

ST. PETERSBURG COLLEGE
APPROVED COURSE OUTLINE

MGF	1107	MATHEMATICS FOR LIBERAL ARTS II	3
Prefix	Number	Course Title	Cr.Hrs.

A. Course Description:

Prerequisite: MAT 1033 or appropriate score on the SPC mathematics placement test. The intent of MGF 1107 is to present topics demonstrating the beauty and utility of mathematics to the general student population and to provide knowledge and skills useful for college, life and career. The course will include topics related to patterns and reasoning, growth and symmetry, linear and exponential growth, and personal finance; mathematical connections with music, art, architecture and nature will be explored. History of mathematics, critical thinking skills, problem solving strategies and appropriate use of technology will be used throughout the course. This course is designed to satisfy three credits of the Gordon Rule which requires "Six semester hours of mathematics coursework at the level of College Algebra or higher" but is not a prerequisite to any other mathematics course. 47 contact hours.

B. Major Learning Outcomes:

1. The student will demonstrate a mathematical understanding of patterns and reasoning.
2. The student will demonstrate a mathematical understanding of natural growth patterns and symmetry.
3. The student will demonstrate a mathematical understanding of linear and exponential growth and decay models.
4. The student will demonstrate an understanding of financial mathematics.

C. Course Objectives Stated in Performance Terms:

1. The student will demonstrate a mathematical understanding of patterns and reasoning by:
 - a. identifying and illustrating a problem solving strategy.
 - b. illustrating and using critical thinking skills.
 - c. identifying, illustrating and constructing various patterns and codes.
 - d. using and applying cryptography.
 - e. identifying, illustrating and constructing magic squares.
 - f. inferring relations between numbers by examining particular number patterns.
 - g. explaining another number system in terms of the base ten system.

2. The student will demonstrate a mathematical understanding of natural growth patterns and symmetry by:
 - a. identifying and illustrating spiral growth patterns.
 - b. identifying the various types of mathematical symmetry and explaining their interrelationships.
 - b. identifying and illustrating self-similar figures including fractals.
 - d. constructing the Fibonacci sequence of numbers and recognizing the occurrence of Fibonacci numbers in nature.
 - e. calculating the Golden Ratio and describing its relationship to the Fibonacci sequence and illustrating some of its uses in art and architecture.
 - f. recognizing and describing other applications of mathematics in music, art, architecture or other disciplines.
3. The student will demonstrate a mathematical understanding of linear and exponential growth and decay models by:
 - a. creating, interpreting and analyzing a scattergram.
 - b. using correlation analysis to determine if a linear relationship exists and, if so, the strength and type.
 - c. determining an appropriate linear model and predicting future outcomes given a set of environmental, medical or other data.
 - d. determining an appropriate exponential model and predicting future outcomes given a set of environmental, medical or other data.
4. The student will demonstrate understanding of financial mathematics by:
 - a. calculating and comparing simple and compound interest.
 - b. determining an investment strategy based upon the stock market.
 - c. analyzing loans and mortgages.
 - d. preparing and analyzing elements of a financial plan, including investments and annuities.
 - e. analyzing the terms of credit card account agreements.
 - f. describing the effects of the global market on local business and investment from a mathematical perspective.

D. Criteria Performance Standard:

Upon successful completion of the course the student will, with a minimum of 70% accuracy, demonstrate mastery of each of the above stated objectives through classroom measures developed by individual course instructors.

C&I 11/24/98; DBT 12/14/98			
Effective Session 19991			
C&I 10/23/01, BT 11/20/01			
Effective yrtr 20021.			