

MATH160
Higher Arithmetic
3 Credits

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MATH160 Version: 14



Higher Arithmetic

Calendar Description

Elementary Number Theory, Numeration Systems, Number Systems and Elementary Probability Theory. Math Fair.

Rationale

This course gives Elementary Education students the necessary 3 credits in mathematics that they must take as partial fulfillment of required courses of study. The course covers basic high school concepts at the elementary level and provides the necessary background for possible future courses in mathematics.

This course is intended for elementary education students and, therefore, gives the students the necessary mathematical background to be more successful mathematics teachers at the elementary level. It gives the students a broader mathematical base of knowledge that is directly applicable to mathematics from kindergarten to grade six. The material covered allows for the integration of mathematics into other areas of teaching as well.

Prerequisites

Pure Math 30, Math 30-1 or Math 30-2

Co-Requisites

None

Course Learning Outcomes

Upon successful completion of this course, students will be able to

1. express an appreciation for mathematics.
2. apply mathematical solutions to many everyday situations.
3. think critically, work independently, and solve mathematical problems.
4. solve problems through the application of mathematics.
5. engage children in classroom math tutoring and a math fair.

Resource Materials

Required Text:

None

Reference Text:

Lui, Andy. *Arithmetical Wonderland, 2010*. Print.

Lewis, Ted. *The math fair booklet*. Print.

Other reference handouts/readings: as assigned by instructor.

Conduct of Course

This is a 3 credit course with 3 hours of lecture per week. (3-0-0).

This course uses lectures, activities, inquiry based problem solving, videos, discussion groups, and peer presentations. Students are expected to keep up with assigned readings and be prepared to demonstrate understanding, ask questions and discuss the content in class. Attendance will be taken. Students are expected to be punctual, attend regularly, be responsible for material presented in class, and communicate openly with the instructor. Students missing more than 20% of class hours may be required to withdraw from the class (as explained in the “Attendance Policy” for University Transfer).

LATE ASSIGNMENTS WILL BE DOCKED 10% PER DAY. ALL ASSIGNMENTS MUST BE COMPLETED AND SUBMITTED TO THE INSTRUCTOR IN ORDER FOR THE STUDENT TO SIT THE FINAL EXAM.

Evaluation Procedures

Grading of this course is two-fold. The final grade is weighed as follows:

Assignments	10%
Elementary Math Tutoring and Math Fair	20%
Midterm Exams	40%
Final	<u>30%</u>
Total	100%

No supplemental assignments or examination re-writes are permitted in this course.

At term end, there is a record of each student’s raw grades for all assignments and exams. A term summary mark based on these raw grades is computed and these marks are placed on the "marking strip" as indicated.

Grade Equivalents and Course Pass Requirements

A minimum grade of D (50%) (1.00) is required to pass this course.

Letter	F	D	D+	C-	C	C+	B-	B	B+	A-	A	A+
Percent Range	0-49	50-52	53-56	57-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-100
Points	0.00	1.00	1.30	1.70	2.00	2.30	2.70	3.00	3.30	3.70	4.00	4.00

Students must maintain a cumulative grade of C (GPA - Grade Point Average of 2.00) in order to qualify to graduate.

Attendance

Regular attendance is essential for success in any course. Absence for any reason does not relieve a student of the responsibility of completing course work and assignments to the satisfaction of the instructor. Poor attendance may result in the termination of a student from the course.

In cases of repeated absences due to illness, the student may be requested to submit a medical certificate.

Instructors have the authority to require attendance at classes.

Course Units/Topics

1. Puzzle and Problem Solving
2. Numbers and Operations
3. Number Theory
4. Common Multiples and Divisors
5. Fractions, Decimals and Percentages
6. Modular Arithmetic
7. Linear Diophantine Equations
8. Number Bases



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