

MA IN MATHEMATICS



SACRAMENTO STATE
Redefine the Possible

In Workflow

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Approval Path

1. Tue, 18 Oct 2022 02:11:55 GMT
Lisa Taylor (taylorlm): Approved for MATH Committee Chair
2. Tue, 18 Oct 2022 02:18:52 GMT
Kimberly Elce (kelce): Approved for MATH Chair
3. Wed, 19 Oct 2022 22:39:46 GMT
Mikkel Jensen (mikkel.jensen): Approved for NSM College Committee Chair
4. Fri, 21 Oct 2022 20:33:31 GMT
Shannon Datwyler (datwyler): Approved for NSM Dean

History

1. May 3, 2018 by clmig-jwehrheim

Date Submitted: Mon, 17 Oct 2022 23:16:01 GMT

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Changes proposed by: Kimberly Elce (101052896)

Academic Group: (College)

Natural Sciences & Mathematics

Academic Organization: (Department)

Mathematics & Statistics

Catalog Year Effective:

2022-2023 Catalog

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

Name (First Last)	Email	Phone 999-999-9999
Tracy Hamilton	hamilton@csus.edu	916-278-6588

Type of Program Proposal:

Major

Program Change Type:

Non-Substantive

Title of the Program:

MA in Mathematics

Designation: (degree terminology)

Master of Arts

Briefly describe the program proposal (new or change) and provide a justification:

We are proposing the following changes to our program:

1. Change the number of units required for advancement to candidacy from 18 units to 12 units.

To complete this 30 unit program, students normally take 12-15 units in their first year of the program. At that point, they need to apply for advancement to candidacy to be eligible to complete their culminating experience (comprehensive exam) at the end of their second year. The previous requirement of 18 units completed was implemented at a time when students applied for advancement to candidacy later in the program.

2. The program is in the process of designing some new electives. We will also be phasing some electives out, but that proposal is not submitted yet. At this point, we are asking that the new courses that have been developed, as well as experimental offerings that will be offered in the future (Math 296*) be included in the list of electives that students may take to complete this program.

3. It may appear that we are removing 3 units from the culminating requirement. However, that has NEVER been a part of this program. We do have a culminating experience (comprehensive exam), but it does not have units associated to it.

4. We are asking that students in our program be allowed to apply coursework with a grade of "B-" or better.

Many years ago, when graduate students were allowed to count "C" grades in graduate courses, our department put forward a proposal to require our students to receive a grade of "B-" or better in the core coursework. However, since then, a graduate grade policy has been approved by the university and it requires students to receive a grade of "B" or better in all coursework. Since we had previously been approved to allow for grades of "B-" or better in our core coursework, this meant that our students have needed to get a "B" or better in the elective coursework and a "B-" or better in the core coursework. The department decided that we would like to have a consistent grade requirement in all graduate coursework. We decided to ask for the "B-" grade based on feedback from those teaching in the graduate program on what grade they felt was minimally passing in their graduate courses. We do realize that students need to maintain a 3.0 GPA and students have been and will continue to be advised regarding that requirement.

University Learning Goals**Graduate (Masters) Learning Goals:**

Critical thinking/analysis
 Communication
 Information literacy
 Disciplinary knowledge
 Intercultural/Global perspectives
 Professionalism

Program Learning Outcomes**Program Learning Outcomes****Learning Outcome**

- A recipient of an MA in mathematics from CSUS is expected to have a deep understanding of the fundamental theorems and techniques in both abstract algebra and real analysis. This includes the development of these disciplines from first principles.
- A recipient of an MA in mathematics from CSUS is expected to have a mathematical sophistication that allows them to apply their understanding to problems that they have not seen before and in contexts that they have not seen before. The ability to be creative with the application of basic knowledge is a hallmark of a sophisticated mathematical thinker.
- A recipient of an MA in mathematics from CSUS is expected to speak the language of mathematics fluently, to reason with impeccable mathematical rigor, and to do this by designing proofs of mathematical results.
- A recipient of an MA in mathematics from CSUS is expected to have an appreciation of the variety of major modern areas of mathematics study and of mathematical applications.

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

Catalog Description:

Total units required for MA: 30, including at least 24 units of approved 200-level courses

Program Description

The Department of Mathematics and Statistics offers a Master of Arts degree in Mathematics. The MA program is designed to provide qualified students with an opportunity to increase the breadth and depth of their mathematical knowledge and understanding. Beyond assuring that successful candidates are proficient in the basic areas of mathematics, the program is sufficiently flexible to permit graduates to pursue individual professional and mathematical interests ranging from teaching at the secondary or community college level to a career in the private sector, to preparation for graduate study beyond the master's degree. Graduate courses are usually offered in the late afternoon to accommodate students who work full-time.

