Master of Science - Mathematical Sciences

Plan Description

The degree is a well-established MS program with concentrations in Applied Math, Computational Math, and Pure Math to serve students in many different areas of Mathematical Sciences.

The concentrations in Pure Math, Computational Math, and Applied Math each include a core requirement corresponding to the given area. Additional credits are required so that students can develop knowledge in a field of interest. All three require the student to either defend a thesis or pass a written comprehensive exam corresponding to the core requirements.

The teaching mathematics concentration requires a variety of content courses, as well as, education courses. The degree options for the teaching math concentration include the opportunity to write a professional paper.

For more information about your program, including your graduate program handbook and learning outcomes please visit the Degree Directory.

Plan Admission Requirements

Application deadlines

Applications available on the UNLV Graduate College website.

All domestic and international applicants must review and follow the Graduate College Admission and Registration Requirements.

Have a regionally accredited bachelor's degree with a minimum GPA of 2.75 for all undergraduate work or a minimum GPA of 3.00 for the last two years of undergraduate work, and completed at least 18 credits of upper-division mathematics or statistics courses beyond calculus.

Submit application materials to both the Graduate College and the Department of Mathematical Sciences.
Firstly, applicants must submit to the Graduate College the following materials:
A completed online application
Submit official transcripts from all post-secondary institutions attended

Secondly, applicants must submit to the Department of Mathematical Sciences the following materials:
Copies of all transcripts sent to the Graduate College
At least two letters of recommendation from persons familiar with the applicant's academic record and potential for advanced study in mathematical sciences
A statement of purpose describing the aim in applying for graduate study, the particular area of specialization within the mathematical sciences (if known), and any additional information that may aid the selection committee in evaluating the applicant's preparation and aptitude for graduate study
A completed online Graduate Assistantship application, if interested

Students are accepted into a degree program as described in the Graduate Catalog. The faculty and corresponding sub-disciplines and sub-plans within the described programs are subject to change at any time.

Plan Requirements

See Subplan Requirements below.

Subplan 1: Pure Mathematics – Thesis Track
Subplan 2: Pure Mathematics – Comprehensive Exam Track
Subplan 3: Applied Mathematics – Thesis Track
Subplan 4: Applied Mathematics – Comprehensive Exam Track
Subplan 5: Applied Statistics – Thesis Track
Subplan 6: Applied Statistics – Comprehensive Exam Track
Subplan 7: Teaching Mathematics – Professional Paper Track
Subplan 8: Teaching Mathematics – Comprehensive Exam Track
Subplan 9: Computational Mathematics - Thesis Track
Subplan 10: Computational Mathematics - Comprehensive Exam Track

Subplan 1 Requirements: Pure Mathematics - Thesis Track

Total Credits Required: 33

Course Requirements

Analysis Courses – Credits: 6

Complete two of the following courses:

MAT 707 Real Analysis I	3
MAT 708 Real Analysis II	3
MAT 709 Complex Function Theory I	3
MAT 710 Complex Function Theory II	3
MAT 771 Applied Analysis I	3
MAT 772 Applied Analysis II	3

Algebra Course – Credits: 3

Complete one of the following courses:

MAT 703 Abstract Algebra III	3
MAT 704 Abstract Algebra IV	3
MAT 753 Homological Algebra	3
MAT 754 Homological Algebra	3
MAT 755 Topics in Algebra	3

Area of Emphasis Courses – Credits: 6

Complete an additional 6 credits of 700-level MAT courses (excluding MAT 711 & 712) in a field of special interest.

Elective Courses – Credits: 12

Complete 12 credits of 600- or 700-level MAT or STA courses (excluding MAT 711 & 712), or other advisor-approved courses.

Thesis – Credits: 6

MAT 791 Thesis	1 – 6

Degree Requirements

Students must complete a minimum of 33 credits with a minimum GPA of 3.00.

Of the 33 required credits, 27 must be coursework. Of those 27 coursework credits, at least 18 must be 700-level.

