CROCUS PLAINS REGIONAL SECONDARY SCHOOL
COURSE OUTLINE AND ASSESSMENT GUIDE

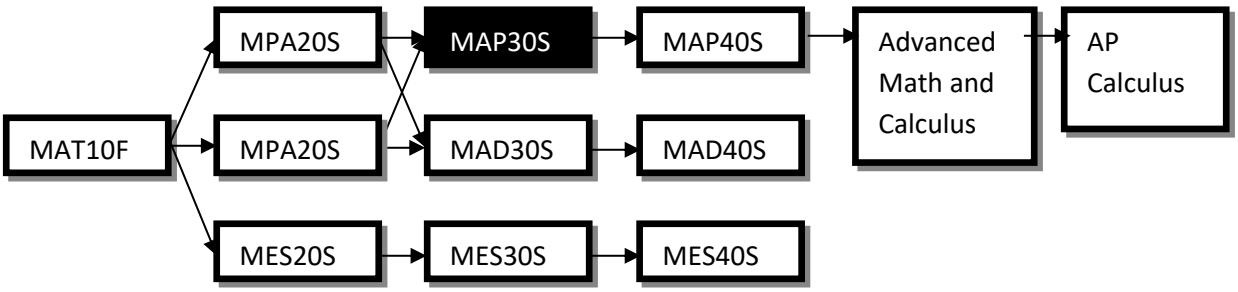
Course Name: Grade 11 Pre-Calculus (MAP30S)

Teacher's Name(s): Mr. C. McLachlan

Contact Information: mclachlan.chris@bsd.ca

Course Description:

- Grade 11 Pre-calculus Mathematics (30S) is designed for students who intend to study math or science as part of post-secondary education. It builds on the topics studied in Grade 10 Introduction to Applied and Pre-calculus Mathematics and provides background knowledge and skills for Grade 12 Pre-calculus mathematics.



All students require at least one mathematics credit at each grade level for graduation. The pathways shown are recommended, but there are different options.

Text/Other Resources: Pre-Calculus 11 (McGraw-Hill Ryerson)
and Grade 11 Pre-Calculus Cumulative Exercises
Scientific or Graphing Calculator
Graph Paper

Units of Study

Unit Title	Learning Outcomes *It is expected that students will:*	Assessment Plan	Proposed Time
Series' and Sequences	11P.R.9. Analyze arithmetic sequences and series to solve problems. [C, CN, PS, R, T] 11P.R.10. Analyze geometric - sequences and series to solve problems. [C, CN, PS, R, T]	Formative Assessment May include: Mental Math, Text Exercises, Observation, and Participation Summative Assessment Tests, Assessment Activities	10 days
Trigonometry	11P.T.1. Demonstrate an understanding of angles in standard position [0° to 360°]. [C, R, V] 11P.T.2. Solve problems, using the three primary trigonometric ratios (sine, cosine and tangent) for angles from 0° to 360° in standard position. [C, ME, PS, R, T, V] 11P.T.3. Solve problems, using the cosine law and sine law, including the ambiguous case. [C, CN, PS, R, T]	Formative Assessment May include: Mental Math, Text Exercises, Observation, and Participation Summative Assessment Tests, Assessment Activities	12 days
Quadratic Functions	11P.R.1. Factor polynomial expressions of the form: • $ax^2+bx+c,\ a\neq 0$ • $a^2x^2-b^2y^2,\ a\neq 0,\ b\neq 0$ • $a\left(f(x)\right)^2+b\left(f(x)\right)+c,\ a\neq 0$ • $a^2\left(f(x)\right)^2-b^2\left(g(y)\right)^2,\ a\neq 0,\ b\neq 0$ where *a*, *b* and *c* are rational numbers. [ME, R]	Formative Assessment May include: Mental Math, Text Exercises, Observation, and Participation Summative Assessment Tests, Assessment Activities	10 days

