BS IN STATISTICS

In Workflow

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Approval Path

1. 2026-02-26T00:17:04Z
   Vincent Pigno (vincent.pigno): Approved for MATH Committee Chair
2. 2026-02-26T00:48:30Z
   Kimberly Elce (kelce): Approved for MATH Chair
3. 2026-03-04T23:50:06Z
   Mikkel Jensen (mikkel.jensen): Approved for NSM College Committee Chair
4. 2026-03-05T00:03:24Z
   Chris Taylor (ctaylor): Approved for NSM Dean

History

1. Mar 27, 2024 by Kimberly Elce (kelce)

New Program Proposal

Date Submitted: 2026-02-26T00:11:07Z

Viewing: BS in Statistics

Last approved: Wed, 27 Mar 2024 23:34:16 GMT

Last edit: 2026-02-26T00:11:05Z

Changes proposed by: Gabriel Martins (223005419)

Academic Group: (College)

Natural Sciences & Mathematics

Academic Organization: (Department)

Mathematics & Statistics

Catalog Year Effective:

2026-2027 Catalog

NOTE: This degree major program will be subject to program review evaluation within six years after implementation.

Individual(s) primarily responsible for drafting the proposed degree major program:

Name (First Last)	Email	Phone 999-999-9999
Clark Fitzgerald	fitzgerald@csus.edu	(916) 278-4748
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Academic Master Plan Projection

New degree major proposals must receive prior approval for inclusion in the Academic Master Plan before a New Program proposal can be submitted to Workflow. Submissions to the AMP can be made through the Miscellaneous Request form.

Type of Program:
Major

Program Change Type:
Substantive

Is this a pilot program?
No

Delivery Format:
Fully Face to Face

Title of the Program:
BS in Statistics

Designation: (degree terminology)
Bachelor of Science

Briefly describe the program proposal (new or change) and provide a justification:
The program change type was marked as substantive simply because this change affects the unit count of this program by a difference of at most one unit.

The only change being made is that Stat 1 is being removed as an option for this program. Students are now required to take Stat 50.

With a recent change in prerequisites for the STAT 115A course, students are now effectively required to take Stat 50 in order to complete the program. This change is being made to make the program requirements clearer for the students and consistent with the Stat 115A course.

University Learning Goals

Undergraduate Learning Goals:
Competence in the disciplines
Knowledge of human cultures and the physical and natural world
Intellectual and practical skills
Personal and social responsibility
Integrative learning

Program Learning Outcomes

Program Learning Outcomes

Learning Outcome
Apply fundamental techniques of mathematical statistics by solving problems in probability, estimation, and inference
Communicate statistical results in written reports using professional technology, data visualizations, or mathematical arguments
Communicate statistical results in oral presentations using professional technology and data visualizations
Critically evaluate raw data and transform it into a form that's appropriate for statistical analysis using professional technology
Find, evaluate, and use appropriate data sets to augment and improve data analyses
Apply a broad set of standard statistical techniques and methods, interpret the results in context, and identify their limitations
Apply statistical knowledge to solve societal problems, address real needs and make positive contributions to underserved communities, schools and non-profits

Learning Outcomes Display

Course Code	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7
MATH 30							
MATH 31							
MATH 32							
MATH 35							
STAT 50							
MATH 64							
CSC 10							
CSC 15							
CSC 22							
CSC 25							
STAT 115A							
STAT 115B							
STAT 128							
STAT 140A							
STAT 140B							
STAT 191							
STAT 192							
MATH 101							
MATH 108							
MATH 117							
MATH 150							
MATH 170							
STAT 129							
STAT 155							
STAT 129							
STAT 155							
MATH 108							
MATH 150							
MATH 170							
MATH 108							
MATH 130A							
MATH 110A							
MATH 117							
MATH 130B							

Will this program be 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)?
No

Please attach a Comprehensive Program Assessment Plan
stats-program-assessment.xlsx

Please attach a Curriculum Map Matrix
Statistics-BS-curriculum-map-matrix.xlsx

Please attach a five-year budget projection
5-year-budget.xlsx

Do these changes impact the degree roadmap?
Yes

Please attach the updated roadmap:
BS-Statistics-DegreeRoadMap.docx

Briefly describe the change:
Most community colleges do not offer an equivalent of Stat 50, therefore an incoming transfer student must take this new required course in their first semester at Sacramento State.

This moved a few of the classes forward by one semester in the two year road map.

Catalog Description:

Units required for Major: 50, includes units of study in chosen emphasis (see below).
Total units required for BS: 120

Program Description

Statistics is the science and art of creating meaning from data. The statistics bachelor's degree provides students with a solid foundation in the theory, methods, and applications of statistical analysis. Students will analyze real world data sets, model complex phenomena, use professional software, and produce a portfolio of meaningful projects. Graduates will have the skills and knowledge needed to excel in a data-driven world.