A student will be placed on academic probation if a minimum of 3.00 GPA is not maintained in all work taken in the degree program. A grade of C or less in one graduate-level course will cause a student to be placed on academic probation and will elicit a critical review of the student's program by the Graduate Studies Committee. Students who fail to meet the conditions of their probation will be separated.

In consultation with their advisor, a student will organize a thesis committee of at least three departmental members. In addition, a fourth member from outside the department, known as the Graduate College Representative, must be appointed. An additional committee member may be added at the student and department's discretion. Please see Graduate College policy for committee appointment guidelines.

Graduation Requirements

The student must submit all required forms to the Graduate College and then apply for graduation up to two semesters prior to completing their degree requirements.

The student must submit and successfully defend their thesis by the posted deadline. The defense must be advertised and is open to the public.

After the thesis defense, the student must electronically submit a properly formatted pdf copy of their thesis to the Graduate College for format check. Once the thesis format has been approved by the Graduate College, the student will submit the approved electronic version to ProQuest. Deadlines for thesis defenses, format check submissions, and the final ProQuest submission can be found here.

Subplan 2 Requirements: Pure Mathematics - Comprehensive Exam Track

Total Credits Required: 30

Course Requirements

Analysis Courses – Credits: 6

Complete two of the following courses:

MAT 707 Real Analysis I	3
MAT 708 Real Analysis II	3
MAT 709 Complex Function Theory I	3
MAT 710 Complex Function Theory II	3
MAT 771 Applied Analysis I	3
MAT 772 Applied Analysis II	3

Algebra Course – Credits: 3

Complete one of the following courses:

MAT 703 Abstract Algebra III	3
MAT 704 Abstract Algebra IV	3
MAT 753 Homological Algebra	3
MAT 754 Homological Algebra	3
MAT 755 Topics in Algebra	3

Area of Emphasis Courses – Credits: 6

Complete an additional 6 credits of 700-level MAT courses (excluding MAT 711 & 712) in a field of special interest.

Elective Courses – Credits: 15

Complete 15 credits of 600- or 700-level MAT or STA courses (excluding MAT 711 & 712), or other advisor-approved courses.

Degree Requirements

Students must complete a minimum of 30 credits with a minimum GPA of 3.00.

Of the 30 required credits, at least 18 must be 700-level.

A student will be placed on academic probation if a minimum of 3.00 GPA is not maintained in all work taken in the degree program. A grade of C or less in one graduate-level course will cause a student to be placed on academic probation and will elicit a critical review of the student's program by the Graduate Studies Committee.

In consultation with their advisor, a student will organize an advisory committee of at least three departmental members. In addition, a fourth member from outside the department, known as the Graduate College Representative, must be appointed. An additional committee member may be added at the student and department's discretion. Please see Graduate College policy for committee appointment guidelines.

Graduation Requirements

The student must submit all required forms to the Graduate College and then apply for graduation up to two semesters prior to completing their degree requirements.

The student must pass a final comprehensive examination.

Subplan 3 Requirements: Applied Mathematics - Thesis Track

Total Credits Required: 33

Course Requirements

Required Courses – Credits: 6

Complete two of the following courses:

MAT 707 Real Analysis I	3
MAT 708 Real Analysis II	3
MAT 709 Complex Function Theory I	3
MAT 710 Complex Function Theory II	3
MAT 771 Applied Analysis I	3
MAT 772 Applied Analysis II	3

Numerical Analysis Course – Credits: 3

Complete one of the following courses:

MAT 663 Advanced Matrix Theory and Applications	3
MAT 765 Advanced Numerical Analysis	3
MAT 767 Topics in Numerical Analysis	3

Applied and Computational Courses – Credits: 6

Complete 6 credits of 700-level advisor-approved MAT coursework in applied and computational mathematics.

Elective Courses – Credits: 12

Complete 12 credits of 600- or 700-level MAT or STA courses (excluding MAT 711 & 712), or other advisor-approved courses.

Thesis – Credits: 6

MAT 791 Thesis	1 – 6

Degree Requirements

Students must complete a minimum of 30 credits with a minimum GPA of 3.00.

Of the 33 required credits, 27 must be coursework. Of those 27 coursework credits, at least 18 must be 700-level.

