



# Department Master Syllabus

**Camden County College**

**Blackwood, New Jersey**

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| **Course Number:**  MTH-111 | | **Course Title:**  Introduction to Statistics | | | |
| **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 provides students majoring in health, criminal justice, or liberal arts with a basic introduction to statistical concepts and methods. Topics covered include frequency distributions; measures of central tendency and variability; linear regression and correlation; fundamentals of probability; binomial and normal distributions; sampling distributions and the Central Limit Theorem; confidence intervals; and hypothesis testing on a single population. Many majors require a more rigorous introductory statistics course and students are advised to check their major requirements prior to registration. Students are required to purchase a Texas Instruments TI-83/84 or TI-83/84 Plus calculator. | | | | | |
| **Student Learning Outcomes (SLOs)**  Course specific student learning outcomes  Upon completion of this course the student will be able to:   1. Understand basic statistical concepts~~,~~ and terms, as assessed by tests, quizzes, homework, and projects. 2. Implement and interpret frequency distributions, graphical displays, measures of central tendency, measures of dispersion, and relative position, as assessed by tests, quizzes, homework, and projects. 3. Compute and interpret correlation and regression, as assessed by tests, quizzes, homework, and projects. 4. Demonstrate comprehension of probability theory and probability distributions, as assessed by tests, quizzes, homework, and projects. 5. Make estimates of population parameters and demonstrate an understanding of the principles underlying estimation and hypothesis testing, as assessed by tests, quizzes, homework, and 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 INTRODUCTION TO STATISTICS**  An Overview of Statistics  Data Classification  Data Collection and Experimental Design    **Unit II DESCRIPTIVE STATISTICS** Frequency Distributions and Their GraphsMore Graphs and DisplaysMeasures of Central TendencyMeasures of VariationMeasures of Positions **Unit III PROBABILITY**  . Basic Concepts of Probability and Counting  **Unit IV CORRELATION AND REGRESSION**  Correlation  Linear Regression    **Unit V DISCRETE PROBABILITY DISTRIBUTIONS**  Probability Distributions  Binomial Distributions    **Unit VI NORMAL PROBABILITY DISTRIBUTIONS**  Introduction to Normal Distributions and the Standard Normal Distributions  Normal Distributions: Finding Probabilities  Normal Distributions: Finding Values  Sampling Distributions and the Central Limit Theorems  Normal Approximations to Binomial Distributions  **Unit VII CONFIDENCE INTERVALS**  Confidence Intervals for the Mean (σ known)  Confidence Intervals for the Mean (σ unknown)  Confidence Intervals for Population Proportions  Confidence Intervals for Variance and Standard Deviation    **Unit VIII HYPOTHESIS TESTING WITH ONE SAMPLE**  Introduction to Hypothesis Testing  Hypothesis Testing for the Mean (σ known)  Hypothesis Testing for the Mean (σ unknown)  Hypothesis Testing for Proportions  Hypothesis Testing for Variance and Standard Deviation | | | | | |
| **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. The TI-83/84 Plus calculator is an integral part of the class. | | | | | |
| **Course Materials:**  Textbook(s): *ELEMENTARY STATISTICS, Navidi & Monk, McGraw Hill, current ed.*  Supplemental Materials: Textbook specific course management system.  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. | | | | | |