



ALTERNATIVE EDUCATION

COURSE OUTLINE 2026-2027

MATHEMATICS 31

MAT3211

5 Credit Course

Prerequisite	- A course mark of 50% or higher in Mathematics 30-1, or - Current enrollment in Mathematics 30-1
Required Materials & Resources	- Textbook: Calculus: A First Course (Optional) - Formula Sheet - Alberta Education approved graphing calculator
Course Overview Math 31 consists of 8 units of study, as outlined below. The student’s school-based mark is weighted as follows:	
Unit & Topics of Study	Weighting
Unit 1: Precalculus Interval Notation; Solving inequality problems; Solving absolute value problems Functions Operations; Function transformations; Symmetry.	6%
Unit 2: Limits Definition of limit and the precise use of limit theorems; left and right-hand limits; continuous and discontinuous functions; computing limits from equations or graphs, limit of an infinite sequence.	13%
Unit 3: The Derivative Derivative first principles derivatives; Derivatives of simpler functions using derivative theorems like the power, product, quotient, and chain laws; Implicit differentiation; Higher order derivatives; Solve a derivative problem with slope.	16%
Unit 4: Trigonometry Solve a trigonometric equation; Use trigonometric identities to simplify and solve equations; Trigonometric limits; Trigonometric functions have derivatives, and these derivatives obey the same derivative theorems as algebraic functions; Calculate trigonometric derivatives using theorems; Solve a trigonometric derivative problem with slope.	13%
Unit 5: Curve Sketching Domain and Range; Asymptotes; Intervals of increase, decrease and concavity; Using derivatives to determine critical points of a curve; Sketching curves using rules of first and second derivatives	16%
Unit 6: Derivative Applications Number & Geometric Optimization; Profit/Science Optimization; Displacement, velocity, and acceleration; Related rate problems.	9%
Unit 7: The Integral Definition of an integral; Indefinite integrals; Definite integrals; Fundamental Theorem of Calculus; Area under a curve or between curves; Simplify integrals; Displacement, velocity, and acceleration	18%
Unit 8: Exponents & Logarithms Defining exponential and logarithmic functions; Properties of e; Natural Log, $\ln$; Derivatives of Exponential and Logarithms; Integrals of Exponents and Logarithms.	9%
*Total	100%

Assessment	*The student's grade will be calculated based on the following (within each unit of study): <table data-bbox="363 132 1224 210"> <tr> <td>Assignment/Modules</td><td>20%</td></tr> <tr> <td>Quizzes, exams, labs, projects</td><td>80%</td></tr> </table> • Alternative Education does not publish report cards. • Parents and students are encouraged to keep up to date on PowerSchool and contact their teacher if there are any issues.	Assignment/Modules	20%	Quizzes, exams, labs, projects	80%
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An Important Note Regarding Assessment	A wide range of assessment information is used in the development of a student's final grade. In Edmonton Catholic Schools, individualized assessments provide specific information regarding student progress and overall performance in class. Assessment may vary from student to student, differentiating for various student needs. It should also be noted that not all assignments are used to determine the final grade, and that scale factors may have been used to determine the weight of individual assignments.				