Admission Requirements: Course prerequisites and other criteria for admission of students to the degree major program, and for their continuation in it.

Admission Requirements

Admission as a classified graduate student in Mathematics requires:

- an undergraduate major in Mathematics which includes one year each of Modern Algebra and Advanced Calculus or an undergraduate major in a related field together with one year each of Modern Algebra and Advanced Calculus;
- a minimum 2.5 GPA; and
- a minimum 2.5 GPA in the last 60 units attempted and a 3.0 GPA in Mathematics coursework.

Students who have deficiencies in admission requirements that can be removed by specified additional preparation may be admitted with conditionally classified graduate status. Any such deficiencies will be noted on a written response to the admission application. No credit will be given towards the MA for the following:

Code	Title	Units
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

Admission Procedures

Applications are accepted as long as room for new students exists. However, students are strongly urged to apply by the posted university application deadline for the fall or spring terms, in order to allow time for admission before registration. All prospective graduate students, including Sacramento State graduates, must file the following with the Office of Graduate Studies, River Front Center 215, (916) 278-6470:

- an online application for admission; and
- two sets of official transcripts from all colleges and universities attended, *other than Sacramento State*.

For more admissions information and application deadlines please visit <http://www.csus.edu/gradstudies/>.

Admission decisions are made approximately six to eight weeks after the application deadline date. Applicants will be notified of an admission decision via e-mail.

Minimum Unit and Grade Requirement for the Degree

Units required for the MA: 30 (including at least 24 units of approved 200-level courses).

Minimum Cumulative GPA: 3.0

Note: A foreign language is not required for the MA degree. However, students who plan further graduate study are encouraged to take coursework in French, German, or Russian since proficiency in two of these languages is usually required in doctoral programs.

Advancement to Candidacy

Each student must file an application for Advancement to Candidacy, indicating a proposed program of graduate study. This procedure should begin as soon as the classified graduate student has:

- removed any deficiencies in admission requirements;
- completed at least 12 units in the graduate program with a minimum 3.0 GPA, including at least 12 units at the 200 level; and
- taken a Graduate Writing Intensive (GWI) course in their discipline within the first two semesters of coursework at California State University, Sacramento or secured approval for a WPG waiver.

Advancement to Candidacy forms are available on the Office of Graduate Studies website. The student fills out the form after planning a degree program in consultation with a Mathematics advisor. The completed form is then returned to the Office of Graduate Studies for approval.

As defined by policy <http://www.csus.edu/umannual/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
Required Courses (30 Units)		
MATH 210A	Algebraic Structures ¹	3
MATH 210B	Algebraic Structures ¹	3
MATH 230A	Real Analysis ¹	3
MATH 230B	Real Analysis ¹	3
Select four to six from the following:		12 - 18
MATH 202	Course MATH 202 Not Found (Course proposal has been submitted)	
MATH 220A	Topology	
MATH 220B	Topics In Topology	
MATH 234A	Complex Analysis	
MATH 234B	Topics in Complex Analysis	
MATH 241A	Methods of Applied Mathematics	
MATH 241B	Topics in Applied Mathematics	
MATH 248 LIE THEORY	Course MATH 248 LIE THEORY Not Found (Course proposal has been submitted)	
STAT 215A	Introduction to Mathematical Statistics	
STAT 215B	Topics in Introduction to Mathematical Statistics	
MATH 296*	Course MATH 296* Not Found (Experimental Offerings in Mathematics)	
Select zero to two of the following with advisor approval:		6 - 0
MATH 117	Linear Algebra	
MATH 161	Mathematical Logic	
MATH 162	Set Theory	
MATH 299	Special Problems	
STAT 115A	Introduction to Probability Theory	
STAT 115B	Introduction to Mathematical Statistics	
STAT 299	Special Problems	
Other electives in mathematics and related disciplines as approved by the graduate coordinator.		
Culminating Requirement (0 units)		0
Written Comprehensive Examination		0
Total Units		30

New Footnote All courses applied to the MA in Mathematics degree must be completed with a grade of "B-" or better.

For graduate programs, the number of declared undergraduate major and the degree production over the preceding years of the corresponding baccalaureate program:

We have about 300 undergraduate math majors and graduate between 30 and 40 each semester.

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:

This change is not anticipated to have an effect on other academic units' programs. Students in this program only take courses in our department and the courses in this program are only taken by students in the MA or BA in mathematics programs.

Provide a fiscal analysis of the proposed changes:

Courses added to the elective list are currently being taught, so no new fiscal impact.

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

The courses are already being taught, so no accommodation needed.

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

Reviewer Comments:

Lisa Taylor (taylorlm) (Tue, 18 Oct 2022 02:11:19 GMT): Edited the 0-6 units of undergrad electives to read 6-0 so that the units for the degree will sum to 30.

Key: 216