

STAT 1: INTRODUCTION TO STATISTICS

In Workflow

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Approval Path

1. Sun, 15 Sep 2019 21:26:12 GMT
Lisa Taylor (taylorlm): Approved for MATH Committee Chair
2. Sun, 15 Sep 2019 23:16:02 GMT
David Zeigler (zeigler): Approved for MATH Chair
3. Wed, 18 Sep 2019 22:21:47 GMT
Thomas Krabacher (tsk): Rollback to MATH Chair for NSM College Committee Chair
4. Mon, 30 Sep 2019 23:47:46 GMT
David Zeigler (zeigler): Approved for MATH Chair
5. Wed, 02 Oct 2019 22:27:32 GMT
Thomas Krabacher (tsk): Approved for NSM College Committee Chair
6. Wed, 02 Oct 2019 22:28:03 GMT
Shannon Datwyler (datwyler): Approved for NSM Dean

Date Submitted: Sun, 15 Sep 2019 21:13:01 GMT

Viewing: STAT 1 : Introduction to Statistics

Last edit: Fri, 27 Sep 2019 21:20:48 GMT

Changes proposed by: Lisa Taylor (101035034)

Contact(s):

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Catalog Title:

Introduction to Statistics

Class Schedule Title:

Intro To Statistics

Academic Group: (College)

NSM - Natural Sciences & Mathematics

Academic Organization: (Department)

Mathematics & Statistics

Will this course be offered through the College of Continuing Education (CCE)?

No

Catalog Year Effective:

Spring 2019 (2019/2020 Catalog)

Subject Area: (prefix)

STAT - Statistics

Catalog Number: (course number)

1

Course ID: (For administrative use only.)

165546

Units:

3

In what term(s) will this course typically be offered?

Fall, Spring

Does this course require a room for its final exam?

Yes, final exam requires a room

Does this course replace an existing experimental course?

No

This course complies with the credit hour policy:

Yes

Justification for course proposal:

Changes to the course prerequisite due to the Department's response to EO 1110:

1. Removal of outdated prerequisites, including the ELM exam, and either the Intermediate Algebra Diagnostic Exam or Math 9.
2. Addition of the prerequisite of either Math 10 or the placement assessment tool ALEKS PPL.

Course Description: (Not to exceed 80 words and language should conform to catalog copy.)

Descriptive statistics, basic concepts of probability and sampling with the aim of introducing fundamental notions and techniques of statistical inference.

Are one or more field trips required with this course?

No

Fee Course?

No

Is this course designated as Service Learning?

No

Does this course require safety training?

No

Does this course require personal protective equipment (PPE)?

No

Does this course have prerequisites?

Yes

Prerequisite:

Math 10 or a score of 51 or higher on a proctored ALEKS PPL exam.

Prerequisites Enforced at Registration?

No

Does this course have corequisites?

No

Graded:

Letter

Approval required for enrollment?

No Approval Required

Course Component(s) and Classification(s):

Discussion
Lecture

Discussion Classification

CS#04 - Lecture /Recitation (K-factor=1 WTU per unit)

Discussion Units

3

Lecture Classification

CS#01 - Large Lecture (K-factor=1 WTU per unit)

Lecture Units

3

Is this a paired course?

No

Is this course crosslisted?

No

Can this course be repeated for credit?

No

Can the course be taken for credit more than once during the same term?

No

Description of the Expected Learning Outcomes: Describe outcomes using the following format: "Students will be able to: 1), 2), etc."

Students will be able to:

1. Organize, summarize, and interpret data in tabular, graphical, and pictorial formats.
2. Organize and interpret bivariate data and learn simple linear regression and correlation.
3. Apply the basic rules of probability.
4. Use of the binomial distribution as a model for discrete variables.
5. Use the normal distribution as a model for continuous variables.
6. Apply statistical inference techniques of parameter estimation such as point estimation, and confidence interval estimation.
7. Apply techniques of testing various statistical hypotheses concerning population parameters.

Assessment Strategies: A description of the assessment strategies (e.g., portfolios, examinations, performances, pre-and post-tests, conferences with students, student papers) which will be used by the instructor to determine the extent to which students have achieved the learning outcomes noted above.

