



# Department Master Syllabus

**Camden County College**

**Blackwood, New Jersey**

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| **Course Number:**  MTH-106 | | **Course Title:**  Mathematical Systems II: Geometry | | | |
| **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: This course is designed for students majoring in a Liberal Arts area other than Mathematics or the Physical Sciences as well as education majors, with the exception of students intending to become secondary math or science teachers. This course introduces a series of different but related concepts in geometry. Geometric relationships and their corresponding mathematical arguments are studied with the goal of analyzing characteristics of two and three-dimensional geometric shapes. An introduction to probability and statistics is also covered. | | | | | |
| **Student Learning Outcomes (SLOs)**  Course specific student learning outcomes  Upon completion of this course the student will be able to:   1. Demonstrate proficiency in solving problems in Measurement and Geometry, as assessed by tests, quizzes, homework, or projects. 2. Compute the probabilities of events relative to an experiment, as assessed by tests, quizzes, homework, or projects. 3. Perform basic statistical operations, 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: Thinking Critically An Introduction to Problem Solving  Polya’s Problem Solving Principles  More Problem Solving Strategies  Algebra as a Problem Solving Strategy  Additional Problem Solving Strategies  Reasoning Mathematically  **Unit II: Introduction to Geometry**  Variables, Algebraic Expressions, and Functions  Graphing Points, Lines, and Elementary Functions  Connections between Algebra and Geometry  Figures in the plane  Curves and Polygons in the Plane  Figures in Space  **Unit III: Concepts of Measurement**  The Measurement Process  Area and Perimeter  The Pythagorean Theorem  Volume  Surface Area  **Unit IV: Motion Geometry and Tessellations**  Rigid Motions and Similarity Transformation  Patterns and Symmetry  Tilings and Escher-like Designs  **Unit V: Constructions, Congruence, and Similarity**  Congruent Triangles  Constructing Geometric Figures  Similar Triangles    **Unit VI: Statistics**  Organizing and Representing Data  Measuring the Center and Variation of Data  Statistical Inference  **Unit VII: Probability**  Experimental Probability  Principles of Counting  Permutations and Combinations  Odds, Expected Value, Geometric Probability, and Simulations | | | | | |
| **Course Activities:**    The classroom activities will consist of formal and informal lectures, group projects, assignments, and presentations by students at the instructor’s discretion. Students will be encouraged to participate fully and actively in the exploration of new concepts by means of hands-on activities and a problem solving approach. | | | | | |
| **Course Materials:**  Textbook(s): Mathematical Reasoning for Elementary Teachers, Long and DeTemple, 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. | | | | | |