MATH COURSE DESCRIPTIONS

Math 7

Math 7 is an exciting course with a new curriculum as of September 2008. Students will have the exciting opportunity to try new resources and leading – edge support. Students must be prepared to learn each day. Understanding of Math concepts will be developed at the concrete, pictorial and symbolic levels. Topics of study will include:

- Circle Math
- Coordinate Geometry
- Data Management
- Decimals
- Equations and Expressions
- Fraction Operations
- Fractions, Decimals and Percentages
- Integers
- Measurement
- Patterns
- Probability
- Rates and Ratios

Math 8

Math 8 is an exciting course that solidifies past learning and sets the framework for new concepts in mathematics. Students must be prepared to learn each day. Understanding of math concepts will be developed at the concrete, pictorial and symbolic levels. The units of study will include:

- Transformations
- Integers
- Fractions
- Rates, Ratios & Percentages
- Data
- Roots and Pythagoras
- Linear Relations
- Linear Equations
- Measurement
- Probability

Math 9

A full and complete understanding of math 9 is foundational for success in high school mathematics. Students who exhibit a positive attitude toward mathematics, who are engaged and persevere in mathematical tasks will most likely experience success. Demonstrating and communicating an understanding of the key learner outcomes is essential in math 9. The units of study will include:

- Rational Numbers & Square Roots

- Powers & Exponent Laws
- Surface Area
- Linear Relations
- Polynomials
- Linear Equations & Inequalities
- Circle Geometry
- Similarity & Transformations
- Data Analysis

Math 10-C

Math 10C is an introductory high school math course. It will prepare students for the math 20-1 or math 20-2 streams. With a heavy focus on algebraic reasoning students will learn to solve problems in a variety of methods. Units of Study in Math 10C include:

- Linear Functions
- Measurement
- Polynomials
- Radicals
- Relations and Functions
- Systems of Equations
- Trigonometry

Math 10-3

Mathematics 10-3 builds on key concepts from Mathematics 7- 9. Learning through problem solving is the key focus. Students develop and refine their own way of solving problems and show their work in a variety of ways. Students use mathematical vocabulary to explain how they solve problems and continue to acquire the mathematical processes of communication, making connections, mental mathematics, and visualization, and the use of technology as a tool.

Students who believe they can learn, take risks and persevere in problem solving will be successful mathematics students.

The topics in Mathematics 10-3 include:

- Measurement: develop special sense through direct and indirect measurement.
- Geometry: develop special sense
- Number: develop number sense and critical thinking skills
- Algebra: develop algebraic reasoning

For a student to have clear goals and an understanding of what they are expected to know, students can refer to 'Achievement Indicators' in the program of Studies.
http://www.education.alberta.ca/media/655889/math10to12.pdf

Achievement Indicators are samples of how students may demonstrate their achievement of the course outcomes.

Parents may access the Alberta Education parent handbook by visiting the Alberta Education website at http://education.alberta.ca/parents.aspx

Math 20-1

Math 20-1 is an academic class that will prepare students for Math 30-1. It is fast paced and dynamic. Students will require an approved graphing calculator. In order to be successful in Math 20-1 students will most likely have to put additional work in. Units of Study include:

- Series and Sequence
- Trigonometry
- Quadratic Functions
- Quadratic Equations
- Radical Numbers
- Rational Expressions and Equations
- Absolute Value and Reciprocal Equations
- Systems of Equations
- Inequalities

Math 20-2

Math 20-2 is designed to provide students with the mathematical understandings and critical-thinking skills identified for post-secondary studies in programs that do not require the study of calculus. Students & parents are encouraged to research the admission requirements for post-secondary programs of study as they vary by institution and by year. Students in this sequence require an Alberta Education approved graphing calculator. Students will be required to complete a research project. The units of study will include:

- Quadratic Relations & Functions
- Inductive and Deductive Reasoning
- Statistics
- Radicals
- Angles, Triangles and Trigonometry
- Measurement and Proportional Reasoning

Math 20-3

The goal for Math 20-3 is to prepare students for Math in the trades and general workplace. It's focus is on solving problems in finance, drawing and design and trigonometry. The course relies on unit projects and written assessments to evaluate students. The units of study are as follows;

- Slope and rate of change
- Graphical Representations
- Surface Area, Volume, and Capacities
- Scale Factors
- Trigonometry

- Personal Budgets
- Finance

Math 30 Pure

Pure Mathematics 30 is designed for students with a strong aptitude and keen interest in mathematics, who are intending to pursue post-secondary studies in a mathematics related program. Pure mathematics emphasizes mathematical theory, uses a more traditional approach to learning, incorporates technology as a tool to enhance understanding, and teaches algebra for its own sake and as a means to solve problems. Students in this course require perseverance and an Alberta Education approved graphing calculator. The units of study will include:

- Transformations
- Conics
- Trigonometric Functions & Equations
- Exponents, Logarithms and Geometric Sequences & Series
- Permutations, Combinations & Probability
- Statistics

Math 30 Applied

Applied Mathematics 30 is designed for students that are not intending to pursue post-secondary studies in a mathematics related program. Students come to understand that mathematics is a powerful set of processes, models and skills that can be used to solve non-routine problems, both in and out of the classroom. Technology is an integral part of applied mathematics. The graphing calculator is the primary technological tool used by students for mathematical exploration, modelling and problem solving, but the use of spreadsheets is also expected. The units of study will include:

- Probability & Statistics
- Finance
- Matrices
- Vectors
- Sinusoidal Data & Sequences
- Design

Math 31

Mathematics 31 emphasizes the theoretical and practical development of topics in the algebra of functions, trigonometry, differential calculus and integral calculus up to a standard acceptable for entry into all first-year programs in mathematics, science, engineering and business. The course is designed to bridge the gap between the mathematics 10–20–30 course sequence and the calculus course sequences offered by post-secondary institutions.

*Mathematics 31 is generally taken after Mathematics 30 Pure; however, Mathematics 31 and Mathematics 30 Pure may be taken concurrently. The units of study will include:

- Limits and Rates of Change
- Derivatives

- Applications of Derivatives
- Extreme Values
- Curve Sketching
- Trigonometric Functions and their Derivatives
- Exponential and Logarithmic Functions
- Differential Equations and Area
- Integrals