

Salisbury University Department of Mathematical Sciences

MATH 316 : Statistical Learning with Applications
Syllabus (Tentative)

Description: The introduction to statistical methods and models for data analysis with applications. Methods and models, such as regression models, time series models, principal components analysis, decision trees, cluster analysis, basic ANOVA, and/or others, are studied. Computer softwares such as R, Excel, Python, or others are used.

4 Hours Credit: Meets four hours per week.

Prerequisites: C or better in MATH 155 or MATH 216.

Intended Audience: Students who need a more advanced course in applied statistics in order to apply statistical methods to their own data and to interpret results of others.

Objective: To study common statistical methods and models for analyzing data and to apply them to solve problems in the field of interest.

Textbooks: *An Introduction to Statistical Learning, with Applications in R, 2nd Edition*, by James, Witten, Hastie, and Tibshirani; Springer, 2021.

R for Everyone: Advanced Analytics and Graphics, 2nd Edition, by Lander; Addison-Wesley, 2017.

Technology: Common statistical packages such as R, Excel, Python, and/or others will be used for all analyses.

Topic	Weeks
Introduction to Statistical Modeling and R	1.5
An introduction to key concepts of statistical modeling, including types of modeling problems and common modeling tools.	

Evaluation

Homework and quizzes	10%
Projects	20%
Tests	30%
Final project	40%

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' o ()Tj/T1_5 1 Tf6.461 0 Td(in)Tj2i[>[ing
