Course Descriptions

Burnaby Central

MATHEMATICS

Students can meet the Mathematics graduation requirements through either of the pathways described below. All pathways are designed to provide students with mathematical understanding and critical thinking skills. It is the choice of topics through which those skills are developed that varies among the pathways.

CHECK POST-SECONDARY REQUIREMENTS FOR ENTRY TO SPECIFIC PROGRAMS
Pre-Calculus Mathematics Pathway (Grade 10 and 11 only)
This pathway is designed to provide students with the mathematical understandings and critical-thinking skills identified for entry into post-secondary programs that require the study of theoretical calculus. Topics include algebra and number, measurement, relations and functions, trigonometry, and permutations, combinations and binomial theorem.

Students in the Principles of Mathematics pathway will spend more time developing their knowledge of symbol manipulation (Algebra) and the more formal generalizations of mathematical concepts. This pathway is intended for students who may wish to pursue mathematical-related studies at the post-secondary level and prepares students for the study of Calculus.

Mathematics 8
Foundations of Math 8 is the first course in secondary school Mathematics. The units studied include Problem Solving, Number Concepts and Operations, Patterns and Relations, Variables and Equations, Shape and Space, and Statistics and Probability.

Mathematics 8 Honours
The purpose of Math 8 Honours is to provide enrichment for students who excel in Mathematics. The intent of this course is to develop concepts at a deeper level than the Foundation of Mathematics 8 course provides and to further enrich student experiences, prepare them to write math contests, such as the Gauss, and be better prepared for taking the Pre-AP Math and AP Calculus courses in the future. (Writing the Grade 7 Gauss contest in May is expected and admission to this course is through an application process).

Mathematics 9
This course is designed to consolidate and extend topics introduced in the middle school years, Topics include operations with rational numbers, square roots and exponents, polynomials and algebra, linear relations, geometry and statistics. At the end of this course, students will be prepared for Foundations and Pre-Calculus 10 OR Apprenticeship and Workplace Mathematics 10.

Mathematics 9 Honours
Teacher recommendation and participation in Math Contests will be taken into consideration for acceptance in Math Honours classes.

Foundations/Pre Calc of Mathematics 10 (The Provincial Examination, worth 20% of the course, is mandatory)
This course is designed to provide students with the mathematical understandings and critical thinking skills identified for post secondary studies in both the arts and the sciences. Topics include surface area and volume of 3-D objects, applying trigonometric ratios to the right triangles, irrational numbers, powers involving integral and rational exponents, polynomials, and coordinate geometry with linear relations, systems of linear equations, and function notation. At the end of this course, students are prepared for Foundations of Mathematics 11 and/or Pre-Calculus 11 or Apprenticeship and Workplace 11.

Pre-Calculus Math 10 Honours (The Provincial Examination, worth 20% of the course, is mandatory)
A continuation of the Foundations of Math 9 Honors course, this course leads to Foundations of Math 11 or Pre Calculus Math 11. Teacher recommendation and participation in Math Contests will be taken into consideration for acceptance in Math Honours classes.

Apprenticeship and Workplace Mathematics 10 (The Provincial Examination, worth 20% of the course, is mandatory)
This option is designed to provide students with the Mathematical understanding and critical-thinking skills identified for entry into the majority of trades and for direct entry into the work force. Topics include understanding and applying the metric and imperial systems to the measurement of 2-D and 3-D objects, geometry and trigonometry, and the fundamentals of income, spending and debt. This course has a mandatory graduation provincial exam with 20% of the final course mark. At the end of this course, students are prepared for Apprenticeship and Workplace 11.

*CHECK POST-SECONDARY REQUIREMENTS FOR ENTRY TO SPECIFIC PROGRAMS
Pre-Calculus Mathematics 11
This course is designed for VERY STRONG students who are going in to Sciences or Engineering at University. This course is accepted for entrance to many post-secondary institutions*. This course explores functions and relations, trigonometry and geometry in depth to prepare students for Calculus. This course will lead to Pre-Calculus Mathematics 12.

*CHECK POST-SECONDARY REQUIREMENTS FOR ENTRY TO SPECIFIC PROGRAMS

Pre-Calculus Mathematics 11 Honours

This course covers the same material as Pre-Calculus Mathematics 11, but in more depth and will prepare students for both Calculus 12 and AP Calculus. This course will lead to Pre-Calculus Mathematics 12 Honours. If oversubscribed, teacher recommendation and participation in Math contests will be taken into consideration.

Apprenticeship and Workplace Mathematics 11

The emphasis in this course is on Consumer Mathematics. Topics include: measurement, geometry, formulae, data analysis, probability and statistics and budgeting.

Pre-Calculus 12

This is a higher level of Mathematics which is required for entrance into many university-level programs. Students will build on the concepts learned in Pre-Calculus 11 and will use graphing calculators to explore mathematical concepts.

AP Statistics 12

In AP Statistics, we learn to examine raw data, graphs, charts, rates, percentages, probabilities, averages, forecasts, and trend lines to see if a true experiment was conducted. An exam can be written in May for first year credit. This course is open to senior students that have a demonstrated aptitude for Math. Teacher recommendation is required.

Calculus 12

Calculus will introduce the student to the fundamentals of differentiation and integration along with applications. Topics include graphing, maxima and minima, related rates, areas, volumes and exponential functions. This course is a good introduction to university level calculus. As of 2011-2012, UBC will accept Calculus 12 as one of its four entrance courses.