## Course Name Mathematics 3207 Implementation Draft

R - retain, D - delete, C - changed Outcomes

GCC	A: Students will demonstrate number sense and apply number theory concepts.		
A1	demonstrate an understanding of recursive formulas		
A2	determine, describe, and apply the value for "e"		
A3	represent arithmetic and geometric sequences as ordered pairs and discrete graphs		
A4	represent a series in expanded form and using sigma notation		
A5	demonstrate an understanding for the use of, and need for, radian measure in the domain of trigonometric functions		
A6	explain the connections between real and complex numbers		
A7	translate between polar and rectangular representations		
GCC	<b>B:</b> Students will demonstrate operation sense and apply operation principles and procedures in both numeric and algebraic situations		
B1	describe the relationships between arithmetic operations and operations on rational algebraic expressions and equations		
B2	develop, analyze, and apply algorithms to generate terms in a sequence		

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B3	develop, analyze, and apply algorithms to determine the sum of a series		
B4	apply convergent and divergent geometric series		
B5	evaluate and apply limits		
B6	determine and apply the derivative of a function		
B7	derive and apply the power rule		
B8	derive and apply the general rotational matrix $ \begin{pmatrix} \cos \theta & -\sin \theta \\ \sin \theta & \cos \theta \end{pmatrix} $		
B9	apply operations on complex numbers both in rectangular and polar form		
B10	develop and apply DeMoivre's Theorem for powers		
GCC	C: Students will explore, recognize, and apply patterns and relationships, both formally and informally.		
C1	model problem situations using discrete structures such as sequences and recursive formulas		
C2	model problem situations with combinations and compositions of functions		
C3	model real-world phenomena using polynomial functions and rational functions		

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C4	model situations with periodic curves		
C5	use tables and graphs as tools to interpret expressions		
C6	demonstrate an understanding for asymptotic behaviour		
C7	demonstrate an understanding for slope functions and their connection to differentiation		
C8	explore and describe the connections between quadratic equations and their inverses		
С9	examine, interpret, and apply the relationship between trigonometric functions and their inverses		
C10	analyze and solve polynomial, rational, irrational, absolute value, and trigonometric equations		
C11	analyze and solve polynomial, rational, irrational, and absolute value inequalities		
C12	demonstrate an understanding for the conceptual foundations of limit, the area under a curve, the rate of change, and the slope of the tangent line and their applications		
C13	extend the understanding of exponential growth and decay through multiple contexts		
C14	analyze relations, functions, and their graphs		
C15	determine the equations of polynomial and rational functions		

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C16	analyze the effect of parameter changes on the graphs of functions and express the changes using transformations		
C17	explore and analyze the graphs of the reciprocal trigonometric functions		
C18	demonstrate an understanding for recursive formulas and how recursive formulas relate to a variety of sequences		
C19	investigate and interpret combinations and composition, of functions		
C20	factor polynomial expressions		
C21	perform various transformations using multiplication of matrices		
C22	explore and verify trigonometric identities		
C23	explore and describe the connections between continuity, limits, and functions		
C24	demonstrate an understanding of divergence and convergence		
C25	demonstrate an intuitive understanding of the concept of limit		
C26	investigate and apply the concept of infinity by examining sequences and series		
C27	represent complex numbers in a variety of ways		

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Outcomes			

C28	construct and examine graphs in the complex and polar planes		
GCC	<b>D:</b> Students will demonstrate an understanding of and apply concepts and skills related to measurement		
D1	describe and apply the connection between arc length and radian measure		
D2	demonstrate an understanding of how to approximate the area under a curve using limits		
GCC	<b>DE:</b> Students will demonstrate spatial sense and apply geometric concepts, properties and relationships		
E1	model real-world phenomena with a variety of func- tions/relations		
E2	develop and evaluate mathematical arguments and proofs		
E3	prove using the principle of mathematical induction		