

APPROVED COURSE

MATH 36

CATALOG INFORMATION

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Dept & Nbr: MATH 36 Title: INTRO APPLIED STATS
Full Title: INTRODUCTION TO APPLIED STATISTICS

Units	Course Hours Per Week	Nbr of Weeks	Course Hours	Total
Max: 3.0	Lecture 3.0	17 (18)	Lecture	54.0
Min: 3.0	Lab 0.0		Lab	0.0
	Contact DHR 0.0		Contact DHR	0.0
	Contact Total 3.0		Contact Total	54.0
	Non-contact DHR 0.0		Non-contact DHR	0.0

Title 5 Category: 01 AA Degree Applic
Grading: GR Graded
Repeatability: 00 Not repeatable except under Sec. #58161b
Also listed as:

CATALOG DESCRIPTION:

Presents an introduction to the study of basic descriptive and inferential statistical methods, with an emphasis on applications, to prepare students for work in the disciplines of psychology, sociology, education, life sciences, and applied science.

PREREQUISITES:

MATH 27, MATH 27SI or equivalent with a grade of C or better

COREQUISITES:

RECOMMENDED PREPARATION:

No advisories.

LIMITS ON ENROLLMENT:

SCHEDULE OF CLASSES INFORMATION:

Prerequisites: MATH 27, MATH 27SI or equivalent with a grade of C or better
Presents an introduction to applied statistical methods. (Graded)
Transfer Credit: CSU; UC.

ARTICULATION and CERTIFICATE INFORMATION

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ASSOCIATE DEGREE:	Effective: FALL 1999	Inactive:
Area: B	COMMUNICATN/ANALYTICL THINKING	
CSU GE:	Effective: FALL 1999	Inactive:
Transfer area: B4	MATH/QUANTITATIVE REASONING	
IGETC:	Effective: FALL 1999	Inactive:
Transfer area: 2A	Math/Quantitive Reasoning	

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CSU TRANSFER: TRANSFERABLE Effective: FALL 1999 Inactive:

UC TRANSFER: TRANSFERABLE Effective: FALL 1999 Inactive:

CAN:

CERTIF/MAJOR APPLICABLE: N NOT A CERTIFICATE-APPLICABLE COURSE

APPROVAL AND DATES

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Version 01 Submitted by: LARRY JOHNSTON Date: 08/24/2001
Department approved: Date:
Curriculum approved: 08/24/2001 Version approved: 08/24/2001
Prerequisites approved: 08/24/2001 Last reviewed: 08/24/2001
Term effective: FALL 1999 Last taught: Inactive: SUMMER 2009

COURSE CONTENT

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OUTCOME AND OBJECTIVES:

Upon completion of this course, the student will be able to:

1. Distinguish between data types as either categorical, or numerical, discrete or continuous.
2. Describe data graphically using histograms, stem and leaf displays, contingency tables, and bivariate plots, and employ modern statistical computing technology and/or software to accomplish these tasks.
3. Describe data numerically (i.e. measuring the center and dispersion of data).
4. Interpret the mean and standard deviation of a data set using Chebychev's Theorem and/or the empirical rule.
5. Design a data collection scheme based on simple random sampling, stratified sampling, or one of a number of simple experimental designs.
6. Construct and interpret confidence intervals for differences between means and between proportions.
7. Conduct two-sample hypothesis tests for means and proportions.
8. Calculate and interpret measures of association and perform Chi-square tests for independence.
9. Use simple linear and multiple regression to describe relationships between variables.
10. Perform analysis of variance tests for completely randomized and randomized block designs.
11. Perform nonparametric tests to compare the measures of central tendency for two populations.

