Salisbury University Department of Mathematical Sciences

MATH 105 :   Liberal Arts Mathematics: Sustainability-Related Mathematics
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 (particularly those with an interest in sustainability) who need a mathematics course to satisfy a General Education requirement.

Objective: To introduce students to mathematical modeling, computation, and statistics in the context of sustainability.

Textbooks: *Quantitative Reasoning and the Environment: Mathematical Modeling in Context*, by Greg Langkamp and Joseph Hull, 1st edition, Pearson Prentice Hall 2007, ISBN 978-0131485273.

Technology: A calculator is required. Students will also use Microsoft Excel (available in campus computer labs).

Topic	Weeks
Chapters 1-3: Essential Numeracy	4
Measurement, units, melting of the ice caps; ratios, percentages, habitat of lakes in Florida; charts, graphs, U.S. energy flows.	
Chapters 11-12: Elementary Statistics	5
Measures of center, the five-number summary, boxplots, electric bills, phantom load; measures of spread, the normal distribution, z-scores, outliers, urban runoff.	
Chapters 4-6: Function Modeling	4
Linear functions, fertility rates in developing countries; exponentials functions, broiler chicken production; power functions, modeling earthquakes.	
Tests	1
Total	**14**

Evaluation

Homework	15%
Projects	30%
Exams	35%
Final Exam	20%

- 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.