

## Distance Education Course Syllabus

### GENERAL INFORMATION

- i. Pre-Calculus 11, September 5, 2017-January 30, 2018
- ii. Course is offered synchronously from 1:05-2:05pm
- iii. Teacher is Mr. Graham Farrell, Foam Lake Composite School
- iv. **The blackboard collaborate system on [live.horizonsd.ca](http://live.horizonsd.ca) will be utilized. Students are expected to be logged in daily from 1:05-2:05pm. Their username varies according to location, but follows the pattern foamlake.school with a password that is their principal's name. For example...foamlake.school with password halyk. This takes them to the list of sessions. They login and click on the Graham Farrell's Pre-Calculus 11 session for the day. If they are looking for a recording from earlier in the day or from an earlier recording, the student needs to go to the RECORDINGS tab and then pick the date of the recording they are looking for.**
- v. The school phone number is 306-272-3307 and email to Mr. Farrell is [graham.farrell@horizonsd.ca](mailto:graham.farrell@horizonsd.ca). Students may also text or phone to 306-269-7525 for clarification.

### COURSE DESCRIPTION

- i. This class follows the provincial curriculum for Pre-Calculus 11.
- ii. A final exam will be administered in January 2018. This class is being delivered through a distance ed format and as such, the timeframes included are to be flexible. Opportunities to diversify instructional approaches may arise and necessitate the need for other materials and resources. This distance offering is designed to be taken synchronously. Students who take the course asynchronously may experience hiccups.
- iii. Math Foundations and Pre-Cal 10 is a pre-requisite.

### STUDENT LEARNING OUTCOMES:

- i. Students are required to explore new mathematical concepts as they relate to the study of Calculus. These concepts are an extension in many cases to concepts discovered/uncovered in Pre-Calculus 10. As such, students must be open to delving into previous understandings and extending further. There is also a significant number of new concepts to be explored as they relate to the study of Calculus eventually.

### TEACHING STRATEGIES:

- i. The course design is suited to the student attending synchronously each day so that interaction can take place with the teacher and students in a number of schools at the same time. This allows for confirmation of concept attainment and guided practice to be effective.
- ii. A number of formative assessments are used for this class and there is an expectation that students complete daily assignments to reinforce learning. Some of the formative assessments are to be submitted upon completion by the host school contact, usually the secretary or school principal. The formative assessments allow the teacher to understand whether concept attainment is met. Once this is complete, a summative assessment of learning outcomes is completed at dates prescribed during the course. As mastery learning is to be gained by a large percentage of the class, unit exams take place at points throughout the course as set by the teacher and students in consultation.

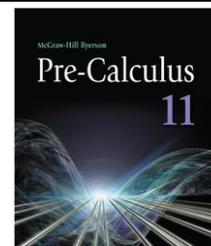
The outcomes for the course are listed below with an approximate timeline included.

Topic/Concept/Theme	Dates	Major Objectives/Outcomes
Sequences and Series	September 5-19	P20.10 Demonstrate understanding of arithmetic and geometric (finite and infinite) sequences and series.
Trigonometry	September 20-October 5	P20.4 Expand and demonstrate understanding of the primary trigonometric ratios including the use of reference angles ( $0^\circ \leq \theta \leq 360^\circ$ ) and the determination of exact values for trigonometric ratios.
Laws of Trig	October 10-17	P20.5 Demonstrate understanding of the cosine law and sine law, including the ambiguous case.
Polynomials	October 18-October 31	P20.6 Expand and demonstrate understanding of factoring polynomial expressions including those of the form: <ul style="list-style-type: none"> <li>• <math>a^2x^2 - b^2y^2, a \neq 0, b \neq 0</math></li> <li>• <math>a(f(x))^2 - b(f(x)) + c, a \neq 0</math></li> <li>• <math>a^2(f(x))^2 - b^2(g(y))^2, a \neq 0, b \neq 0</math></li> </ul> where $a, b,$ and $c$ are rational numbers.
Quadratics	November 1-14	P20.7 Demonstrate understanding of quadratic functions of the form $y = ax^2 + bx + c$ and of their graphs, including: <ul style="list-style-type: none"> <li>• vertex</li> <li>• domain and range</li> <li>• direction of opening</li> <li>• axis of symmetry</li> <li>• x- and y-intercepts.</li> </ul>
Solving Quadratics and Systems involving Quadratics	November 15-November 24	P20.8 Demonstrate understanding of quadratic equations including the solution of: <ul style="list-style-type: none"> <li>• single variable equations</li> <li>• systems of linear-quadratic and quadratic-quadratic equations in two variables.</li> </ul>

Inequalities	November 27-December 5	P20.9 Expand and demonstrate understanding of inequalities including one-variable quadratic inequalities and two-variable linear and quadratic inequalities.
Radicals	December 6-22	P20.2 Expand and demonstrate understanding of radicals with numerical and variable radicands including: <ul style="list-style-type: none"> <li>• computations</li> <li>• solving equations (limited to square roots and one or two radicals).</li> </ul>
Absolute Value	January 8-12	P20.1 Demonstrate understanding of the absolute value of real numbers and equations and functions involving the absolute value of linear and quadratic functions.
Rational Expressions and Reciprocal Functions	January 15-23	P20.3 Expand and demonstrate understanding of rational expressions and equations (up to and including degree 2 numerators and denominators) including: <ul style="list-style-type: none"> <li>• equivalent forms of expressions</li> <li>• operations on expressions</li> <li>• solving equations that can be simplified to linear or quadratic equations.</li> </ul> P20.11 Demonstrate understanding of reciprocal functions of: <ul style="list-style-type: none"> <li>• linear functions</li> <li>• quadratic functions.</li> </ul>

COURSE MATERIALS

- i. The textbook to be used is Pre-Calculus 11 published by McGraw Hill Ryerson.



EVALUATION:

- i. Assessment is divided into formative used to gauge student learning and a series of summative evaluations based on the testing of the learning success for each unit. The student mark is the mean of the set of summative assessments completed throughout the semester. This student mark will be combined with the mark earned on the final examination. The final exam counts for 30% of the final mark. A student may earn a recommend if he/she demonstrates learning at a proficient level throughout the course.