EFFECTIVE: JANUARY 2006
CURRICULUM GUIDELINES

A. Division: Academic Division Effective Date: January 2006

B.

Revised:
Date of Previous Revision:
Date of Current Revision:

C:	**D**:	**E:**
MATH 1234	Mathematics for Liberal Arts	3
Subject & Course No.	Descriptive Title	Semester Credits

F: Calendar Description:

Mathematics is everywhere. This one semester course for liberal arts students explores mathematics topics in order to improve quantitative reasoning and decision-making in everyday life, as well as to develop an appreciation for the power and beauty of the mathematics that is evident (and not so evident) in the world around us. Topics include: critical thinking and problem solving, percentages and number sense, uses and abuses of statistr526.35547 440.70.02 531.16158 Tm2 0.9 0 802 e

M: Course Objectives / Learning Outcomes

At the conclusion of this course students will be able to:

- identify and discuss at least three common misconceptions about mathematics
- understand and explain the importance of mathematical literacy in modern society
- reflect on the role that mathematics plays in their own lives

- recognize and analyze fallacies in given arguments
- use appropriate logic notation and simple truth tables to analyze the truth values of propositions involving negation, conjunctions, disjunctions, conditionals
- distinguish between inclusive and exclusive uses of the word "or"
- given a conditional, write its converse, its inverse and its contrapositive
- illustrate relationships between sets using Venn diagrams
- solve problems using Venn diagrams to organize information
- use Venn diagrams to test the validity of arguments
- distinguish between inductive and deductive arguments
- apply critical thinking strategies to analyze arguments

- know standard metric units of measurement
- perform unit conversions
- apply problem solving strategies to solve word problems
- solve percentage problems
- calculate absolute and relative change
- identify common abuses of percentages
- write and interpret numbers in scientific notation
- demonstrate number sense through estimation, comparison and scaling

- understand and interpret the 5 basic steps in a statistical study
- describe simple random sampling, systematic sampling, convenience sampling and stratified sampling
- distinguish between observational studies and experiments
- describe the placebo effect and the importance of blinding in experiments
- determine a confidence interval from a margin of error
- understand and apply guidelines for evaluating a statistical study
- interpret and create frequency tables, bar graphs, pie charts, histograms and line charts
- interpret graphs that relay statistical information
- distinguish between causation and correlation
- describe possible explanations for correlation
- understand and apply guidelines for recognizing causality

- explain the difference between linear and exponential growth
- calculate the doubling-time or half-life in given situations
- contrast exponential growth and logistic growth
- understand factors affecting carrying capacity
- understand and use the Richter scale, decibel scale, and pH scale

- understand the concept of a mathematical function
- given a real-life functional situation, identify dependent and independent variables, domain and range
- represent functions with tables, graphs and equations
- use functions given in the form of tables, graphs or equations to answer questions about real-life quantities

Depending on the sections covered by the instructor the students will also be able to:

- distinguish significant digits from non-significant zeros
- identify and distinguish between random and systematic errors
- calculate absolute and relative error
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PLUS at least 2