**Alexandria Technical and Community College**

**MATH 1415: Mathematical Reasoning**

**A. COURSE DESCRIPTION**

Credits: 3
Lecture Hours/Week: 3
Lab Hours/Week: *.*
OJT Hours/Week: *.*

Prerequisites:
This course requires any of these 10 prerequisites
- MATH 0429 - Beginning Algebra (Minimum grade: 2.0 GPA Equivalent and Number of Years Valid: 5)
- MATH 0431 - Intermediate Algebra (Minimum grade: 2.0 GPA Equivalent and Number of Years Valid: 5)
  - A score of 1150 on test MN Comprehensive Assessment Math
  - A score of 2 on test Algebra
  - A score of 22 on test ACT Math
  - A score of 50 on test Accuplacer College Level Math
  - A score of 76 on test Accuplacer Elementary Algebra
  - A score of 2 on test Math Reasoning
  - A score of 250 on test Accuplacer NG Quantitative Reasoning
  - A score of 250 on test Accuplacer NG Advanced Algebra Functions

Corequisites: None

MnTC Goals: Goal 04 - Mathematical/Logical Reasoning

This course meets Minnesota Transfer Curriculum (MnTC) goal area 4. This course focuses on quantitative reasoning and the application of mathematical concepts to workplace, personal, and social issues. Topics include problem solving techniques, critical thinking, putting numbers into perspective, uses and abuses of percentages, index numbers, scientific notation, financial mathematics, statistics, probability, linear and exponential growth, and communicating mathematical ideas. Emphasis is placed on applications to real world situations. Concepts discussed should be useful to everyone, but the course is not part of an algebra or calculus sequence.

Prerequisite(s): College level math score on a placement test or a minimum grade of "C" in Beginning Algebra (Math 0429) or Intermediate Algebra (Math 0431).

**B. COURSE EFFECTIVE DATES:** 08/26/2002 - Present

**C. OUTLINE OF MAJOR CONTENT AREAS**

1. Uses and abuses of percentages
2. Perspective and uncertainty
3. Managing money
4. Statistical studies and statistical reasoning
5. Working with statistical data
6. Probability
7. Exponential growth and decay
8. Critical thinking
9. Problem solving strategies
10. Measurement units in conversion and problem solving
D. LEARNING OUTCOMES (General)
   1. The learner will be able to use statistics and probability to describe and interpret data.
   2. The learner will use financial calculations in critical thinking.
   3. The learner will use quantitative reasoning to identify and apply equations that can solve everyday mathematical problems.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies
   Goal 04 - Mathematical/Logical Reasoning
   1. Illustrate historical and contemporary applications of mathematical/logical systems.
   2. Explain what constitutes a valid mathematical/logical argument (proof).
   3. Apply higher-order problem-solving and/or modeling strategies.

F. LEARNER OUTCOMES ASSESSMENT
   As noted on course syllabus

G. SPECIAL INFORMATION
   None noted