



# Department Master Syllabus

**Camden County College**

**Blackwood, New Jersey**

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| **Course Number:**  MTH-112 | | **Course Title:**  Elements of Statistics II | | | |
| **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-111 OR proper placement exam scores | | | | | |
| Co-requisites: None | | | | | |
| Course Description: This course is designed to follow Introduction to Statistics. It will provide additional elementary statistical research tools and techniques. Topics covered include hypothesis testing on two populations, Chi-square and F distributions, analysis of variance, regression, correlation, and nonparametric tests. | | | | | |
| **Student Learning Outcomes (SLOs)**  Course specific student learning outcomes  Upon completion of this course the student will be able to:   1. Perform hypothesis tests for testing differences between means, proportions, and variances of two populations, as assessed by tests, quizzes, homework, or projects. 2. Demonstrate a comprehension of regression and correlation, as assessed by tests, quizzes, homework, or projects. 3. Compare several groups of data using the methods of analysis of variance, as assessed by tests, quizzes, homework, or projects. 4. Implement a chi-squared analysis, as assessed by tests, quizzes, homework, or projects. 5. Implement nonparametric tests when the population distributions are non-normal or unknown, 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** **Review From MTH-111**  The central limit theorem.  Hypothesis testing for the mean and proportion.  **Unit II Inferences from Two Samples**  Independent and Dependent Samples  Confidence Intervals and Hypothesis Testing for Two Means  Confidence Intervals and Hypothesis Testing for Two Means Two Proportions  Paired *t-*test for the Difference Between Two Means    **Unit III**  **Correlation and Regression**  Correlation (review from MTH-111)  Regression (review from MTH-111)  Hypothesis Testing for Population Correlation Coefficient  Variation and Prediction Intervals  Multiple Regression  **Unit IV Multinomial Experiments and Contingency Tables**  Goodness of Fit  Chi-Square Test for Independence  Contingency Tables  The *F*-Distribution and 2-Sample Test for Variances  **Unit V Analysis of Variance**  One-Way ANOVA  Two - Way ANOVA *(Optional)*  **Unit VI Nonparametric Statistics**  Sign Test  Wilcoxon Signed Ranks Test  Wilcoxon Rank-Sum test  Kruskal Wallis Test  Rank Correlation  Runs Test | | | | | |
| **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. Projects may be assigned at the discretion of the instructor. | | | | | |
| **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. | | | | | |