TOPICS AND SCOPE:

Fundamentals of Statistics

What is statistics; population and sample; data types

Describing Data

Graphically (histogram, frequency distribution, stem and leaf displays, box plots); numerically (measures of center, measures of dispersion); statistical computing technology and software; interpretation of the standard deviation; measures of relative standing (percentiles and z-scores)

Estimation of Parameters

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Types of estimators; point estimation of population mean; confidence intervals for mean, proportion, difference between two means, and between two proportions

Tests of Hypotheses

Two means, two proportions, p-values

Simple Linear and Multiple Regression

Correlation coefficient, independent and dependent variables

Nonparametric Methods

Sign test, Wilcoxon test, Mann-Whitney test, Kruskal-Wallis test

ASSIGNMENTS:

Primarily College Level

Library has resources needed for assignment completion.

2 hours of independent work done out of class per each hour of lecture or class work, or 3 hours lab, practicum, or the equivalent, per unit.

Assignments will be primarily taken from problems in the class text or will involve analysis of data sets provided by the instructor. Also there will be readings assigned prior to lectures.

Computer assignments will require the student to solve assigned problems using statistical computing software. At the discretion of the instructor, case studies may be assigned. These will be intended to place the student in the position of the data analyst who has been asked to solve a problem and then present a report.

Class participation and assignments require and develop critical thinking.

An experimenter wants to compare the metabolic rates of white mice subjected to different drugs. The weights of the mice may affect their metabolic rates, and thus the experimenter wishes to obtain mice that are relatively homogeneous with regard to weight. Five hundred mice will be needed to complete the study. Presently, 18 mice from supplier 1 and another 13 mice from supplier 2 are available for comparison. The experimenter weighs these mice and observes that the mean weight of mice from supplier 1 is 4.21 ounces with a variance of 0.019 and that the mean weight of mice from supplier 2 is 4.18 ounces with a variance of 0.049. Do these data provide sufficient evidence to indicate a difference in the variability of weights of mice obtained from the two suppliers? (Use a .05 level of significance.) Using the results of this analysis, what would you suggest to the experimenter?

METHODS OF EVALUATION:

This is a degree-applicable course, but substantial writing assignments are NOT appropriate, because the course primarily:

Is computational

The problem-solving assignments required:

Homework problems

Exams

Other: Cumulative Final Exam

The types of skill demonstrations required:

None

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The types of objective examinations used in the course:
None

Other category:
None

REPRESENTATIVE TEXTBOOKS:

Primarily College Level

McClave, James T., Frank H. Dietrich, and Terry Sincich. "Statistics".
Upper Saddle River: Prentice Hall, current edition.

RATIONALE

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RESOURCES REQUIRED

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MISCELLANEOUS

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Advisory generate desc: N NO
Area department: MATH Mathematics
Audit flag: N NOT AUDITABLE
Basic skills: X NOT BASIC SKILLS
Classification: A Liberal Arts and Sciences Education Cour
Cost level: 00 NOT USED
CVU/CVC status: VALUE NOT FOUND
Disciplines: UNKNOW UNKNOWN
Division: 57 Math
Faculty service area: MAT80A MATH & STATISTICS (EXCEPT 41)
Fee: \$0.00
In-service: X NOT AN IN-SERVICE COURSE
Level below transfer: X NOT APPLICABLE
Matric-requiring: M Requires math assessment
Maximum class size: 0
Maximum wait list: 0
Method of instruction: 02 LECTURE
Non-credit category: X NOT APPLICABLE, CREDIT COURSE
Open entry/exit: N Not open entry/open exit
Pacs activity: 1701 Mathematics, General
Pacs program project: 0000 Unrestricted
Preq/coreq generate desc: N NO
Preq/coreq provisional: N NO
Preq/coreq reg check: Y PREREQUISITE RULES EXIST
Repeat group id:
Requires instructor sig: N INSTRUCTOR'S SIGNATURE NOT REQUIRED
SAM classification: E Non-occupational
Selected/special topic: N NOT A SELECTED TOPIC COURSE
Special class: X NOT A SPECIAL COURSE
TOP code: 1701.00 Mathematics, General
Work-based learning N DOES NOT INCLUDE WORK-BASED LEARNING
Workload: 0.0000

