Math 30-2: Principles of Mathematics
Course Outline

Fall 2021

Mr. K. Hovey

Classroom Hours: I am available at any time for lunch hour and after school tutoring sessions. Please see me for an appointment

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Regular attendance and consistent work habits are the key top your success. If you do your homework, review your work, study for quizzes/examples, you should be successful in Mathematics 30-2. Extra help is available and it is your responsibility to ask. Your success depends on you!!!.

Have a great semester!

Course Background

The Mathematics 30–2 (5 Credits) course is made up of outcomes, as specified in the Program of Studies, and emphasizes the mathematical understandings and critical thinking skills for daily life, direct entry into the workforce, and **post-secondary studies in programs that do not require the study of calculus**. In Mathematics 30–2, algebraic, numerical, and graphical methods are used to solve problems.

Technology, such as a graphing calculator, is also used to enable students to explore and create patterns, examine relationships, test conjectures, model, and solve problems.

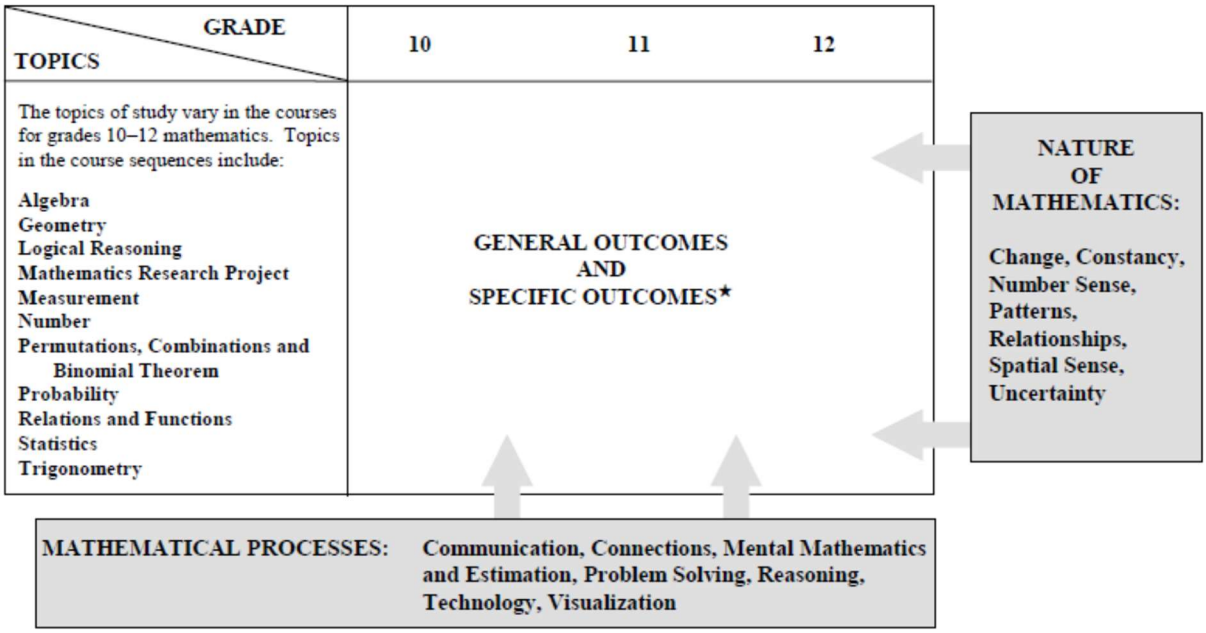
Students are expected to communicate solutions to problems clearly and effectively when solving both routine and non-routine problems. Students are also expected to apply mathematical concepts and procedures to meaningful life problems. It is important to realize that it is acceptable for students to solve problems in different ways and that solutions may vary depending upon how the problem is understood.

Philosophy

Students construct their understanding of mathematics by developing meaning based on a variety of learning experiences. The use of manipulatives, visuals and a variety of pedagogical approaches can address the diversity of learning styles and the developmental stages of students. I will provide experiences in the classroom which may increase each student's chance for success and to allow individual progress to take place. However, I also expect each student to accept responsibility for his/her own learning. This includes completing assigned tasks to the best of their ability, participating in classroom discussions and activities, and conducting themselves in a manner that will enhance the learning process.

