**BARTON COMMUNITY COLLEGE**

**COURSE SYLLABUS**

# **GENERAL COURSE INFORMATION**

Course Number: MATH 1823

Course Title: Mathematics for Liberal Arts

Credit Hours: 3 Credit Hours

Prerequisites: MATH 1824 Intermediate Algebra with a grade of C or better OR having passed Module 12 in College Preparatory Mathematics OR an appropriate placement score

Division/Discipline: Academic Division/Mathematics

Course Description: This is a general education course designed to meet the needs of students majoring in non-technical degree programs that do not require courses for which college algebra is a prerequisite and students who are majoring in non-STEM fields. Emphasis will be placed on developing critical thinking and quantitative reasoning skills needed to understand major issues in society.

# **INSTRUCTOR INFORMATION**

# **COLLEGE POLICIES**

## Students and faculty of Barton Community College constitute a special community engaged in the process of education. The College assumes that its students and faculty will demonstrate a code of personal honor that is based upon courtesy, integrity, common sense, and respect for others both within and outside the classroom.

## Plagiarism on any academic endeavors at Barton Community College will not be tolerated. The student is responsible for learning the rules of, and avoiding instances of, intentional or unintentional plagiarism. Information about academic integrity is located in the Student Handbook.

## The College reserves the right to suspend a student for conduct that is determined to be detrimental to the College educational endeavors as outlined in the College Catalog, Student Handbook, and College Policy & Procedure Manual. (Most up-to-date documents are available on the College webpage.)

## Any student seeking an accommodation under the provisions of the Americans with Disability Act (ADA) is to notify Student Support Services via email at [disabilityservices@bartonccc.edu](mailto:disabilityservices@bartonccc.edu).

# **COURSE AS VIEWED IN THE TOTAL CURRICULUM**

Mathematics for Liberal Arts is an approved general education course at Barton Community College, which can be used to fulfill degree requirements as a college level mathematics course. It cannot be used for an Associate of Science degree, but it can be used for an Associate of Arts or Associate of General Studies degree.

This course is designed to provide students with an opportunity to gain an understanding of mathematics and the mathematical processes. The purpose of the course is to develop students’ ability to use the tools of mathematics to communicate and to formulate and solve problems. The goal of the course is to develop knowledge as to how mathematics has affected society, its institutions, and the world. Emphasis is not placed on remediation of arithmetic skill deficiencies. Inductive reasoning and discovery are emphasized in applications selected from a wide variety of topics.

The transferability of all courses will vary among institutions, and perhaps even among departments, colleges, or programs within an institution. Institutional requirements may also change without prior notification. Students are responsible to obtain relevant information from intended transfer institutions to insure that the courses the student enrolls in are the most appropriate set of courses for the transfer program.

The learning outcomes and competencies detailed in this course syllabus meet or exceed those specified for this course by the Kansas Core Outcomes Groups project, and as approved by the Kansas Board of Regents – <http://kansasregents.org/transfer_articulation>.

# **ASSESSMENT OF STUDENT LEARNING**

Barton Community College is committed to the assessment of student learning and to quality education. Assessment activities provide a means to develop an understanding of how students learn, what they know, and what they can do with their knowledge. Results from these various activities guide Barton, as a learning college, in finding ways to improve student learning.

Course Outcomes, Competencies, and Supplemental Competencies:

1. Apply critical and logical thinking skills to various applications.
2. Apply problem solving reasoning, processes, and techniques.
3. Distinguish between valid and invalid logical arguments.
4. Apply estimation and an understanding of numbers to various applications.
5. Evaluate rates, ratios, proportions, and percentages.
6. Identify well-known applications of number theory.
7. Apply generalizations, principles, theories, or rules to the real world.
8. Solve problems in Euclidean and non-Euclidean geometry.
9. Calculate geometric and linear growth rates of populations.
10. Identify and describe the use of geometry in motion and scale.
11. Solve the Traveling Salesman Problem.
12. Use graph theory to solve scheduling and networking problems including the mathematics behind the structure of social media.
13. Use statistics for decision-making.
    1. Outline the fundamental concepts behind collecting and analyzing statistical data.
    2. Show how data can be summarized and graphed.
    3. Organize information and groups of items in order to solve problems using sets.
    4. Analyze the collection of data for censuses, surveys, and clinical studies.
14. Demonstrate basic concepts of probability and risk.
    1. Apply basic concepts of probability and normal distribution.
    2. Evaluate and analyze chance.
15. Apply mathematical tools to financial applications.
    1. Use Excel for budgeting.
    2. Use Excel for evaluating sale prices, simple interest, compound interest, effective interest, and monthly payments.
    3. Analyze the mathematics of finance.
16. Apply mathematics to the study of social issues.
    1. Describe the mathematics of social choice such as the paradoxes of democracy, weighted voting systems, fair divisions, and apportionment.
    2. Analyze various voting schemes.
    3. Apply the mathematics of population growth including the impact of overcrowding, use of available resources, and supply and demand.
17. Apply mathematics to applications across many different disciplines.
    1. Use geometry and proportions to explore the mathematics behind art, architecture, and music.
    2. Design methodology to create, manipulate, and analyze how quantities change over time.

# **INSTRUCTOR'S EXPECTATIONS OF STUDENTS IN CLASS**

# **TEXTBOOKS AND OTHER REQUIRED MATERIALS**

# **REFERENCES**

# **METHODS OF INSTRUCTION AND EVALUATION**

# **ATTENDANCE REQUIREMENTS**

# **COURSE OUTLINE**