All statistics majors will study a rigorous core curriculum and choose an emphasis for more specialized coursework. The core curriculum includes probability, mathematical statistics, computing, linear models, machine learning, and culminates in a semester-long capstone project. The emphasis in **mathematical statistics** prepares students for graduate study in statistics. The emphasis in **applied statistics** is versatile, allowing students to tailor the degree to their interests. The emphasis in **data science** includes additional instruction in computing to prepare graduates for careers in technology.

As defined by policy http://www.csus.edu/umanual/acadaff/fsm00010.htm, a change in units constitutes a substantive change to the program. If your changes constitute a substantive change, please refer back to the "Program Change Type" field above to ensure that "Substantive" is selected.

Program Requirements: (If new courses are being created as part of a new program, it will be useful to propose courses first.)

Program Requirements

Code	Title	Units
Lower Division Core Courses (22 Units)		
MATH 30	Calculus I	4
MATH 31	Calculus II	4
MATH 32	Calculus III	4
MATH 35	Introduction to Linear Algebra	3
STAT 50	Introduction to Probability and Statistics	4
Select one of the following:		3
MATH 64	Mathematical Programming	
CSC 10	Introduction to Programming Logic	
CSC 15	Programming Concepts and Methodology I	
CSC 22	Visual Programming in BASIC	
CSC 25	Introduction to C Programming	
Upper Division Core Courses (19 Units)		
STAT 115A	Introduction to Probability Theory	3

STAT 115B	Introduction to Mathematical Statistics	3
STAT 128	Statistical Computing	3
STAT 140A	Linear Models	3
STAT 140B	Statistical Learning	3
STAT 191	Community Service Learning in Statistics	1
STAT 192	Statistics Capstone Project	3
Additional Requirements for Specialized Study (9 Units)		
Select an emphasis from the following three:		9
Emphasis in Applied Statistics		
Emphasis in Data Science		
Emphasis in Mathematical Statistics		
Total Units		**50**

Emphasis in Applied Statistics

Code	Title	Units
Select three of the following:		9
MATH 101	Combinatorics	
MATH 108	Introduction to Formal Mathematics	
MATH 117	Linear Algebra	
MATH 150	Introduction to Numerical Analysis	
MATH 170	Linear Programming	
STAT 129	Analyzing and Processing Big Data	
STAT 155	Introduction to Techniques of Operations Research	
Course approved by statistics major advisor		
Total Units		**9**

Emphasis in Data Science

Code	Title	Units
STAT 129	Analyzing and Processing Big Data	3
Select two of the following:		6
STAT 155	Introduction to Techniques of Operations Research	
MATH 108	Introduction to Formal Mathematics	
MATH 150	Introduction to Numerical Analysis	
MATH 170	Linear Programming	
Course approved by statistics major advisor		
Total Units		**9**

Emphasis in Mathematical Statistics

Code	Title	Units
MATH 108	Introduction to Formal Mathematics	3
MATH 130A	Functions of a Real Variable	3
Select one of the following:		3
MATH 110A	Modern Algebra	
MATH 117	Linear Algebra	
MATH 130B	Functions of a Real Variable	
Total Units		**9**

General Education

Code	Title	Units
Area A: Basic Subjects (9 Units)		
A1 - Oral Communication		3
A2 - Written Communication		3
A3 - Critical Thinking		3
Area B: Physical Universe and Its Life Forms (13 Units)		
B1 - Physical Science		3
B2 - Life Forms		3
B3 - Lab (Note: Lab experience to be taken with one of the following: B1, B2 or B5)		1
B4 - Math Concepts		3

B5 - Additional Course (Any B to reach 12 units) - Take upper-division course to complete Area & upper division requirements.	3
Area C: Arts and Humanities (12 Units)	
C1 - Arts	3
C2 - Humanities	3
C1/C2 - Area C Course	3
C1/C2 - Area C Course - Take upper-division course to complete Area & upper division requirements.	3
Area D: The Individual and Society (6 Units)	
Area D Course	3
Area D Course	3
Area D Course - Take upper-division course to complete Area & upper division requirements.	0
Area E: Understanding Personal Development (3 Units)	
Area E Course	3
Area F: Ethnic Studies	
Area F Course	
Total Units	**43**

Will this program require specialized accreditation?

Existing Support Resources for the Proposed Degree Major Program

Fiscal Impact to Change an Existing Program

Indicate programmatic or fiscal impact which this change will have on other academic units' programs, and describe the consultation that has occurred with affected units:

No impact.

Provide a fiscal analysis of the proposed changes:

No fiscal impact.

How will the above changes be accommodated within the department/College existing fiscal resources?

No accommodations will be necessary.

Will the proposed changes require additional resources?

No

What additional space, equipment, operating expenses, library, computer, or media resources, clerical/technical support, or other resources will be needed?

None.

Additional Support Resources Required

Key: 554