	11P.R.3. Analyze quadratic functions of the form $y = a(x-p)^2 + q$ and determine the: • vertex • domain and range • direction of opening • axis of symmetry • *x*- and *y*-intercepts. [C, CN, R, T, V] 11P.R.4. Analyze quadratic functions of the form $y = ax^2 + bx + c$ to identify characteristics of the corresponding graph, including: • vertex • domain and range • direction of opening • axis of symmetry • *x*- and *y*-intercepts [C, CN, PS, R, T, V] 11P.R.5. Solve problems that involve quadratic equations. [C, CN, PS, R, T, V]		
More Quadratics	11P.R.1. Factor polynomial expressions of the form: • $ax^2 + bx + c,\ a \neq 0$ • $a^2x^2 - b^2y^2,\ a \neq 0,\ b \neq 0$ • $a(f(x))^2 + b(f(x)) + c,\ a \neq 0$ • $a^2(f(x))^2 - b^2(g(y))^2,\ a \neq 0,\ b \neq 0$ where *a*, *b* and *c* are rational numbers. [ME, R] 11P.R.3. Analyze quadratic functions of the form $y = a(x-p)^2 + q$ and determine the: • vertex • domain and range • direction of opening • axis of symmetry • *x*- and *y*-intercepts. [C, CN, R, T, V] 11P.R.4. Analyze quadratic functions of the form $y = ax^2 + bx + c$	<u>Formative Assessment</u> May include: Mental Math, Text Exercises, Observation, and Participation <u>Summative Assessment</u> Tests, Assessment Activities	10 days

	to identify characteristics of the corresponding graph, including: • vertex • domain and range • direction of opening • axis of symmetry • *x*- and *y*-intercepts [C, CN, PS, R, T, V] 11P.R.5. Solve problems that involve quadratic equations. [C, CN, PS, R, T, V]		

Rational Expressions and Equations	11P.A.4. Determine equivalent forms of rational expressions (limited to numerators and denominators that are monomials, binomials or trinomials). [C, ME, R] 11P.A.5. Perform operations on rational expressions (limited to numerators and denominators that are monomials, binomials or trinomials). [C, CN, ME, R] 11P.A.6. Solve problems that involve rational equations (limited to numerators and denominators that are monomials, binomials or trinomials). [C, CN, PS, R] 11P.R.11. Graph and analyze reciprocal functions (limited to the reciprocal of linear and quadratic functions). [CN, R, T, V]	<u>Formative Assessment</u> May include: Mental Math, Text Exercises, Observation, and Participation <u>Summative Assessment</u> Tests, Assessment Activities	12 days
Absolute Value and Radicals	11P.A.1. Demonstrate an understanding of the absolute value of real numbers. [ME, R, V] 11P.R.2. Graph and analyze absolute value functions (limited to linear and quadratic functions) to solve problems. [C, PS, R, T, V] 11P.A.2. Solve problems that involve operations on radicals and radical expressions with numerical	<u>Formative Assessment</u> May include: Mental Math, Text Exercises, Observation, and Participation <u>Summative Assessment</u> Tests, Assessment	12 days

	and variable radicands. [CN, ME, PS, R, T 11P.A.3. Solve problems that involve radical equations (limited to square roots). [C, CN, PS, R, T]	Activities	
Inequalities and Systems of Equations	11P.R.6. Solve, algebraically and graphically, problems that involve systems of linear-quadratic and quadratic-quadratic equations in two variables. [C, CN, PS, R, T, V] 11P.R.7. Solve problems that involve linear and quadratic inequalities in two variables. [C, PS, T, V] 11P.R.8. Solve problems that involve quadratic inequalities in one variable. [CN, PS, V]	<u>Formative Assessment</u> May include: Mental Math, Text Exercises, Observation, and Participation <u>Summative Assessment</u> Tests, Assessment Activities	10 days
Processes: C – Communication PS – Problem Solving V – Visualization CN – Connections R – Reasoning T – Technology ME – Mental Mathematics and Estimation			

<u>Assessment Guidelines</u>

There are various purposes for assessment:

- Assessment *for* learning **(formative assessment)**: where assessment helps teachers gain insight into what students understand in order to plan and guide instruction, and provide helpful feedback to students.
- Assessment *of* learning **(summative assessment)**: where assessment informs students, teachers and parents, as well as the broader educational community, of achievement at a certain point in time in order to celebrate success, plan interventions and support continued progress.

<u>Academic Achievement</u>

Grades will be calculated on summative assessment information only. The final calculation will be a fair reflection of a student's achievement of the learning outcomes.

Term Work 80%

- **Tests.....70%**
- **Assessment Activities 10%**

Final Assessment 20%

- **School-based Exam**

Learning Behaviours

Assessment and reporting of learning behaviors will be according to the Brandon School Division Learning Behaviors Rubric.

Unit/Term Summative Assessment – Due Dates

All assessments and/or evaluations will be assigned a reasonable completion date. If absent, students are responsible for getting notes, completing assignments, or making arrangements for tests to be written during their own time. **Students will be provided the opportunity to write a test they missed if the absence for the missed test was excused.**