Inver Hills Community College

MATH 1101: Math for Liberal Arts

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 3

Lab Hours/Week: 0

OJT Hours/Week: *.*

Prerequisites:
This course requires any of these six prerequisite categories
1. A score of 63 on test Accuplacer Reading Comprehension
   Or
2. A score of 1150 on test MN Comprehensive Assessment Math
   Or
3. A score of 237 on test Accuplacer NG Reading
   Or
4. A score of 237 on test Accuplacer NG COMP Reading
   Or
5. A score of 7 on test ACCP local Math History
   Or
6. READ 0090 - Introduction to College Reading and Writing (Minimum grade: 1.67 GPA Equivalent)

Corequisites: None

MnTC Goals: Goal 02 - Critical Thinking, Goal 04 - Mathematical/Logical Reasoning

Gives non-mathematicians an appreciation of mathematical ideas and the power and utility of mathematical skills in the modern world. Topics will be selected from: voting and weighted voting systems, fair division and apportionment; routing, minimum network and scheduling problems; mathematical growth and math of finance; descriptive statistics and data analysis; basic probability and normal distributions. Placement into Read 93/94 or a grade of C or higher in Read 90 within the last 3 years.

B. COURSE EFFECTIVE DATES: 01/01/1998 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Basic probablility and normal distribution: 0-20%
2. Data analysis: descriptive and graphical statistics: 10-20%
3. Fair division and apportionment: 10-15%
4. Graph theory: routing, minimum network and scheduling problems: 25-30%
5. Mathematical growth and math of finance: 15-25%
6. Voting and weighted voting systems: 10-15%

D. LEARNING OUTCOMES (General)

1. Applications of various voting and weighted voting methods. Determine advantages and disadvantages of using various methods
2. Applications of various fair division and apportionment methods. Analyze the pitfalls and paradoxes of using various methods
3. Models of linear, exponential and logistic growth. Apply the concept of exponential growth to math of finance; including both present and future values of compound interest, annuities, and installment loans
4. Applications of basic graph theory through routing, minimum network and scheduling problems. Ability to explain the distinction between efficient versus optimal algorithms
5. Applications of descriptive measures and graphical procedures to investigate those measures. Determine advantages and disadvantages of using various descriptive statistics measures. Determine advantages and disadvantage of use of various graphical methods such as histograms, box-plots, and other methods of analyzing data. Recognize errors inherent in the design of surveys and experiments
6. Applications of basic principles of probability and the normal probability distribution to everyday experiences

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

Goal 02 - Critical Thinking

1. Gather factual information and apply it to a given problem in a manner that is relevant, clear, comprehensive, and conscious of possible bias in the information selected.
2. Imagine and seek out a variety of possible goals, assumptions, interpretations, or perspectives which can give alternative meanings or solutions to given situations or problems.
3. Analyze the logical connections among the facts, goals, and implicit assumptions relevant to a problem or claim; generate and evaluate implications that follow from them.
4. Recognize and articulate the value assumptions which underlie and affect decisions, interpretations, analyses, and evaluations made by ourselves and others.

Goal 04 - Mathematical/Logical Reasoning

1. Illustrate historical and contemporary applications of mathematical/logical systems.
2. Clearly express mathematical/logical ideas in writing.
3. Explain what constitutes a valid mathematical/logical argument(proof).
4. Apply higher-order problem-solving and/or modeling strategies.

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted