Departmental Syllabus
Math 2030 – Mathematics for Educators II

Textbooks:


Prerequisites: MATH 1030 with a grade of “C-” or better.

Course Description: Math 2030 is the second semester in a three-semester sequence of integrated content and methods courses for preservice teachers. It is open only to students in elementary education pursuing certification levels B – 11 or 10 – 14. (The course is not intended for students pursuing certification level 10 – 21.) Topics covered include number theory; composition and decomposition of numbers including primes, factors, and multiples; using physical models to develop concepts of and operations on rational numbers; proportional reasoning; number sense; and selected topics from statistics. Throughout the course, students will be expected to explain their reasoning using appropriate vocabulary and notation.

Student Learning Outcomes: Students should be able to:
- identify teaching strategies that would help each child learn mathematics;
- gain a conceptual understanding of number theory, proportional reasoning, and statistics; and
- become a reflective practitioner.

General Education Learning Outcomes: UW-Platteville students shall:
1-2 Demonstrate ability to work with numbers, space and data
1-3 Construct articulate explanations using the language of each discipline being studied
1-7 Demonstrate skills in problem-solving
1-8 Distinguish between valid and invalid reasoning

Test-out Policy: Math 2030 is an integrated content and methods course for preservice teachers. Much of the content material will be embedded in in-class activities that model a variety of teaching methods. As a result, students will be actively involved in doing mathematics during the class period. Because of the significant amount of in-class participation, a student will not be allowed to test out of this course.

Calculators: A calculator may be required. Calculators with Computer Algebra Systems (CAS), (e.g. the TI-89, TI-92 and TI-Nspire with CAS keypad, or their equivalent), are not allowed in any math classes. On occasion, individual instructors may restrict the use of any type of calculator.

Topics to be covered:

I. Number Theory – Problem solving is a large component of this course (as well as in Math 3030). As such, we begin this course with problem solving involving number
theory. This study of number theory will help develop a foundation for later work with operation on rational numbers. Students will be expected to explain their reasoning using appropriate vocabulary and notation.

Chapter 4: Number Theory
4.1 Divisibility
4.2 Prime and Composite Numbers
4.3 Greatest Common Divisor and Least Common Multiple

II. Rational Number Concepts – In order to better understand the teaching and learning of rational numbers, we will study some of the fundamental ways in which students encounter rational numbers. We will also develop some ways to physically model rational numbers. Students will be expected to explain their reasoning using appropriate vocabulary and notation. After developing some models for thinking about rational numbers we develop ways to model operations on rational numbers. Students will be expected to explain their reasoning using appropriate vocabulary and notation.

Chapter 6: Rational Numbers and Proportional Reasoning
6.1 The Set of Rational Numbers
6.2 Addition, Subtraction, and Estimation with Rational Numbers
6.3 Multiplication, Division, and Estimation of Rational Numbers
6.4 Proportional Reasoning

III. Modeling Rational Number Operations – After developing some ways to model operations on rational numbers, we study in depth some specific contexts where students encounter rational numbers. Students will be expected to explain their reasoning using appropriate vocabulary and notation.

Chapter 7: Rational Numbers as Decimals and Percent
7.1 Introduction to Finite Decimals
7.2 Operations on Decimals
7.3 Repeating Decimals
7.4 Percents and Interest

If you require an accommodation due to a disability, please make an appointment to see me as soon as possible to discuss arrangements for the accommodations. You will need a Verified Individualized Services and Accommodations (VISA) form from Services for Students with Disabilities.