a function.
13. Graph and analyze linear and non-linear functions such as quadratic, cubic, square root, reciprocal, and absolute value functions
14. Identify an appropriate graph for a given relation.
15. Review solving systems of two linear equations.
16. Use systems of equations to solve applied problems.
17. Solve problems that involve systems of linear-quadratic and quadratic- quadratic equations in two variables, algebraically and graphically.
18. Graph the solution for a system of linear and quadratic inequalities in two variables.
19. Review operations on polynomials.
20. Factor polynomials using an appropriate strategy or a combination of techniques: common factors, grouping, trial/error, difference of squares, difference and sum of cubes, or perfect square trinomials.
21. Solve polynomial equations using Zero Products.
22. Identify situations and find values for which a rational expression will be undefined.
23. Simplify, add, subtract, multiply, and divide rational expressions.
24. Solve rational equations and check solutions against the domain.
25. Solve applied problems that can be modeled with rational equations.
26. Simplify complex fractions. (optional)
27. Use rational exponents to write and simplify radicals.
28. Simplify, add, subtract, multiply, and divide numeric or algebraic radical expressions.
29. Rationalize denominators in fractional expressions containing radicals (including the use of conjugates).
30. Solve radical equations and check for extraneous roots.
31. Solve applied problems which can be modeled by radical equations, and determine if solutions are reasonable given the context of the problem.
32. Solve quadratic or reducible to quadratic equations by factoring, principle of square roots, completing the square, and the quadratic formula.
33. Use the discriminate to identify the number and type of solutions of a quadratic equation.
34. Graph quadratic functions of the form $f(x) = a(x-h)^2 + k$ and demonstrate translations, reflections, and stretching/shrinking resulting from changes in the function equation.
35. Find the vertex, line of symmetry, minimum or maximum values, x- and y-intercepts, domain, and range, given the function $f(x) = a(x-h)^2 + k$.
36. Rewrite $f(x) = ax^2 + bx + c$ as $f(x) = a(x-h)^2 + k$ by completing the square.
37. Solve problems that can be modeled by quadratic equations.
38. Solve problems that involve quadratic inequalities in one variable.
39. Solve problems, using the three primary trigonometric ratios for angles from the interval in standard position. $[0^\circ, 360^\circ]$
40. Use the basic trigonometric ratios and the Pythagorean Theorem to solve right triangles and applied problems.
41. Use the Law of Sines and the Law of Cosines to solve oblique triangles and applied problems.
42. Analyze arithmetic sequences and series to solve problems.
43. Analyze geometric sequences and series to solve problems.

After completion of MATH 085, students will meet the outcomes identified for Advanced Level – Algebraic Mathematics 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 with problem practice sessions and guided individual and small group work.

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.	M. Lial, J.Hornsby	Intermediate Algebra & Trigonometry – custom edition	<input checked="" type="checkbox"/>	Pearson	2012
2.			<input type="checkbox"/>		
3.			<input type="checkbox"/>		
4.			<input type="checkbox"/>		
5.			<input type="checkbox"/>		

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

A scientific calculator is required.

Typical Evaluation Methods and Weighting

Final exam:	30%	Assignments:	20%	Midterm exam:	30%	Practicum:	%
Quizzes/tests:	20%	Lab work:	%	Field experience:	%	Shop work:	%
Other:	0%	Other:	%	Other:	%	Total:	100%

Details (if necessary):

Typical Course Content and Topics

1. Review of intermediate algebra skills
2. Graphs and properties of various functions
3. Systems of equations and inequalities including quadratic
4. Quadratic equations and functions
5. Polynomial equations and functions
6. Rational expressions and equations
7. Radical expressions and equations
8. Trigonometry
9. Sequences