Homework will assess outcomes 1, 2, 3, 4, 5, 6, 7
 Examinations will assess outcomes 1, 2, 3, 4, 5, 6, 7
 Comprehensive final will assess outcomes 1, 2, 3, 4, 5, 6, 7

Is this course required in a degree program (major, minor, graduate degree, certificate?)

Yes

Has a corresponding Program Change been submitted to Workflow?

No

Identify the program(s) in which this course is required:

- Programs:**
- BA in Biological Science
 - BS in Biological Science (Biomedical Sciences)
 - BS in Biological Science (Cell and Molecular Biology)
 - BS in Biological Science (Clinical Laboratory Sciences)
 - BS in Biological Science (Ecology, Evolution, and Conservation)
 - BS in Biological Science (Forensic Biology)
 - BS in Biological Science (General Biology)

- BS in Biological Science (Microbiology)
- BA in Biological Science
- BS in Business Administration (Accountancy)
- BS in Business Administration (Entrepreneurship)
- BS in Business Administration (Finance)
- BS in Business Administration (General Management)
- BS in Business Administration (International Business)
- BS in Business Administration (Management Information Systems)
- BS in Business Administration (Management of Human Resources & Organizational Behavior)
- BS in Business Administration (Management of Human Resources & Organizational Behavior)
- BS in Business Administration (Marketing)
- BS in Business Administration (Supply Chain Management)
- Minor in Business Administration
- Business Honors Program
- BS in Communication Sciences and Disorders
- BA in Economics
- BS in Health Science
- BS in Health Science (Health Care Administration)
- BS in Health Science (Occupational Health and Safety)
- BA in Mathematics
- BS in Nursing (Pre-Licensure)
- MA in Political Science (California and its Political Environment)
- MA in Political Science (International Relations/Comparative Government)
- MA in Political Science (Political Theory)

Does the proposed change or addition cause a significant increase in the use of College or University resources (lab room, computer)?

No

Will there be any departments affected by this proposed course?

Yes

Indicate which department(s) will be affected by the proposed course:

Department(s)

- Biological Sciences
- Business Administration
- Child Development
- Communication Sciences and Disorders
- Economics
- Family and Consumer Sciences
- Gerontology
- Health & Human Services
- Kinesiology and Health Science
- Mathematics
- Nursing
- Government

I/we as the author(s) of this course proposal agree to provide a new or updated accessibility checklist to the Dean's office prior to the semester when this course is taught utilizing the changes proposed here.

I/we agree

University Learning Goals

Undergraduate Learning Goals:

Competence in the disciplines

Is this course required as part of a teaching credential program, a single subject, or multiple subject waiver program (e.g., Liberal Studies, Biology) or other school personnel preparation program (e.g., School of Nursing)?

Yes

For the Council for the Preparation of School Personnel (to be filled out with assistance of your department chair):

Does this course change impact your department's currently written Program Standards Document?

No

Common Standards: In what way does this course or program change impact the currently written Common Standards document? Please include any suggested language changes:

N/A

Is this change in response to program or unit assessment activities?

No

Will this course introduce any new or changes to program assessments?

No

GE Course and GE Goal(s)

Is this a General Education (GE) course or is it being considered for GE?

Yes

In which GE area(s) does this apply?

B4. Mathematical Concepts and Quantitative Reasoning

Which GE objective(s) does this course satisfy?

Use mathematical ideas to accomplish a variety of tasks.

Attach Course Syllabus with Detailed Outline of Weekly Topics:

Dept Syllabus Stat 1.pdf

Syllabi must include: GE area outcomes listed verbatim; catalog description of the course; prerequisites, if any; student learning objectives; assignments; texts; reading lists; materials; grading system; exams and other methods of evaluation.

Will more than one section of this course be offered?

Yes

Provide a description of what would be considered common to all sections and what might typically vary between sections:

All sections will cover the common set of topics listed in the course syllabus. Time permitting, linear regression or Poisson distributions may be covered. A common textbook will be provided; however, tenured and probationary faculty may choose a textbook consistent with the current course syllabus.

Please write a statement indicating the means and methods for evaluating the extent to which the objectives of the GE Area(s) and any writing requirements are met for all course sections:

A combination of exams, quizzes, and homework assignments will require students to articulate concepts of the course as well as analyze and interpret statistical results.

