CAPILANO UNIVERSITY **COURSE OUTLINE**	
TERM: Fall 2013	**COURSE NO.**: BMTH 047
INSTRUCTOR:	**COURSE NAME**: Advanced Foundations Mathematics 1
OFFICE:	**SECTION NO.**: **COURSE CREDITS:** 1.0

COURSE FORMAT: Self-paced1.5 hours in class and 1.5 hours other mode of delivery such as tutorial in the ABE Learning Lab or on-line using Moodle. This is a self-paced course; students may complete this course in less or more than 15 weeks.

PREREQUISITE: BMTH 034 ***or*** completion of the Adult Basic Education Math Assessment.

RECOMMENDED FOLLOW-UP COURSES: BMTH 048

LEARNING OUTCOMES: Upon successfully completing this course students should be able to:

- Analyze and prove conjectures, using inductive and deductive reasoning, to solve problems.
- Make conjectures by observing patterns and identifying properties, and justify the reasoning.
- Explain why inductive reasoning may lead to a false conjecture.
- Compare, using examples, inductive and deductive reasoning.
- Provide and explain a counterexample to disprove a given conjecture.
- Prove algebraic and number relationships, such as divisibility rules, number properties.
- Prove a conjecture, using deductive reasoning.
- Determine if a given argument is valid, and justify the reasoning.
- Identify errors in a given proof; e.g., a proof that ends with 2 = 1.
- Solve a contextual problem involving inductive or deductive reasoning.
- Analyze puzzles and games that involve spatial reasoning, using problem-solving strategies including; pattern recognition, modeling, de-construction of the original problem.
- Interpret rates in a given context, such as the arts, commerce, the environment, medicine or recreation.
- Solve a rate problem that requires the isolation of a variable.
- Determine and compare rates and unit rates.
- Draw a graph to represent a rate.
- Be able to explain the relationship between the slope of a graph and a rate.
- Describe a context for a given rate or unit rate.
- Solve a contextual problem that involves rates or unit rates.
- Determine, using proportional reasoning, the scale factor, given one dimension of a 2-D shape or a 3-D object and its representation.
- Determine, using proportional reasoning, an unknown dimension of a 2-D shape or a 3-D object, given a scale diagram or a model.
- Be able to draw, a scale diagram of a given 2-D shape according to a specified scale factor.
- Solve a contextual problem that involves scale diagrams.

- Demonstrate an understanding of the relationships among scale factors, areas, surface areas and volumes of similar 2-D shapes and 3-D objects.
- Explain the effect of a change in the scale factor on the area of a 2-D shape.
- Explain the effect of a change in the scale factor on the surface area of a 3-Dobject.
- Explain the effect of a change in the scale factor on the volume of a 3-D object.
- Solve a spatial problem that requires the manipulation of formulas.
- Solve a contextual problem that involves the relationships among scale factors, areas and volumes.
- Generalize, using inductive reasoning, the relationships between pairs of angles formed by transversals and parallel lines.
- Prove, using deductive reasoning, properties of angles formed by transversals and parallel lines, including the sum of the angles in a triangle.
- Identify and correct errors in a given proof of a property involving angles.
- Solve problems that involve the properties of angles and triangles.
- Determine the measures of angles in a diagram that involves parallel lines, angles and triangles.
- Solve a contextual problem that involves angles or triangles.
- Determine if lines are parallel, given the measure of an angle at each intersection formed by the lines and a transversal.
- Solve problems that involve the cosine law and the sine law.
- Draw a diagram to represent a problem that involves the cosine law or sine law.
- Explain the steps in a given proof of the sine law or cosine law.
- Solve a problem involving the cosine law that requires the manipulation of a formula.
- Explain whether zero, one or two triangles exist, given two sides and a non-included angle.
- Solve a problem involving the sine law that requires the manipulation of a formula.
- Solve a contextual problem that involves the cosine law or the sine law.

REQUIRED TEXT: TBA

COURSE CONTENT:

Unit 1	Problem solving.
Unit 2	Rates.
Unit 3	Spatial reasoning.
Unit 4	Angles and trigonometry.

EVALUATION PROFILE: Student evaluation will be based upon the learning outcomes for ABE Advanced Level, which is articulated in the *Adult Basic Education British Columbia's Public Post-Secondary Institution Articulation Handbook*.

Credit will be determined by evaluation as follows:

Unit 1	15%	Problem solving.
Unit 2	15%	Rates.
Unit 3	15%	Spatial reasoning.
Unit 4	15%	Angles and trigonometry.
Quizzes	20%	
Final Exam	20%	
Total	100%	

GRADING PROFILE:

Grade	Numerical Range	Grade Point Equivalent
A+	90-100	4.33
A	85-89	4.00
A-	80-84	3.67
B+	77-79	3.33
B	73-76	3.00
B-	70-72	2.67
C+	67-69	2.33
C	63-66	2.00
C-	60-62	1.67
D	50-59	1.00
F	49 and below	0.00

Students not completing course work by the end of the term will receive a grade of NC (no credit). A grade will only be assigned after all course content has been evaluated.

OPERATIONAL DETAILS:

Examinations: Students may rewrite any examination without penalty.

University Policies: Capilano University has policies on Academic Appeals (including appeal of final grade), Student Conduct, Cheating and Plagiarism, Academic Probation and other educational issues. These and other policies are available on the University website.

Attendance: Students who will be absent for any reason should leave a voice or email message for their instructor ***prior*** to the start of class. ABE department policy is to place students attending less than 75% of classes in a subject on a "non-priority list". Students on this list register last (after all other students have registered).

Cheating/Plagiarism: All forms of cheating including plagiarism are serious offences. The instructor has the right to assign a "0" on the assignment or a grade of "NC" on the course. A second offence in any course may result in expulsion from the program.

Computer use policies: The misuse of a computer system (such as unauthorized access to other computer accounts or unauthorized use of system software) is not only unfair to other students but can result, at the instructor's discretion, in suspension of the offender's computer access in a course, which may result in an "NC" grade. Repeated offences may result in a permanent revoking of all computer privileges.

Emergency Procedures: Please read the emergency procedures posted on the wall of the classroom.