SALISBURY UNIVERSITY DEPARTMENT OF MATHEMATICS & COMPUTER SCIENCE
SYLLABUS (Tentative)
MATH 300 Introduction to Abstract Mathematics

Intended Audience: Students minoring in mathematics, particularly prospective teachers, will find this a good capstone to their undergraduate mathematical experience. Students majoring in mathematics who have not already completed a 400-level mathematics course will find this a valuable course to help them develop a better understanding of the connection between computational and theoretical mathematics.

Objective: To provide students with an opportunity to develop the foundations of abstract mathematics in a manner similar to that employed by professional mathematicians.

Prerequisite: MATH 210, completed with a grade of C or better.

Text: None. Notes will be distributed by the professor.

Topic	Weeks
The First Axiom and Its Consequences Orientation. Introduction. Axiom 1.	
The Second Axiom and Its Consequences Sequences and series. Boundedness, the Cauchy Property, and convergence. Finite and infinite sequences and sets. Subsequences. Decimals. Rational and irrational numbers.	3-4
The Third Axiom and Its Consequences Segments and intervals. Open sets. Closed sets.	3-4
The Fourth Axiom and Its Consequences Reflexivity, symmetry, and transitivity. The Equivalence-Relation Theorem. Elementary functions.	2 3-4
Logic Conjunction, disjunction, negation, and implication. The rules of premises, conjunction, fantasy, reiteration, implication, disjunction, 0 and 1, and negation. Logical equivalence. Contradiction.	0-3
A Peek into Abstract Algebra Definition of group. First theorems on groups. Cyclic and dihedral groups. Examples of groups: the symmetries of an equilateral triangle; cyclic groups generated by modular addition of integers; dihedral groups.	0-1
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EVALUATION

Presentations at the Board	30 - 70%
Portfolio	10 - 30%
Midterm Examination	0 - 15%
Final Examination	0 - 15%

**Graduate students will be given special assignments.