BA IN MATHEMATICS

In Workflow

1. MATH Committee Chair (ricciotti@csus.edu)
2. MATH Chair (krauel@csus.edu)
3. NSM College Committee Chair (mikkel.jensen@csus.edu)
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6. Senate Curriculum Subcommittee Chair (curriculum@csus.edu)
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8. Faculty Senate Executive Committee Chair (kathy.honeychurch@csus.edu)
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13. Registrar's Office (k.mcfarland@csus.edu)

Approval Path

1. 2026-05-07T19:12:53Z
   Vincent Pigno (vincent.pigno): Approved for MATH Committee Chair
2. 2026-05-12T16:28:04Z
   Kimberly Elce (kelce): Rollback to Initiator
3. 2026-05-21T23:43:01Z
   Vincent Pigno (vincent.pigno): Approved for MATH Committee Chair
4. 2026-05-26T15:53:26Z
   Kimberly Elce (kelce): Approved for MATH Chair
5. 2026-10-08T01:14:29Z
   Mikkel Jensen (mikkel.jensen): Approved for NSM College Committee Chair
6. 2026-10-08T15:32:58Z
   Chris Taylor (ctaylor): Approved for NSM Dean

History

1. May 1, 2018 by clmig-jwehrheim
2. May 14, 2018 by 212408496
3. Aug 10, 2018 by 212408496
4. Oct 2, 2018 by 212408496
5. Apr 28, 2020 by 220267334
6. Apr 20, 2021 by 220267334
7. Mar 6, 2024 by Kimberly Elce (kelce)
8. Mar 24, 2026 by Kimberly Elce (kelce)

Date Submitted: 2026-05-21T23:42:26Z

Viewing: BA in Mathematics

Last approved: 2026-03-24T16:02:24Z

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Changes proposed by: Vincent Pigno (217361639)

Academic Group: (College)

Natural Sciences & Mathematics

Academic Organization: (Department)
Mathematics & Statistics

Catalog Year Effective:
2027-2028 Catalog

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

Name (First Last)	Email	Phone 999-999-9999
Vincent Pigno	vincent.pigno@csus.edu	7854774872

Program Snapshot

Type of Program:
Major

Program Change Type:
Substantive

Title of the Program:
BA in Mathematics

Designation: (degree terminology)
Bachelor of Arts

Delivery Mode:
Fully Face to Face

Please see the CSU/CIP Code Crosswalk: https://www.csus.edu/academic-affairs/curriculum-workflow/_internal/_documents/csu_codes_to_cip.pdf

TMC Templates: https://c-idsystem.org/transfer-efforts/

Provide a clear, concise overview of the program proposal (new or change) and provide a justification. For NEW programs describe the purpose and focus of the program, identify the target student population(s), and highlight key strengths and distinguishing features of the program.
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 the Statistics emphasis. Students are now required to take Stat 50.

With a recent change in prerequisites for the STAT 115A course, students who select the statistics emphasis 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.

Additionally the catalog erroneously lists STAT 1 or STAT 50 as a requirement for the Applied emphasis which is now removed.

University Learning Goals

Undergraduate Learning Goals:
Competence in the disciplines
Intellectual and practical skills

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)?
Yes

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

Does this program 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.

No Change

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

No

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

No

Curriculum Alignment and Assessment

Program Learning Outcomes

Provide measurable, program-specific learning outcomes that reflect the most important competencies students will demonstrate upon completion of the program. Programs are expected to assess and use PLOs for continuous improvement.

Program Learning Outcomes

Learning Outcome
Explain and apply concepts from abstract algebra and real analysis.
Identify and describe a variety of areas of mathematics.
Construct, analyze, and critique mathematical arguments.
Identify and integrate techniques from a variety of areas in mathematics to solve complex problems.
Communicate mathematical arguments in a variety of written forms, such as proofs, expository writing, and reports.
Communicate mathematical arguments orally in formats such as presentations or discussions.
Use appropriate technological tools to analyze and solve mathematical problems.
Engage with the mathematics community and use their mathematical and statistical knowledge to contribute to the broader community.
Locate, analyze, and critique mathematical content appearing in a variety of sources.

