Revised: Fall 2016

MTH 287
Mathematical Structures

COURSE OUTLINE

Prerequisites:

MTH 176 or equivalent.

Course Description:

Presents topics in mathematical structures of value to students majoring in Computer Science or other disciplines requiring programming skills. Covers logic, set theory, number theory, combinatorics, functions, relations, and graph theory.

Semester Credits: 3 **Lecture Hours: 3 Lab/Recitation Hours: 0**

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Course Outcomes

At the completion of this course, the student should be able to:

1. **Have a basic understanding of logic, quantifiers, set theory, and counting principles**
2. **Prove elementary statements using direct, indirect and induction arguments**
3. **Use recursively defined statements and find the corresponding explicit forms**
4. **Be familiar with equivalence and partial order relations**

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Required Materials:

Textbook:

Discrete Mathematics with Applications, 4th edition, Susanna S Epp, Cengage Learning
ISBN 9780534359454

The following supplementary materials are available:

1.

2.

3.

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Topical Description: (Outline chapters and sections to be covered in the book – may include timeline)

Topics	Chapter
1. The Logic of Compound Statements	2
2. The Logic of Quantified Statements	3
3. Elementary Number Theory and Methods of Proof	4
4. Sequences, Mathematical Induction and Recursion	5
5. Set Theory	6
6. Counting and Probability	9
7. Relations	8

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Notes to Instructors
(List information about optional topics, departmental exams, etc)

1.

2.

3.

4.

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