

# Department Master Syllabus

**Camden County College**

**Blackwood, New Jersey**

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| **Course Number:**  MTH-101 | | **Course Title:**  Concepts of Mathematics | | | |
| **Department/Program:** Mathematics | | | | | |
| **Date of Review:** Click here to select a month. | | Click here to select a year. | | | |
| (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:** November | | | | 2021 | |
| (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-035 **(**Elementary Algebra) and ENG 013 (Reading Skills III) OR proper placement exam scores. | | | | | |
| Co-requisites: None | | | | | |
| Course Description: Concepts of Mathematics is designed for students intending to major in a Liberal Arts area other than Math or the Physical Sciences. The course consists of a core of problem solving and mathematical modeling, sets and logic. In addition to this core, at least one of the following will be incorporated: Topics in Geometry, Probability, and Discrete Mathematics. | | | | | |
| **Student Learning Outcomes (SLOs)**  Course specific student learning outcomes  Upon completion of this course the student will be able to:   * Solve problems involving sets and subsets both with and without Venn Diagrams, as assessed by tests, quizzes, homework, or projects. * Solve problems involving the language of logic both with and without the use of Truth Tables, as assessed by tests, quizzes, homework, or projects. * Solve problems involving permutations and combinations, as assessed by tests, quizzes, homework, or projects. * Calculate the probability of different types of events, 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.  N/A  Describe the assessment of the interconnected program learning outcome(s).  N/A | | | | | |
| **Course Outline:**  **Unit I Problem Solving:**  Inductive Reasoning.  Estimation; Problem Solving Tool.  Graph Interpretation: A problem-Solving Tool.  **Unit II Sets:**  Sets: A Problem –Solving Tool.  Set Operations.  Venn Diagrams.  The Number of Elements in a Set: A problem-Solving Tool.  **Unit III Logic:**  Statements.  Truth Tables: A problem-Solving Tool.  The Conditional and Biconditional.  Variations of the Conditional and Implications.  Euler Diagrams: A problem-Solving Tool.  Truth Tables and validity of Arguments.  Switching Networks (optional)  **Unit IV Counting Techniques:**  The Sequential Counting Principle (SCP): A problem-Solving Tool.  Permutations  Combinations  Miscellaneous Counting Methods  **Unit V Probability:**  Sample Spaces and Probability.  Counting Techniques and Probability.  Computation of Probabilities.  Conditional Probability  Independent Events  Odds and mathematical Expectation  In lieu of chapters 9 and 10 the instructor may include topics in Discrete Mathematics if he/she has ample material.  **Discrete Mathematics:** Optional topics selected by instructor    **Course Outline: Please note that in order to more completely pursue the goals of this course, the instructor may elaborate on any of the following topics as time permits.**  **I. Set Theory**  **II. Logic**  **III. Counting**  **IV. Probability**  **V.** **In Lieu of III and IV**  **Discrete Mathematics**  A. Euler Circuits  B. Hamiltonian Cycles  C. The Marriage Problem  D. Voting Methods | | | | | |
| **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): Math In Our World, Sobecki, current edition, McGraw-Hill  Supplemental Materials: N/A  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?    Course will be assessed according to Gen Ed cycle. | | | | | |