Learning Outcomes Display

Course Code	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
MATH 30									
MATH 31									
MATH 32									
MATH 35									
MATH 45									
CSC 10									
CSC 15									
CSC 22									
CSC 25									
MATH 108									
MATH 110A									
MATH 110B									
MATH 130A									

MATH 130B									
MATH 117									
MATH 134									
MATH 101									
MATH 102									
MATH 104									
MATH 121									
MATH 150									
MATH 161									
MATH 162									
MATH 170									
MATH 190									
STAT 115A									
STAT 115B									
MATH 101									
MATH 102									
MATH 104									
MATH 117									
MATH 134									
MATH 150									
MATH 170									
STAT 115A									
STAT 115B									
STAT 128									
STAT 129									
STAT 155									
STAT 50									
STAT 115A									
STAT 115B									
MATH 101									
MATH 117									
MATH 134									
MATH 150									
MATH 170									
STAT 128									
STAT 129									

STAT 155									
STAT 1									
MATH 102									
MATH 121									
MATH 190									
MATH 193									

Please attach a Comprehensive Program Assessment Plan

MathAssessmentPlan.xlsx

Please attach a Curriculum Map Matrix

MathMajor Curriculum Map.xlsx

Please attach a Five-Year Budget Projection. For NEW programs, also attach a Budget Narrative.

budget.docx

Do these changes impact the degree roadmap?

No

Catalog Description (catalog copy):

Units required for BA: 48-54
Total units required for BA: 120

Program Description

The mathematics bachelor's degree provides students with a firm foundation in mathematics. Mathematics is a discipline that studies patterns, numbers, shapes, structures, and their relationships. It is fundamental for making sense of the world around us, providing a precise and systematic framework for logical reasoning, modeling, and problem-solving. Mathematics plays a crucial role in advancing human knowledge, serving as the language of science and the foundation of many other disciplines such as statistics, computer science, and engineering.

All mathematics majors complete the same core coursework, and then select an area of emphasis. The applied emphasis and the statistics emphasis provide a strong background for students interested in pursuing quantitative careers in industry, government, or academia. The pure emphasis prepares students to pursue higher-level degrees in mathematics. The teacher preparation emphasis prepares students to teach mathematics at the middle or high school level.

Admission and Continuation Requirements (catalog copy): minimum GPA and prerequisites (if applicable), required coursework or preparation, portfolio, test scores, and/or letters of recommendation. For graduate programs: expectations for a relevant bachelor's degree (required or preferred disciplines, prerequisite knowledge, or equivalent experience), include evidence that program requirements conform to the minimum requirements for the culminating experience, as specified in Title 5 Section 40510 The Master's Degree and Section 40511 The Doctoral Degree.

Admission Requirements

All students planning to take MATH 30, Calculus I, must first satisfy one of the following criteria.

- Receive a score of 3 on the Calculus AB AP Exam.
- Receive a C- or better in Math 29 (or equivalent).
- Receive a score of 76+ on an ALEKS PPL proctored exam.

For more information about ALEKS PPL and placement into mathematics and statistics courses visit the department website (https://www.csus.edu/math).

Minimum Grade Requirements

- Prerequisites must be completed with grade "C-" or better.
- Grade "C-" or better required in all courses applied to Mathematics major or to the Mathematics or Statistics minors.

Recommended Coursework

- PHYS 11A and PHYS 11C are recommended for all Mathematics majors.

Program Requirements (catalog copy):

Program Requirements

Code	Title	Units
Lower Division Core Courses (21 Units)		
MATH 30	Calculus I [1]	4
MATH 31	Calculus II [1]	4
MATH 32	Calculus III	4
MATH 35	Introduction to Linear Algebra	3
MATH 45	Differential Equations for Science and Engineering	3
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 (15 Units)		
MATH 108	Introduction to Formal Mathematics	3
MATH 110A	Modern Algebra	3
MATH 110B	Modern Algebra	3
MATH 130A	Functions of a Real Variable	3
MATH 130B	Functions of a Real Variable	3
Additional Requirements for Specialized Study (12-18 Units)		
Select an emphasis from the following four options:		12 - 18
Emphasis in Pure Mathematics		
Emphasis in Applied Mathematics		
Emphasis in Statistics		
Teacher Preparation Program		
Total Units		**48-54**

[1] Course also satisfies General Education (GE)/Graduation Requirement.

Emphasis in Pure Mathematics

Code	Title	Units
MATH 117	Linear Algebra	3
MATH 134	Functions of a Complex Variable and Applications	3
Select two of the following:		6
MATH 101	Combinatorics	
MATH 102	Number Theory	
MATH 104	Vector Analysis	
MATH 121	College Geometry	
MATH 150	Introduction to Numerical Analysis	
MATH 144 Applied Dynamical Systems		
MATH 146 Partial Differential Equations		
MATH 152 Computational Linear Algebra		
MATH 161	Mathematical Logic	
MATH 162	Set Theory	
MATH 170	Linear Programming	
MATH 190	History Of Mathematics	
STAT 115A	Introduction to Probability Theory **	
STAT 115B	Introduction to Mathematical Statistics **	
Total Units		**12**

