Course Outline

COURSE: ECON 11    DIVISION: 50    ALSO LISTED AS: BUS 11

TERM EFFECTIVE: Spring 2015    CURRICULUM APPROVAL DATE: 10/13/2014

SHORT TITLE: BUS/ECON STATISTICS

LONG TITLE: Statistics for Business and Economics

<table>
<thead>
<tr>
<th>Units</th>
<th>Number of Weeks</th>
<th>Type</th>
<th>Contact Hours/Week</th>
<th>Total Contact Hours</th>
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<tr>
<td>4</td>
<td>18</td>
<td>Lecture</td>
<td>4</td>
<td>72</td>
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<tr>
<td></td>
<td></td>
<td>Lab</td>
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<td>0</td>
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<tr>
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<td></td>
<td>Other</td>
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<td></td>
<td></td>
<td>Total</td>
<td>4</td>
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COURSE DESCRIPTION:

The use of probability techniques, hypothesis testing, and predictive techniques to facilitate decision-making. Topics include descriptive statistics; probability and sampling distributions; statistical inference; correlation and linear regression; analysis of variance, chi-square and t-tests; statistical analysis including the interpretation of the relevance of the statistical findings. Applications using data from disciplines including business, social science, psychology, life science, health science, and education. Additional and more extensive case studies from business and economics, emphasizing statistical results that provide guidance for business decisions or suggest solutions to contemporary business and economic problems; use of larger data sets analyzed with computer software programs. PREREQUISITE: Math 233, or Math 233A and Math 233B, or Math 235, or Math 240, or Math 242 with a grade of "C" or better.

PREREQUISITES:

Completion of MATH 233, as UG, with a grade of C or better.

OR

(Completion of MATH 233A, as UG, with a grade of C or better.
AND Completion of MATH 233B, as UG, with a grade of C or better.)

OR

Completion of MATH 235, as UG, with a grade of C or better.

OR

Completion of MATH 240, as UG, with a grade of C or better.

OR

Completion of MATH 242, as UG, with a grade of C or better.

OR

Completion of MATH 3, as UG, with a grade of C or better.

OR

Completion of MATH 5, as UG, with a grade of C or better.
Completion of MATH 6, as UG, with a grade of C or better.
OR
Completion of MATH 7, as UG, with a grade of C or better.
OR
Completion of MATH 8A, as UG, with a grade of C or better.
OR
Completion of MATH 8B, as UG, with a grade of C or better.
OR
Completion of MATH 12, as UG, with a grade of C or better.
OR
Completion of MATH 14, as UG, with a grade of C or better.
OR
Completion of MATH 1A, as UG, with a grade of C or better.
OR
Completion of MATH 1B, as UG, with a grade of C or better.
OR
Completion of MATH 1C, as UG, with a grade of C or better.
OR
Score of 33 on Intermediate Algebra
OR
Score of 13 on Pre-Calculus
OR
Score of 2600 on Accuplacer Math

COREQUISITES:

CREDIT STATUS: D - Credit - Degree Applicable

GRADING MODES
L - Standard Letter Grade
P - Pass/No Pass

REPEATABILITY: N - Course may not be repeated

SCHEDULE TYPES:
02 - Lecture and/or discussion
72 - Dist. Ed Internet Delayed

STUDENT LEARNING OUTCOMES:
1. Perform hypothesis tests involving samples from one and two populations.
   Measure: homework, quizzes, tests
   PLO: 1,2,3,4
   ILO: 1,2,3,7
   GE-LO: 2A,B4
   Year assessed or anticipated year of assessment: 2015

2. Select the appropriate technique for testing a hypothesis and interpret the result.
   Measure: homework, quizzes, tests
3. Use linear regression and ANOVA analysis for estimation and inference, and interpret the associated statistics.
   Measure: homework, quizzes, tests
   Year assessed or anticipated year of assessment: 2015

4. Use appropriate statistical techniques to analyze and interpret applications based on data from disciplines including business, economics, social sciences, psychology, life science, health science, and education.
   Measure: homework, quizzes, tests
   Year assessed or anticipated year of assessment: 2015

5. Give examples of how managers and decision makers in the fields of Accounting, Finance, Marketing, Production, and Economics use statistical analysis regularly in their jobs.
   Year assessed or anticipated year of assessment: 2015

PROGRAM LEARNING OUTCOMES:
1) Identify and discuss causes of long-run economic growth and short term business cycle fluctuations in growth (e.g. recessions and expansions), and policy responses and initiatives affecting each.
2) Apply marginal analysis to resource allocation decisions in a variety of settings, including but not limited to: profit maximization strategies for firms in various competitive environments, and utility maximization strategies for consumers with budget constraints.
3) Discuss the causes of macroeconomic (business cycle) fluctuations, and the effects these fluctuations have on business owners.
4) Apply cost-benefit analysis to resource allocation choices made in a business setting.

CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS
Curriculum Approval Date: 10/13/2014
Course Objectives:
Upon successful completion of the course, students will be able to:
Distinguish among different scales of measurement and their implications;
Interpret data displayed in tables and graphically;
Apply concepts of sample space and probability;
Calculate measures of central tendency and variation for a given data set;
Identify the standard methods of obtaining data and identify advantages and disadvantages of each;
Calculate the mean and variance of a discrete distribution;
Calculate probabilities using normal and t-distributions;
Distinguish the difference between sample and population distributions and analyze the role played by the Central Limit Theorem;
Construct and interpret confidence intervals;
Determine and interpret levels of statistical significance including p-values;
Interpret the output of a technology-based statistical analysis;
Identify the basic concept of hypothesis testing including Type I and II errors;
Perform hypothesis tests involving samples from one and two populations;
Select the appropriate technique for testing a hypothesis and interpret the result;
Use linear regression and ANOVA analysis for estimation and inference, and interpret the associated statistics
Use appropriate statistical techniques to analyze and interpret applications based on data from disciplines including business, economics, social sciences, psychology, life science, health science, and education
Give examples of how managers and decision makers in the fields of Accounting, Finance, Marketing, Production, and Economics use statistical analysis regularly in their jobs.

Course Content:
(4 hours) Summarizing data graphically and numerically;
(8 hours) Descriptive statistics: measures of central tendency, variation, relative position, and levels/scales of measurement;
(4 hours) Sample spaces and probability;
(4 hours) Random variables and expected value;
(8 hours) Sampling and sampling distributions;
Discrete distributions – Binomial;
(12 hours) Continuous distributions – Normal;
The Central Limit Theorem;
(8 hours) Estimation and confidence intervals;
(16 hours) Hypothesis Testing and inference, including t-tests for one and two populations, and Chi-square test;
(4 hours) Correlation and linear regression and analysis of variance (ANOVA);
(2 hours) Final

Weekly Homework:
Problems assigned from the relevant chapter,
longer projects or case studies using technology.
Exercises and applications using data from disciplines including business, social sciences, psychology, life science, health science, and education.
Statistical analysis using technology such as SPSS, EXCEL, Minitab, or graphing calculators.

METHODS OF INSTRUCTION:
Lecture, discussion, problem solving sessions, quizzes.

METHODS OF EVALUATION:
The types of writing assignments required:
Written homework
The problem-solving assignments required:
Homework problems
Quizzes
Exams
The types of skill demonstrations required:
None
The types of objective examinations used in the course:
Multiple choice
True/false
Matching items
Completion
Other category:
None

The basis for assigning students grades in the course:
Writing assignments: 15% - 35%
Problem-solving demonstrations: 70% - 85%
Skill demonstrations: 0% - 0%
Objective examinations: 10% - 30%
Other methods of evaluation: 0% - 0%

REPRESENTATIVE TEXTBOOKS:
Required:

ARTICULATION and CERTIFICATE INFORMATION
Associate Degree:
   GAV B4, effective 200530
CSU GE:
   CSU B4, effective 200530
IGETC:
   IGETC 2A, effective 200530
CSU TRANSFER:
   Transferable CSU, effective 200530
UC TRANSFER:
   Transferable UC, effective 200530

SUPPLEMENTAL DATA:
Basic Skills: N
Classification: I
Noncredit Category: Y
Cooperative Education:
Program Status: 1 Program Applicable
Special Class Status: N
CAN:
CAN Sequence:
CSU Crosswalk Course Department: ECON
CSU Crosswalk Course Number: 11
Prior to College Level: Y
Non Credit Enhanced Funding: N
Funding Agency Code: Y
In-Service: N
Occupational Course: C
Maximum Hours:
Minimum Hours:
Course Control Number: CCC000355294
Sports/Physical Education Course: N
Taxonomy of Program: 050100