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**Salisbury University Department of Mathematical Sciences**
**MATH 105 : Liberal Arts Mathematics: Mathematics Applicable to Real Life  
Decision-Making  
Syllabus (Tentative)**

**Description:** Study of the beauty and structure of mathematics, with emphasis on quantitative and analytical reasoning skills. Various areas of mathematics or its applications will be used as a vehicle for this study. Designed for students whose major area of study does not have specific requirements in mathematics. 4 Hours Credit: Meets 4 hours per week. Meets General Education IVB or IVC.

**Prerequisites:** Three years of high school mathematics including geometry or college-level intermediate algebra.

**Intended Audience:** Liberal Arts majors requiring a mathematics course to satisfy a Gen-Ed requirement.

**Objective:** Introduce some fundamental mathematical decision-making methods applicable to all career disciplines as well as to aid in making personal decisions. Using a “hands on” approach, students will apply statistics, probability, algebra, and basic calculus concepts to solve various problems of everyday importance, such as investing, financing, surveying, optimization, and quality design and assessment. Some group work will be assigned.

**Textbooks:** No specific text is required. Students will research available campus library and internet resources. Supplemental material will be provided in class.

**Technology:** A Graphing calculator is required. A TI-83 or TI-84 is preferred. Campus computer labs will also be used.

Topic	Weeks
<b>Statistical Concepts and Applications</b>	4
Data collection and analysis, probability distributions, statistical inference. Projects: Descriptive and inferential statistics of a real data set, product design and quality control, opinion surveys.	
<b>Financial Modeling</b>	5
Present and future value, annuities, stocks and bonds, loan financing. Projects: Car financing, depreciation, resale value, loan payoff, buying and selling stocks and bonds.	
<b>Mathematics of Change</b>	3
Fundamental concepts of differential and integral calculus applied to business. Project: Determining rates of change and average values. Revenue, cost, profit, and return on cost analysis.	
<b>Alternative Analysis</b>	2
Methods for selecting the alternative that best satisfies a set of evaluation factors measured in different units and of unequal weight. Assess sensitivity to errors and weighting factors. Project: Choose the best car from a selection of alternatives given a set of diverse factors and constraints.	
<b>Total</b>	<b>14</b>

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**Evaluation**

Homework and class-participation	30 – 70%
Midterm Examination	0 – 20%
Project	30 – 70%
Final Examination	0 – 20%

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- Clear descriptions of thought processes, evidence of critical thinking, and effective communication must be

demonstrated in written work.

- **Writing Across the Curriculum:** Students will be expected to communicate mathematics and mathematical ideas effectively in speech and writing. At the University Writing Center, trained consultants are ready to help you at any stage of the writing process. In addition to the important writing instruction that occurs in the classroom and during professors' office hours, the Center offers another site for learning about writing. **All students are encouraged to make use of these important services.**
- **NOTE:** Once a student has received credit, including transfer credit, for a course, credit may not be received for any course with material that is equivalent to it or is a prerequisite for it.