

COMMUNITY COLLEGE OF ALLEGHENY COUNTY

CAMPUS:	All	CREDIT COURSE SYLLABUS
COURSE NUMBER:	MAT165	COURSE TITLE: Probability and Statistics
SEM CRDTS:	4	LECTURE HOURS: 4
PREREQUISITES:	MAT108 or Equivalent	COREQUISITES: None

CATALOG COURSE DESCRIPTION:

This is an introduction to statistical concepts and applications. Topics include descriptive methods, probability theory, probability distributions, sampling distributions, statistical inference, and linear regression and correlation. Computers and/or calculators are used for problem solving.

LEARNING OUTCOMES:

Upon successful completion of the course the student will:

- Summarize and interpret data by descriptive graphical and numerical methods
- Find probabilities of events using the basic properties of probability theory
- Construct and use probability distributions
- Model certain types of chance phenomena by discrete and continuous probability distributions
- Compute probabilities involving sample means and proportions by applying the Central Limit Theorem to their sampling distributions
- Calculate confidence interval estimates of population means and proportions
- Perform tests of hypotheses involving population means and proportions
- Describe and test the significance of the relationship between two variables using simple linear regression
- Use correlation analysis to assess the strength of the linear relationship between two variables
- Solve statistical problems found in practical application and in their major fields of study
- Use appropriate technology for statistical computation, summarization, and display as an aid to data analysis and interpretation

LISTED TOPICS:

1. Types of data, basic statistical concepts and terminology
2. Descriptive statistics: tabular, graphical, and numerical methods
3. Fundamental concepts and properties of probability
4. Random variables and probability distributions
5. Discrete probability distributions
6. Continuous probability distributions
7. Statistics, sampling, and sampling distributions
8. Statistical inference about means and proportions: confidence interval estimation and hypothesis testing
9. Statistical inference about means and proportions with two populations: confidence interval estimation and hypothesis testing
10. Simple linear regression and correlation

REFERENCES. RESOURCE, OR LEARNING MATERIAL TO BE USED BY THE STUDENT:

(May be unique for each campus)

Each student will be required to have the textbook and calculator adopted and recommended by the Mathematics Department at the specific campus. If available, students will use the statistical computer software package located in the mathematics laboratory. Where applicable, resources on the Internet will be used.

SYSTEM APPROVAL: Dr. Sutin

START YR/TERM: _____ **DATE: 07/13/06** **SIGNATURE:** _____
Community College Allegheny County **#CRS10/9**

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