



# Department Master Syllabus

**Camden County College**

**Blackwood, New Jersey**

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| **Course Number:**  MTH-107 | | **Course Title:**  Mathematics for Liberal Arts | | | |
| **Department/Program:** Mathematics | | | | | |
| **Date of Review:** April | | 2023 | | | |
| (This Department Master Syllabus has been examined by the program/department faculty members and it is decided that no revision is necessary at this time.) | | | | | |
| **Date of Revision:** April | | | | 2023 | |
| (This Department Master Syllabus has been examined by the program/department faculty members and it is decided a change requiring a revision is necessary at this time.) | | | | | |
| N.B. A change to the course materials alone (textbooks and/or supplementary materials) may not constitute a revision. Any other change to the items listed below on this form is considered a revision and requires approval by the department/program faculty at a department/program meeting and by the division at a Chairs and Coordinator meeting. | | | | | |
| **Credits:** 3 | | | | | |
| **Contact Hours** | **Lecture:** 3 | | **Lab:** 0 | | **Other:** 0 |
| Prerequisites: MTH-029 OR MTH-035and ENG 013 OR proper placement exam scores | | | | | |
| Co-requisites: None | | | | | |
| Course Description: Mathematics for the Liberal Arts is designed for students intending to major in a Liberal Arts area other than Mathematics or the Physical Sciences. Students taking this course will be exposed to an assortment of mathematical methods and ideas and will examine their significance and interconnection, historical development, and applicability. | | | | | |
| **Student Learning Outcomes (SLOs)**  Course specific student learning outcomes  Upon completion of this course the student will be able to:   1. Employ strategies for problem solving and critical thinking, as assessed by tests, quizzes, homework, or projects. 2. Solve problems with applications to the real world, as assessed by tests, quizzes, homework, or projects. 3. Show proficiency in an assortment of problems taken from a variety of mathematical topics, as assessed by tests, quizzes, homework, or projects.   As assessed by:  tests, quizzes, homework, or projects. | | | | | |
| **General Education Student Learning Outcomes**  If this course has applied for General Education Elective Status the general education student learning outcomes listed below must exactly match those the sponsor has identified on the General Education Request form.  General Education SLOs:  Students will apply appropriate mathematical and statistical concepts and operations to interpret data and to solve problems, as assessed by tests, quizzes, homework, or projects.  As assessed by:  tests, quizzes, homework, or projects. | | | | | |
| **Program Learning Outcomes**  List all course level student learning outcomes that interconnect to a particular program learning outcome.  This is a mathematical general education course that can be taken as a requirement in multiple programs.  Describe the assessment of the interconnected program learning outcome(s).  These will be assessed by tests, quizzes, homework, or projects. | | | | | |
| **Course Outline:**  **Unit I. Problem Solving and Critical Thinking**  Inductive and Deductive Reasoning  Estimation of Graphs  Problem Solving Unit II. Set Theory Basic Set Concepts  Subsets  Venn Diagrams and Set Operations  Set Operations and Venn Diagrams with 3 sets  Survey Problems  **Unit III. Logic**  Statements, Negations, and Quantified Statements  Compound Statements and Connectives  Truth Tables for Negation, Conjunction, and Disjunction  Truth Tables for the Conditional and Biconditional  Equivalent Statements, Variation of Conditional Statements  Negations, Conditional Statements and De Morgan’s Laws  Arguments and Truth Tables  Arguments and Euler Diagrams  **Unit IV. Number Representation and Calculation**  Hindu-Arabic System  Number Bases in Positional Systems  Computation in Positional Systems    **Unit V. Number Theory and the Real Number System**  Prime and Composite Numbers  Integers – Order of Operations  Rational Numbers  Irrational Numbers  Real Number and Their Properties  Exponents and Scientific Notation  Sequences  **Unit VI. Algebra – Equations and Inequalities**  Algebraic Expressions and Formulas  Linear Equations in One Variable and Proportions  Applications of Linear Equations  Solving Linear Inequalities  Solving Quadratic Equations **Unit VII. Algebra: Graphs, Functions, and Linear Systems** Graphing and Functions  Linear Functions and Their Graphs  Systems of Linear Equations  Linear Inequalities in 2 Variables  Linear Programming  Modeling Data: Exponential, Logarithmic, and Quadratic Functions  **Unit VIII.** **Personal Finance**  Percents, Sales Tax, and Discounts  Income Tax  Simple & Compound Interest  Annuities, Methods of Saving  Cars, Home Ownership, and Credit Cards **Unit IX.** **Measurement** Measuring Length: The Metric System  Measuring Area and Volume  Measuring Weight and Temperature  **Unit X. Geometry**  Points, Lines, Planes and Angles  Triangles  Polygons, Quadrilaterals and Perimeter  Area and Circumference  Volume and Surface Area  Right Triangle Trigonometry  Beyond Euclidean Geometry  **Unit XI.** **Graph Theory**  Graphs, Paths, and Circuits  Euler Paths and Euler Circuits  Hamilton Paths and Hamilton Circuits  Trees  **Unit XII. Counting Methods, Statistics, and Probability**  The Fundamental Counting Principle  Fundamentals of Probability  Events involving NOT or OR  Events involving AND; Conditional Probability  Sampling, Frequency Distributions, and Graphs  Measures of Central Tendency  Measures of Dispersion  The Normal Distribution  Scatter Plots and Correlation, and Regression Lines | | | | | |
| **Course Activities:**    The classroom activities will include formal and informal lectures where new material and assigned problems will be explained. Students will have the opportunity to contribute to the discussion and to ask questions about the material. | | | | | |
| **Course Materials:**  Textbook(s): Thinking Mathematically, Blitzer, current edition, Pearson  Supplemental Materials: Textbook specific course management system. A basic four function calculator is required.  Software Licenses: N/A  Computers: N/A | | | | | |
| **Course Assessment Plan**  How often and by what means will the effectiveness of this course as part of the curriculum be assessed?    This course will be assessed in accordance with the Gen Ed assessment cycle. | | | | | |