Our Lady of Lourdes Catholic High School

Course Overview

COURSE TITLE: Principles of Mathematics – Academic

COURSE CODE: MPM2D1

CREDIT VALUE: 1.0

SCHOOL YEAR: 2013-2014   Semester 1

TEACHERS: Ms. K. Fischer   Ms. K. Sooley

COURSE DESCRIPTION:
This course enables students to broaden their understanding of relations, extend their skill in multi-step problem solving, and continue to develop their abilities in abstract reasoning. Students will pursue investigations of quadratic functions and their applications; solve and apply linear systems; investigate the trigonometry of right and acute triangles; and develop supporting algebraic skills. This course helps students to meet Ontario Catholic Graduate Expectations by enabling each person to become a reflective and creative thinker who evaluates situations and solves problems reflectively and creatively.

HOW THIS COURSE SUPPORTS THE ONTARIO CATHOLIC GRADUATE EXPECTATIONS:
Students will apply Christian values to pose and solve problems, to make logical decisions, and to become critical thinkers who share their abilities for the benefit of all in their classroom and school community. A supportive mathematics classroom provides a caring and sensitive environment where the dignity and value of all students is respected and affirmed as they grow in confidence in their mathematical abilities. Mathematical investigations will promote a respect for God's Creation and an understanding of the need to use resources wisely. Please see the Course Calendar / Agenda Book for a listing of the Ontario Catholic Graduate Expectations

OVERALL EXPECTATIONS:

By the end of this course, students will:
Quadratic Functions
– solve quadratic equations;
– determine, through investigation, the relationships between the graphs and the equations of quadratic functions;
– determine, through investigation, the basic properties of quadratic functions;
– solve problems involving quadratic functions.

Analytic Geometry
– model and solve problems involving the intersection of two straight lines;
– solve problems involving the analytic geometry concepts of line segments;
– verify geometric properties of triangles and quadrilaterals, using analytic geometry.

Trigonometry
– develop the primary trigonometric ratios, using the properties of similar triangles;
– solve trigonometric problems involving right triangles;
– solve trigonometric problems involving acute triangles.

GENERAL COURSE INFORMATION:

- Learning Skills: regular attendance, working independently, teamwork, organization, work habits, initiative, risk-taking, time-management, perseverance, questioning, curiosity and a love of learning are all essential to success in this course.
- A scientific calculator and graph paper are required.

UNIT TITLES (Time and Sequence):

Analytic Geometry	11
Modelling Linear System	24
Introduction to Quadratic Functions	11
Quadratic Equations	9
Analyzing Quadratic Functions	5
Congruence and Similarity	8
Trigonometry	12

ASSESSMENT and EVALUATION:

COURSE GRADE WEIGHTING:		**CATEGORY WEIGHTING:**	
		Knowledge and Understanding	35%
Term Work	70%	Thinking / Inquiry / Problem Solving	20%
Culminating Activity	30%	Applications / Making Connections	35%
		Communication	10%

Students will be assessed using a variety of techniques: including: unit tests, quizzes, assignments, investigations and a formal final exam.

LATE/MISSED EVALUATIONS:
Students are expected to complete and/or submit all assessment and evaluation activities on the date determined by the teacher. **The teacher (and/or principal when necessary) will decide if a late activity will be accepted for evaluation purposes or only for formative assessment with no level/mark recorded for grading.**

CHEATING AND PLAGIARISM:
Please see information regarding this topic in the Student Handbook.

APPROPRIATE USE OF GRAPHING CALCULATORS

Students will be provided with graphing calculators to be used at school only. In keeping with Board Policy on Telecommunications: Any malicious attempt to harm or destroy the calculator is prohibited and may result in financial compensation and/or other disciplinary action consistent with the School Code of Behaviour, Board Policy and/or the Education Act. Likewise, **theft or loss, through negligence, of the calculator will result in a cost replacement by the student/parents of $150.00.**

Graphing calculator number: _____   **Textbook number: _____**

PARENT / GUARDIAN / STUDENT SIGNATURE;

My signature below indicates that I have read and understood the course overview.

Student Signature: _____   Date: _____

Parent / Guardian Signature: _____   Date: _____

This signed course overview document must be kept in the student notebook.

If you have any questions or concerns please contact the teacher at the school by phone (836-2170) or by email (kfischer@wellingtoncdsb.ca or ksooley@wellingtoncdsb.ca).

Contact info is also found on the department website: http://ololmath.weebly.com

<u>Assessment Results:</u>

Each student is asked to record his/her assessment results using the chart below. Parents/Guardians are encouraged to refer to this chart as one method of monitoring the student's progress. All unit tests/quizzes should be corrected by the student and kept in the student's notebook.

Date / Item	K/U	Applications	Communication	TIPS

Achievement Chart – Mathematics

Categories	50–59% (Level 1)	60–69% (Level 2)	70–79% (Level 3)	80–100% (Level 4)
Knowledge/Understanding	**The student:**			
– understanding of concepts	– demonstrates limited understanding of concepts	– demonstrates some understanding of concepts	– demonstrates considerable understanding of concepts	– demonstrates thorough understanding of concepts
– performing algorithms	– performs only simple algorithms accurately by hand and using technology	– performs algorithms with inconsistent accuracy by hand, mentally, and using technology	– performs algorithms accurately by hand, mentally, and using technology	– selects the most efficient algorithm and performs it accurately by hand, mentally, and using technology
Thinking/Inquiry/Problem Solving	**The student:**			
– reasoning	– follows simple mathematical arguments	– follows arguments of moderate complexity and makes simple arguments	– follows arguments of considerable complexity, judges the validity of arguments, and makes arguments of some complexity	– follows complex arguments, judges the validity of arguments, and makes complex arguments
– applying the steps of an inquiry/problem-solving process (e.g., formulating questions; selecting strategies, resources, technology, and tools; representing in mathematical form; interpreting information and forming conclusions; reflecting on reasonableness of results)	– applies the steps of an inquiry/problem-solving process with limited effectiveness	– applies the steps of an inquiry/problem-solving process with moderate effectiveness	– applies the steps of an inquiry/problem-solving process with considerable effectiveness	– applies the steps of an inquiry/problem-solving process with a high degree of effectiveness and poses extending questions
Communication	**The student:**			
– communicating reasoning orally, in writing, and graphically	– communicates with limited clarity and limited justification of reasoning	– communicates with some clarity and some justification of reasoning	– communicates with considerable clarity and considerable justification of reasoning	– communicates concisely with a high degree of clarity and full justification of reasoning
– use of mathematical language, symbols, visuals, and conventions	– infrequently uses mathematical language, symbols, visuals, and conventions correctly	– uses mathematical language, symbols, visuals, and conventions correctly some of the time	– uses mathematical language, symbols, visuals, and conventions correctly most of the time	– routinely uses mathematical language, symbols, visuals, and conventions correctly and efficiently
Application	**The student:**			
– applying concepts and procedures relating to familiar and unfamiliar settings	– applies concepts and procedures to solve simple problems relating to familiar settings	– applies concepts and procedures to solve problems of some complexity relating to familiar settings	– applies concepts and procedures to solve complex problems relating to familiar settings; recognizes major mathematical concepts and procedures relating to applications in unfamiliar settings	– applies concepts and procedures to solve complex problems relating to familiar and unfamiliar settings