

COMMON COURSE OUTLINE: Course discipline/number/title: MATH 2218: Discrete Mathematics

A. CATALOG DESCRIPTION

1. **Credits: 4**
2. **Hours/Week: 4**
3. **Prerequisites (Course discipline/number):** Successful Completion of MATH 1115 or equivalent with a grade of C or better or appropriate score on RCTC placement test; College level reading.
4. **Co-requisites (Course discipline/number):** None
5. **MnTC Goals (if any):** NA

A course for mathematics and/or computer science majors. Topics include sets, relations, symbolic language, graph theory, matrices, and Boolean algebra. RECOMMENDED ENTRY SKILLS/KNOWLEDGE: Sets, Polynomial Functions, Logarithms, Exponential notation, Summation notation, Methods of solving systems of equations.

B. DATE LAST REVISED (Month, year): January, 1997

C. OUTLINE OF MAJOR CONTENT AREAS:

1. Logic and Proofs
2. Sets, Sequences, and Functions
3. Relations
4. Induction and Recursion
5. Graphs and Trees
6. Boolean Algebra

D. LEARNING OUTCOMES (GENERAL): The student will be able to:

1. Identify logical form and prove logical equivalence.
2. Do mathematical operations in binary, hexadecimal, and two's complement representations.
3. Translate between formal and informal language using universal and existential statements.
4. Do direct proof, proof by contradiction and induction proofs.
5. Work with summation notation and explicit formulas to define a sequence.
6. List and prove basic set properties.
7. Find explicit formulas for recursively defined sequences by iteration.

E. LEARNING OUTCOMES (MNTC): NA

F. METHODS FOR EVALUATION OF STUDENT LEARNING:

1. Exams over covered topics
2. Quizzes
3. Homework
4. Comprehensive Final Exam

G. SPECIAL INFORMATION (if any): None