

COURSE IMPLEMENTATION DATE:	September 1994
COURSE REVISED IMPLEMENTATION DATE:	January 1999
COURSE TO BE REVIEWED:	January 2003
(Four years after implementation date)	(MONTH YEAR format)

OFFICIAL COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.

Shaded headings are subject to change at the discretion of the department and the material will vary - see course syllabus available from instructor

FACULTY/DEPARTMENT:	MATHEMATICS and STATISTICS			
MATH 270			4	
COURSE NAME/NUMBER	FORMER COURSE NUMBER		UCFV CREDITS	
INTRODUCTION TO PROBABILITY and STATISTICS				
COURSE DESCRIPTIVE TITLE				

CALENDAR DESCRIPTION:

An introduction to probability and statistics using calculus, for engineering, science and mathematics students.

PREREQUISITES: **MATH 112, or MATH 114 with C or better, or MATH 116 with C or better.**
COREQUISITES: **None**

SYNONYMOUS COURSE(S)	SERVICE COURSE TO:
(a) Replaces: _____ (Course #)	_____
(b) Cannot take: _____ for further credit. (Course #)	_____
	(Department/Program)
	(Department/Program)

TOTAL HOURS PER TERM:	75	TRAINING DAY-BASED INSTRUCTION	
STRUCTURE OF HOURS:		LENGTH OF COURSE:	_____
Lectures: 45	Hrs	HOURS PER DAY:	_____
Seminar:	Hrs		
Laboratory: 30	Hrs		
Field Experience:	Hrs		
Student Directed Learning:	Hrs		
Other (Specify):	Hrs		

MAXIMUM ENROLLMENT:	24
EXPECTED FREQUENCY OF COURSE OFFERINGS:	
WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department)	<input type="checkbox"/> Yes <input type="checkbox"/> No
TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE:	<input type="checkbox"/> Yes <input type="checkbox"/> No

AUTHORIZATION SIGNATURES:

Course Designer(s): _____ Dr. B. Garner	Chairperson: _____ N. Weinberg, E. Davis (<i>Curriculum Committee</i>)
Department Head: _____ S. Milner	Dean: _____ K. Wayne Welsh
PAC Approval in Principle Date: _____	PAC Final Approval Date: December 16, 1998

COURSE NAME/NUMBER**LEARNING OBJECTIVES / GOALS / OUTCOMES / LEARNING OUTCOMES:**

This course is designed to give students:

1. The basic mathematical notions and formulas pertaining to probability and statistics.
2. The notion of variation inherent in all measurements.
3. The rules of probability, especially conditional probability; the interpretation of probability as frequency or degrees of belief.
4. Simple mathematical models for variation.
5. Inference based on least squares and likelihood.
6. Confidence Intervals and Tests of Hypotheses.

METHODS:

Classroom lectures. The use of graphing calculators and computer labs using standard software for simulation and data analysis.

PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

Credit can be awarded for this course through PLAR (Please check :) Yes No

METHODS OF OBTAINING PLAR:**TEXTBOOKS, REFERENCES, MATERIALS:**

[Textbook selection varies by instructor. An example of texts for this course might be:]

Jay Devore, Probability and Statistics for Engineering and the Sciences, 4th Ed., Duxbury.

SUPPLIES / MATERIALS:**STUDENT EVALUATION:**

[An example of student evaluation for this course might be:]

This may vary slightly depending on the instructor. A typical breakdown is as follows:

Assignments	20%
In-class tests	40%
Final Examination	40%

COURSE CONTENT:

[Course content varies by instructor. An example of course content might be:]

Descriptive Statistics: frequency tables, histogram, empirical distribution function, percentiles, mean, variance, standard deviation (SD). Finite populations, population mean, variance, SD. Means and SD of functions of variables.

Bivariate frequencies, conditional mean, regression, correlation. Linear regression as minimizing Mean Square Error.

Probability rules, multiplication, independence. Attribute sampling with and without replacement. Random variables, mass and density functions, expectations and variances of linear combinations of random variables.

Discrete probability distributions, binomial, Poisson, hypergeometric. Continuous probability distributions, exponential waiting time, normal.

Introduction to the chi-square, t and F distributions without proofs.

Inference: Maximum likelihood estimators, their asymptotic normality, invariance under transformation. Tests of hypotheses and confidence intervals for binomial, Poisson and normal data, the P-value, two independent samples and matched pairs designs.

Least squares estimation for multiple linear regression, the ANOVA table. The use of indicator variables for categories. The

randomized block design.