Salisbury University Department of Mathematical Sciences

MATH 214 : Statistics Laboratory
Syllabus (Tentative)

Description: Laboratory activities to reinforce topics covered in MATH 155 or equivalent. To further study and apply the concepts of descriptive and inferential statistics in a hands-on setting using technology. One Hour Credit: Meets two hours per week.

Prerequisites: C or better in MATH 155 or equivalent.

Credit: Credit may only be received for one of MATH 214 and MATH 216

Intended Audience: Students majoring in mathematics who have MATH 155 or equivalent credit.

Objective: To introduce the concepts of descriptive and inferential statistics in a hands-on setting.

Textbooks: None

Technology: R/RStudio will be used throughout the course.

Topic	Weeks
R Essentials	1.5
File management, descriptive statistics techniques, and graphing (single- and multi-variable)	
Data Collection Issues	0.5
Obtaining reliable data from published sources, measurement issues, and getting data into Minitab	
Probability	2
Probability & Conditional Probability from tallies; PDF's, CDF's, and inverse PDF's; and simulation of random experiments	
Discrete Random Variables	1.5
Distribution characteristics and applications, including Binomial, Geometric, Hypergeometric, and Poisson	
Continuous Random Variables	1.5
Distribution characteristics and applications, including Uniform, Exponential, and Normal	
Sampling Distributions and the Central Limit Theorem	2
Illustration via simulation and applications	
Estimation	1
Confidence intervals for means and proportions; demonstration via simulation and applications	
Hypothesis Tests (one sample)	2
Parametric and non-parametric tests for means, medians, and proportions; demonstration via simulation and applications	
Hypothesis Tests (two samples)	1
Parametric and non-parametric tests for means, medians, and proportions; demonstration via simulation and applications	
Simple Linear Regression	1
Constructing and interpreting fitted line plots, estimation and prediction, inferences about slope	
Total	**14**

Evaluation

Lab Reports & Portfolios	70-75%
Final Exam	25-30%

- Free tutoring is available for this course in the Spring and Fall semesters.
- 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.