CONCEPTUAL FRAMEWORK FOR GRADES 10–12 MATHEMATICS

The chart below provides an overview of how mathematical processes and the nature of mathematics influence learning outcomes.



Mathematical Processes

The seven mathematical processes are critical aspects of learning, doing and understanding mathematics. Students must encounter these processes regularly in a mathematics program in order to achieve the goals of mathematics education.

This program of studies incorporates the following interrelated mathematical processes. They are to permeate the teaching and learning of mathematics.

Students are expected to:

Communication [C]--- use *communication* in order to learn and express their understanding

Connections [CN] -- make *connections* among mathematical ideas, other concepts in mathematics, everyday experiences and other disciplines

Mental Mathematics and Estimation [ME]-- demonstrate fluency with *mental mathematics and estimation*

Problem Solving [PS]-- develop and apply new mathematical knowledge through *problem solving*

Reasoning [R]-- develop mathematical *reasoning*

Technology [T]-- select and use *technology* as a tool for learning and for solving problems

Visualization [V]-- develop *visualization* skills to assist in processing information, making connections and solving problems.

Course Evaluation

One the marking scheme used for this course, all evaluations in a chapter are calculated separately according to the following marks breakdown.

Course Evaluation

Term Work

Chapter Exams	75%
Quizzes and Assignments	25%

Final Evaluation

Term Work	70%
Diploma Exam	30%

Each unit is assigned a percentage of the course based on the learner outcomes and information regarding the Diploma Exam marking scheme. The unit marks are below

Chapter	Percent of Course Mark
Set Theory	15%
Permutations and Combinations	15%
Probability	14%
Exponential and Logarithmic Functions and Applications of Exponents and Logarithms	21%
Polynomial and Sinusoidal Functions	13%
Rational Expressions and Equations	12%
Research Project	10%

Most of this course will be evaluated with using quizzes and unit exams. However, the daily homework assignments are essential to your successfully completing this course. These will be given out daily and will be expected to be handed in the following day. Failure to diligently complete the homework will cause you to fail to grasp the material.

The quizzes within the units will be written response, where you will have to show your work for full marks. The unit exams will be 70% multiple choice and 30% written response. I feel that the communication aspect of mathematics cannot be assessed effectively with a multiple-choice exam only.

Marks will be entered into the Google Classroom and PowerSchool system on a regular basis. Exams will be entered within 3 days of being written, also marks will be handed out after each unit. It is the student's responsibility to make sure that they have all of the work completed.

I am available for help on a regular basis outside of class hours, but it is your responsibility to take advantage of this help.

Logical Reasoning

General Outcome

Develop logical reasoning.

Specific Outcomes

It is expected that students will:

1. Analyze puzzles and games that involve numerical and logical reasoning, using problem-solving strategies.
2. Solve problems that involve the application of set theory.

Probability

General Outcome

Develop critical thinking skills related to uncertainty.

Specific Outcomes

It is expected that students will:

1. Interpret and assess the validity of odds and probability statements.
2. Solve problems that involve the probability of mutually exclusive and non–mutually exclusive events.
3. Solve problems that involve the probability of two events.
4. Solve problems that involve the fundamental counting principle.
5. Solve problems that involve permutations.
6. Solve problems that involve combinations.

Relations and Functions

General Outcome

Develop algebraic and graphical reasoning through the study of relations.

Specific Outcomes

It is expected that students will:

1. Determine equivalent forms of rational expressions (limited to numerators and denominators that are monomials and binomials).
2. Perform operations on rational expressions (limited to numerators and denominators that are monomials and binomials).
3. Solve problems that involve rational equations (limited to numerators and denominators that are monomials and binomials).
4. Demonstrate an understanding of logarithms and the laws of logarithms.
5. Solve problems that involve exponential equations.
6. Represent data, using exponential and logarithmic functions, to solve problems.
7. Represent data, using polynomial functions (of degree ≤ 3), to solve problems.
8. Represent data, using sinusoidal functions, to solve problems.

Mathematics Research Project

General Outcome

Develop an appreciation of the role of mathematics in society.

Specific Outcomes

It is expected that students will:

1. Research and give a presentation on a current event or an area of interest that involves mathematics.