** Has an extra prerequisite that is not in the lower or upper division core.

Emphasis in Applied Mathematics

Code	Title	Units
MATH 144 Applied Dynamical Systems		3
MATH 146 Partial Differential Equations		3
Select two of the following:		6
MATH 101	Combinatorics	
MATH 102	Number Theory	
MATH 104	Vector Analysis	
MATH 117	Linear Algebra	
MATH 134	Functions of a Complex Variable and Applications	
MATH 150	Introduction to Numerical Analysis	
MATH 152 Computational Linear Algebra		
MATH 170	Linear Programming	
STAT 115A	Introduction to Probability Theory	
STAT 115B	Introduction to Mathematical Statistics **	
STAT 128	Statistical Computing	
STAT 129	Analyzing and Processing Big Data	
STAT 155	Introduction to Techniques of Operations Research **	
Total Units		**12**

** Has an extra prerequisite that is not in the lower or upper division core.

Emphasis in Statistics

Code	Title	Units
STAT 50	Introduction to Probability and Statistics	4
STAT 115A	Introduction to Probability Theory	3
STAT 115B	Introduction to Mathematical Statistics	3
Select two of the following:		6
MATH 101	Combinatorics	
MATH 117	Linear Algebra	
MATH 134	Functions of a Complex Variable and Applications	
MATH 150	Introduction to Numerical Analysis	
MATH 152 Computational Linear Algebra		
MATH 170	Linear Programming	
STAT 128	Statistical Computing	
STAT 129	Analyzing and Processing Big Data	
STAT 155	Introduction to Techniques of Operations Research	
Total Units		**16**

** Has an extra prerequisite that is not in the lower or upper division core.

Emphasis in Teacher Preparation

Code	Title	Units
STAT 1	Introduction to Statistics	3
MATH 102	Number Theory	3
MATH 121	College Geometry	3
MATH 190	History Of Mathematics	3
MATH 193	Capstone Course for the Teaching Credential Candidate	3
Total Units		**15**

General Education Requirements [1]

Code	Title	Units
Area 1: English Communication (9 Units)		
1A - English Composition		3
1B - Critical Thinking		3
1C - Oral Communication		3

Area 2: Mathematical Concepts and Quantitative Reasoning (3 Units)	
Area 2 Course - Lower Division	3
Area 3: The Arts and Humanities (6 Units)	
3A - Arts	3
3B - Humanities	3
Area 4: Social and Behavioral Sciences (6 Units)	
Area 4 Course -Lower Division	3
Area 4 Course - Lower Division	3
Area 5: Physical and Biological Sciences (7 Units)	
5A - Physical Science	3
5B - Biological Science	3
5C - Laboratory	1
Area 6: Ethnic Studies (3 Units)	
Area 6 Course	3
Upper Division Courses: (9 Units)	
Area 3 Course - Upper Division	3
Area 4 Course - Upper Division	3
Area 2 OR Area 5 Course - Upper Division	3
Total Units	**43**

[1] To help you complete your degree in a timely manner and not take more units than absolutely necessary, there are ways to use single courses to meet more than one requirement (overlap). For further information, please visit the General Education page (https://catalog.csus.edu/colleges/academic-affairs/general-education/).
Note: There is no way to list all possible overlaps so please consult with a professional advisor. The Academic Advising Center can be visited online (http://www.csus.edu/acad), by phone (916) 278-1000, or email (advising@csus.edu).

[2] Required in Major; also satisfies GE.

Graduation Requirements [1]

Code	Title	Units
Graduation Requirements (required by CSU) (9 Units)		
American Institutions: U.S. History		3
American Institutions: U.S. Constitution & CA Government		3
Writing Intensive (WI)		3
Graduation Requirements (required by Sacramento State) (12 Units)		
English Composition II		3
Race and Ethnicity in American Society (RE)		3
Foreign Language Proficiency Requirement [2]		6

[1] To help you complete your degree in a timely manner and not take more units than absolutely necessary, there are ways to use single courses to meet more than one requirement (overlap). For further information, please visit the General Education page (https://catalog.csus.edu/colleges/academic-affairs/general-education/).
Note: There is no way to list all possible overlaps so please consult with a professional advisor. The Academic Advising Center can be visited online (http://www.csus.edu/acad), by phone (916) 278-1000, or email (advising@csus.edu).

[2] If not satisfied before entering Sacramento State, it may be satisfied in General Education Area C2 (Humanities). "C- or better required." The alternative methods for satisfying the Foreign Language Proficiency Requirement are described here: https://www.csus.edu/college/arts-letters/world-languages-literatures/foreign-language-requirement.html

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 fiscal impact as this change does not change the courses offered.

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?

There will be no change in courses offered, hence there will be no changes to accommodate.

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

Estimate the cost and indicate how these resource needs will be accommodated:

no cost

Reviewer Comments:

Kimberly Elce (kelce) (Tue, 12 May 2026 16:28:05 GMT): Rollback: STAT 1 or STAT 50 is showing up in Applied Emphasis. That needs to be removed.

Key: 314