MATHEMATICS AND STATISTICS DEPARTMENT

MS - MATHEMATICS

This degree is appropriate for students who seek to deepen their knowledge of mathematics and its applications for work in the research and development area of industry.

REQUIREMENTS FOR ADMISSION TO CLASSIFIED STANDING

To enter this program with classified standing, a student must meet the minimum requirements for admission to the Graduate Division; have completed 18 semester units of upper-division mathematics with a grade point average of at least 3.0; and have 1-3 letters of recommendation submitted on his or her behalf. The coursework must be acceptable toward a bachelor’s degree in mathematics and may not be counted toward the MS degree.

REQUIREMENTS FOR ADMISSION TO CONDITIONALLY CLASSIFIED STANDING

A student who meets the minimum requirements for admission to the Graduate Division but does not satisfy the mathematics coursework requirements stated above may be admitted as a Conditionally Classified student. Eligibility is determined on a case-by-case basis. After arrival at SJSU, such a student must complete additional coursework to make up the unit deficiency in order to achieve Classified status. These makeup units will not be included in the MS degree unit requirement total.

REQUIREMENTS FOR ADMISSION TO CANDIDACY FOR THE MS - MATHEMATICS

To be admitted to candidacy for the MS degree, a student must meet the all-university candidacy admission requirements as stated in this catalog. The University requires that all graduate students demonstrate competency in written English as a condition for advancement to candidacy. Please refer to the SJSU catalog section titled “Competency in Written English” for details.
For graduate courses that meet the Competency in Written English requirement, please refer to the Graduate Admissions and Program Evaluations (GAPE) website at www.sjsu.edu/gape. Per University regulations, Thesis/Writing Project students must have their thesis/project committees (see below) in place before filing for candidacy.

The student must complete the Petition for Advancement to Graduate Candidacy form. This form lists, among other things, all the coursework to be counted toward the master’s degree. After the form has been signed by the student’s thesis or writing project director—if applicable—and the Graduate Coordinator, it is forwarded to the Associate Vice President for Graduate Studies and Research for final approval. Any subsequent changes to the student’s program require approval from GAPE.

**COMPLETING REQUIREMENTS FOR THE MS - MATHEMATICS**

**CULMINATING EXPERIENCE:**

Students choose either the Comprehensive Examination option or the Thesis/Writing Project option.

1. Comprehensive Examination Option:

   Students who elect this option must pass two written comprehensive examinations. One examination will be in either Numerical Analysis (243A and 243B/M) or Differential Equations/Dynamical Systems (233A/B and 234) or Graph Theory (279A/B). The second exam will be in one of Numerical Analysis, Differential Equations/Dynamical Systems, Graph Theory, or Complex Analysis (238).

   a) Specific exam options to be chosen by the student.

   b) Students must enroll in MATH 298E in conjunction with taking the exams. Student receives credit when both exams are passed. Students who do not pass both exams during the semester they are enrolled in MATH 298E will receive a grade of “RP” for that course. If all other degree requirements have been completed, students must
subsequently sign up for MATH 1290R in compliance with University regulations until both exams have been passed.

2. Thesis or Writing Project Option:

A student who elects this option must find a willing thesis/writing project advisor and complete a thesis or writing project under that advisor’s supervision. The thesis or writing project must be reviewed and approved by a Thesis/Writing Project Committee composed of the advisor and two other faculty members chosen by the student in consultation with the advisor. The student must give a public presentation on the thesis or writing project, which is followed by an oral examination (thesis/writing project defense) conducted by the committee. Theses must be filed with the Associate Vice President for Graduate Studies and Research, subject to the rules and deadlines established by GS&R.

   a) Thesis students must enroll in MATH 299: Master’s Thesis; Writing Project students must enroll in MATH 298: Special Study. The student receives credit when the thesis/writing project is completed, successfully defended and all committee members have signed off on the thesis/project. Students who do not complete their theses during the semester they are enrolled in MATH 299 (MATH 298 for writing projects) will receive a grade of “RP” for that course. If all other degree requirements have been completed, students must subsequently sign up for MATH 1290R in compliance with University regulations until the thesis/writing project is completed and defended.
Course Requirements

Graduate Competency in Writing
At SJSU, students must pass the graduate competency in writing requirement. For information on the Competency in Writing Requirement, please see http://info.sjsu.edu/gcw.html.

Requirements of the Masters

Required Core Courses
(choose two sequences)

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MATH 243A. Advanced Numerical Analysis 3
MATH 243B. Advanced Topics in Numerical Analysis 3
or
MATH 243M. Numerical Linear Algebra 3

MATH 233A. Applied Mathematics I 3
MATH 233B. Applied Mathematics II 3
or
MATH 234. Advanced Dynamical Systems 3

MATH 279A. Graph Theory 3
MATH 279B. Advanced Graph Theory 3

Other Required Courses

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MATH 261A. Regression Theory and Methods 3
or
MATH 263. Stochastic Processes 3
or another pre-approved graduate statistics course

MATH 203. Applied Mathematics, Computation, and Statistics Projects 3
or
MATH 298J. Applied Mathematics Internship 3

200-Level Pre-Approved Electives (choose two)

6

MATH 213A. Introduction to Smooth Manifolds 3
MATH 213B. Introduction to Riemannian Geometry 3
MATH 229. Advanced Matrix Theory 3
MATH 233A. Applied Mathematics I 3
MATH 233B. Applied Mathematics II 3
MATH 234. Advanced Dynamical Systems 3
MATH 235. Wavelets and their Applications 3
MATH 238. Advanced Complex Variables 3
MATH 243A. Advanced Numerical Analysis 3
MATH 243B. Advanced Topics in Numerical Analysis 3
MATH 243M. Numerical Linear Algebra 3
MATH 261A. Regression Theory and Methods 3
MATH 263. Stochastic Processes 3
MATH 279A. Graph Theory 3
MATH 279B. Advanced Graph Theory 3
MATH 285. Advanced Topics in Mathematics 3
MATH 298. Special Study 3

Pre-approved 100- or 200-Level Mathematics Elective (choose two) 6
Excluding MATH 100W, MATH 101, MATH 102, MATH 105, MATH 106, MATH 107A, MATH 107B, MATH 110L, MATH 123, MATH 129A, MATH 133A, MATH 160, MATH 201A, MATH 201B, MATH 297. 3
The elective units may include a maximum of 3 units of MATH 180 and/or MATH 298.

Culminating Experience 3
Plan A – Thesis Option
MATH 299. Master’s Thesis 3
Plan B – Writing Project Option
MATH 298. Special Study 3
Plan B – Comprehensive Exam option
MATH 298E. Mathematics Comprehensive Exam Preparation 3

Total Units: 33