



CEGEP CHAMPLAIN - ST. LAWRENCE

201-009-50 : Precalculus

Fall 2007

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Ponderation: 3-2-3

Prerequisite Secondary IV Mathematics (Math 436)

General Objective

At the end of this course, the student will have the necessary skills to follow Cegep level mathematics courses. The student will be able to analyze algebraic and transcendental functions.

Specific Objectives

At the end of this course, the student will be able to

1. understand and use standard mathematical notation correctly;
2. know the properties of algebraic and transcendental functions;
3. solve problems involving real valued functions and/or trigonometric ratios;
4. solve problems involving second degree relations representing conics;
5. solve geometric and trigonometric problems involving circles and right triangles.

Teaching Method

The course is given in an interactive lecture form, with frequent interludes for you to try out the ideas being considered.

Textbook

There are no required textbooks for this course.

The only calculator permitted during exams is the SHARP EL-531, which is available at the bookstore.

Additional References

Precalculus (Fifth Edition) by Michael Sullivan, Prentice-Hall (1999).

Precalculus: Mathematics for Calculus (Fourth Edition) by James Stewart, Lothar Redlin, & Saleem Watson, Brooks/Cole (2001).

Course Content

1. Fundamentals – exponents and radicals, fractional expressions and equations, inequalities, coordinate geometry, graphical solution to inequalities and equations, lines.
2. Functions – functions, graphs of functions, quadratic functions, composite functions, inverse functions.
3. Polynomial and Rational Functions – graphs, dividing polynomials, zeros/roots of polynomials, rational functions and their graphs, partial fractions.
4. Exponential and Logarithmic Functions - Exponential functions, logarithmic functions, laws of logarithms, exponential and logarithmic equations.
5. Trigonometric Functions – angles, trigonometry of right-angle triangles, trigonometric ratios of any angle, the law of sines and the law of cosines, trigonometric functions and their graphs.
6. Analytical Trigonometry – trigonometric identities, addition and subtraction formulas, double angle, half-angle and product sum formulas, inverse trigonometric functions, trigonometric equations.
7. Analytic Geometry – Parabolas, ellipses, hyperbolas.

Evaluation

The evaluation in this course will verify that you have learned:

1. to use the appropriate concepts;
2. to represent situations through the use of functions;
3. to sketch adequate graphic representations of functions;
4. to manipulate algebraic expressions correctly;
5. to arrive at exact answers;
6. to arrive at correct interpretations of results;
7. to justify the steps you have taken in problem solving;
8. to use the appropriate terminology (notation).

There will be 4 term tests (12 % each), between 12 and 15 quizzes (for a total of 12%) and a final examination (40%). A student missing a test will be given zero (0). Late assignments will be severely penalised, and will not be accepted once I have given back the graded assignments.

Tests and assignments (including the final examination) will be graded on the proper use of English and Mathematics. That means that written passages must be grammatically correct and that proper mathematical style and notation will be required.

Absences

Attendance is mandatory and a maximum of 7 absences will be tolerated (explained and/or unexplained). More than the 7 absences may mean failure in the course.

Rules & Regulations

St. Lawrence Campus has definite regulations concerning cheating, plagiarism and the quality of written English. Any student caught cheating or plagiarizing on an assignment or a test will automatically receive a zero for that assignment or test. If a student is caught a second time, automatic failure in the course will result and disciplinary action may be taken. For more information, the student can consult the St. Lawrence web site (<http://www.slc.qc.ca/>) in *Academics - Academic Regulations* where these rules are clearly indicated.