What steps does the department plan to take to ensure that instructors comply with the respective category criteria and who is responsible?

The department will assign a Stat 1 course coordinator who will oversee adherence to the respective category criteria.

General Education Details - Area B4: Mathematical Concepts and Quantitative Reasoning

Section 1.

Indicate in written statements how the course meets the following criteria for Category B4. Relate the statements to the course syllabus and outline. Be as succinct as possible.

General criteria:

Is an introductory or survey course with no college level prerequisites (except for intermediate algebra, which is required).

All concepts in the course require only intermediate algebraic mathematical skills.

Develops basic mathematical or logical concepts, quantitative reasoning skills, and has general applicability in solving problems.

Course introduces basic mathematical concepts such as computation of basic probabilities, conditional probabilities, and techniques for using quantitative summaries of samples to infer quantitative summaries of populations. Examples and exercises illustrate applications of the aforementioned concepts and inference techniques using data sets from a wide variety of disciplines.

Develops computational skills or competence in the analysis of arguments.

Computational skills are developed when obtaining means, standard deviations, proportions and other basic numerical summaries. More abstract computational skills are developed when constructing confidence intervals and testing statistical hypotheses using basic probability concepts. Analysis of arguments are developed when interpreting the reliability of confidence intervals and results from tests of statistical hypotheses.

Specific criteria:

A student will be able to solve problems by thinking logically, making conjectures, and constructing valid mathematical arguments.

The course requires students to read statements of problems whose solution requires them to logically select an appropriate formula/statistical technique. Selecting the appropriate formula/statistical technique requires students to make conjectures and valid mathematical/statistical arguments to support their choice for a formula/statistical technique.

A student will be able to make valid inferences from numerical, graphical and symbolic information.

This occurs in multiple topics, including validity of confidence intervals and tests of hypotheses which are analyzed based on statistical assumptions of shape of population distributions and sample distributions, sample size, and distribution of sample statistics.

A student will be able to apply mathematical reasoning to both abstract and applied problems, and to both scientific and non-scientific problems.

Students are required to use mathematical reasoning to solve abstract problems such as obtaining/approximating the distribution of numerical sample summaries (statistics), and to solve applied problems conducting statistical analyses of real-life data sets. These real-life data sets include variables collected from laboratory experiments, and from non-scientific settings such as surveys, and polls.

Includes a writing component described on course syllabus

1) If course is lower division, formal and/or informal writing assignments encouraging students to think through course concepts using at least one of the following: periodic lab reports, exams which include essay questions, periodic formal writing assignments, periodic journals, reading logs, other. Writing in lower division courses need not be graded, but must, at a minimum, be evaluated for clarity and proper handling of terms, phrases, and concepts related to the course.

2) If course is upper division, a minimum of 1500 words of formal, graded writing. [Preferably there should be more than one formal writing assignment and each writing assignment (e.g. periodic lab reports, exams which include essay questions, a research/term paper etc.) should be due in stages throughout the semester to allow the writer to revise after receiving feedback from the instructor. Include an indication of how writing is to be evaluated and entered into course grade determination.]

On a combination of exams, quizzes, projects, and homework, students will be expected to write explanations justifying their interpretations and decisions made based on the data.

Section 2

If you would like, you may provide further information that might help the G.E. Course Review Committee understand how this course meets these criteria and/or the G.E. Program Objectives found in the CSUS Policy Manual, General Education Program, Section I.B.

Quantitative information from data is ubiquitously presented to everyone with the intention of adding credibility to advertisements, arguments or advice, etc. The ability to properly evaluate data-based claims is an important skill that all citizens should have. This course provides statistical literacy, reasoning and thinking to contribute to the general university education of students, and to establish a foundation for more advanced courses requiring these skills.

Please attach any additional files not requested above:

FormA Email Sent to Depts Sep 2019.pdf

Reviewer Comments:

Thomas Krabacher (tsk) (Wed, 18 Sep 2019 22:21:47 GMT):Rollback: Assessment strategies need to be tied more clearly to the learning out comes.

Lisa Taylor (taylorlm) (Fri, 27 Sep 2019 21:20:48 GMT):Math curriculum committee changes: 1) changed Learning Outcome #3 from Understand to Apply, and 2) clarified which learning outcomes would be assessed via which assessment strategy.

Key: 4324