SCHOOL OF STEM SYLLABUS

TERM:

INSTRUCTOR:

COURSE CODE: MAT-114

OFFICE HOURS:

COURSE TITLE: Introduction to Probability and Statistics

OFFICE LOCATION:

DAY(S) AND TIME(S):

EMAIL:

LOCATION:

PHONE:

COURSE PREREQUISITE: Complete MAT-071 AND MAT-073 OR ANY MAT-100 OR ABOVE

CREDITS: 4

COURSE DESCRIPTION:
This course offers an analysis of the basic ideas and methods of collecting, tabulating, and representing data. Topics include frequency distributions, histograms and frequency polygons: measures of central tendency, variability percentiles; Z-scores, Elementary probability, binomial and normal distributions; linear regression and correlation, and hypothesis testing

STUDENT LEARNING OUTCOMES:
Upon successful completion of this course, students will be able to:

1. Analyze the issues and problems associated with collecting and interpreting data from surveys, polls, and other statistical studies.
2. Apply the appropriate tabular and graphical formats for displaying univariate data sets and correctly summarize information about the center and spread of a univariate data set.
3. Apply the concepts of probability, random variables and their distributions, in particular the binomial distribution and normal distributions to data drawn from real-world statistical applications.
4. Apply the concepts of estimation (confidence intervals) and hypothesis testing for population averages and percentages to datasets drawn from real-world statistical applications.
5. Select and produce the appropriate tabular and graphical formats for displaying bivariate data sets.
6. Analyze data using correlation, regression and chi-square analyses.

TEXTBOOK AND SUPPLEMENTAL MATERIALS:
Statistics, Charles Henry Brase, Corrine
Pellilo Brase, 8th Edition

GRADING POLICY:

Project, Class Participation, Presentation, Lab Reports	20%
3 In Class Exams	50%
Final Exam (Cumulative)	30%

SAMPLE COURSE SCHEDULE:

Week	Chapter	Topic	**SLO**
1. 2.	**Introduction** **Organizing Data**	• Frequency Distribution • Stem-and-Leaf Display	1, 2
3. 4.	**Averages and Variation Test #1**	• Measures of Central Tendency • Measures of Variation • Percentiles	2
5.	**Correlation and Regression**	• Scatter Diagrams and linear regression • Linear Regression and the coefficient of Determination	1, 6
6. 7.	**Elementary Probability Theory Test #2**	• Introduction • Compound Events • Counting Techniques	3
8. 9.	**Binomial Probability Distribution**	• Introduction to Random Variables and Probability Distributions • Binomial Probabilities • Additional Properties of the Binomial Distribution	3

10. 11.	**The Normal Curves and Sampling Distributions** **Test #3**	• Graphs and the Standard Normal Distribution • Nonstandard Normal Distribution • The Central Limit Theorem • Normal Approximation to the Binomial Distribution	2, 3, 5 , 6
12.	**Estimation**	• Estimating μWhen σ is known • Estimating μWhen σ is Unknown • Estimating ρin The Binomial Distribution	4
13.	**Hypothesis Testing** **Exam review**	• Introduction to statistical Tests	4

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