

Salisbury University Department of Mathematical Sciences

MATH 130 : Fundamental Concepts I Syllabus (Tentative)

Description: Provides a thorough understanding of the mathematical concepts covered in grades one through eight. Moves through the mathematical content into the ability to explain the mathematical ideas and relationships. Emphasizes the ability to explain the concepts in everyday language appropriate for the listener, using correct vocabulary, and the ability to demonstrate these ideas using physical models and/or activities. Use of technology is required. Includes non-routine problem solving. 3 Hours Credit: Meets three hours per week. Does not meet General Education requirements.

Prerequisites: Declared elementary education or early childhood education major.

Credit: Credit may only be received for one of MATH 103 and MATH 130

Intended Audience: For students in the Elementary Education program.

Objective: To provide students with a thorough understanding of the mathematical concepts covered in grades one through eight using approaches that support professional (NCTM & CCSS) standards. To move prospective elementary school teachers through the mathematical content and develop the ability to explain the mathematical concepts and relationships. Using correct vocabulary, the student must be able to explain concepts in everyday language appropriate for the listener and be able to demonstrate these concepts using physical models and/or activities. Participation in active learning (group work, use of manipulatives, etc.) is expected. Non-routine problem solving to be included regularly throughout the semester. This course does not satisfy General Education requirements.

Textbooks: *Reconceptualizing Mathematics*, 4th edition by Judith Sowder, Larry Sowder, and Susan Nickerson

Topic	Weeks
The base 10 place value system	2
Understanding place value (alternative bases may be explored) and visual representation of real numbers.	
The operations of addition and subtraction	3.5
Ways of thinking about and representing the operations on real numbers, including a look at traditional and nontraditional algorithms, and children's views. Representations to include decimal squares and decimal wheels.	
The operations of multiplication and division	3.5
Ways of thinking about and representing the operations on real numbers, including a look at traditional and nontraditional algorithms and children's views. May also be extended to rational numbers when appropriate. Representations to include decimal squares.	
Fractions and meanings	4
To include visual representations and how they aid in the different conceptions of fractions.	
Tests	1
Total	14

Evaluation

Assignments, Quizzes, Classwork	20 – 40%
Tests	30 – 60%
Comprehensive Final Examination	20 – 30%

- Free tutoring is available for this course in the Spring and Fall semesters.

- Clear descriptions of thought processes, evidence of critical thinking, and effective communication must be demonstrated in written work.
- **Writing Across the Curriculum:** Students will be expected to communicate mathematics and mathematical ideas effectively in speech and writing. At the University Writing Center, trained consultants are ready to help you at any stage of the writing process. In addition to the important writing instruction that occurs in the classroom and during professors' office hours, the Center offers another site for learning about writing. **All students are encouraged to make use of these important services.**
- **NOTE:** Once a student has received credit, including transfer credit, for a course, credit may not be received for any course with material that is equivalent to it or is a prerequisite for it.