A student will be placed on academic probation if a minimum of 3.00 GPA is not maintained in all

work taken in the degree program. A grade of C or less in one graduate-level course will cause a student to be placed on academic probation and will elicit a critical review of the student's program by the Graduate Studies Committee.

In consultation with their advisor, a student will organize a thesis committee of at least three departmental members. In addition, a fourth member from outside the department, known as the Graduate College Representative, must be appointed. An additional committee member may be added at the student and department's discretion. Please see Graduate College policy for committee appointment guidelines.

Graduation Requirements

The student must submit all required forms to the Graduate College and then apply for graduation up to two semesters prior to completing their degree requirements.

The student must submit and successfully defend their thesis by the posted deadline. The defense must be advertised and is open to the public.

After the thesis defense, the student must electronically submit a properly formatted pdf copy of their thesis to the Graduate College for format check. Once the thesis format has been approved by the Graduate College, the student will submit the approved electronic version to ProQuest. Deadlines for thesis defenses, format check submissions, and the final ProQuest submission can be found here.

Subplan 4 Requirements: Applied Mathematics - Comprehensive Exam Track

Total Credits Required: 30

Course Requirements

Required Courses – Credits: 6

Complete two of the following courses:

MAT 707 Real Analysis I	3
MAT 708 Real Analysis II	3
MAT 709 Complex Function Theory I	3
MAT 710 Complex Function Theory II	3
MAT 771 Applied Analysis I	3
MAT 772 Applied Analysis II	3

Numerical Analysis Course – Credits: 3

Complete one of the following courses:

MAT 765 Advanced Numerical Analysis	3
MAT 767 Topics in Numerical Analysis	3
MAT 663 Advanced Matrix Theory and Applications	3

Applied and Computational Courses – Credits: 6

Complete 6 credits of 700-level advisor-approved MAT coursework in applied and computational mathematics.

Elective Courses – Credits: 15

Complete 15 credits of 600- or 700-level MAT or STA courses (excluding MAT 711 & 712), or other advisor-approved courses.

Degree Requirements

Students must complete a minimum of 30 credits with a minimum GPA of 3.00.

Of the 30 required credits, at least 18 must be 700-level.

A student will be placed on academic probation if a minimum of 3.00 GPA is not maintained in all work taken in the degree program. A grade of C or less in one graduate-level course will cause a student to be placed on academic probation and will elicit a critical review of the student's program by the Graduate Studies Committee.

In consultation with their advisor, a student will organize an advisory committee of at least three departmental members. In addition, a fourth member from outside the department, known as the Graduate College Representative, must be appointed. An additional committee member may be added at the student and department's discretion. Please see Graduate College policy for committee appointment guidelines.

Graduation Requirements

The student must submit all required forms to the Graduate College and then apply for graduation up to two semesters prior to completing their degree requirements.

The student must successfully complete a final comprehensive examination.

Subplan 5 Requirements: Applied Statistics - Thesis Track

Total Credits Required: 33

Course Requirements

Required Courses – Credits: 6

Complete 6 credits by completing all of the following courses:

MAT 657 Introduction to Real Analysis I	3
MAT 663 Advanced Matrix Theory and Applications	3

Core Courses – Credits: 12

Complete 12 credits by completing all of the following courses:

STA 761 Regression Analysis I	3
STA 762 Regression Analysis II	3
STA 767 Mathematical Statistics I	3
STA 768 Mathematical Statistics II	3

Statistics Courses – Credits: 6

Complete an additional 6 credits of 700-level STA coursework in a field of special interest to the student.

Elective Courses – Credits: 3

Complete 3 credits of 600- or 700-level MAT or STA courses (excluding MAT 711 & 712), or other advisor-approved courses.

Thesis – Credits: 6

STA 791 Thesis	3 – 6

Degree Requirements

Students must complete a minimum of 30 credits with a minimum GPA of 3.00.

Of the 33 required credits, 27 must be coursework. Of those 27 coursework credits, at least 18 must be 700-level.

A student will be placed on academic probation if a minimum of 3.00 GPA is not maintained in all work taken in the degree program. A grade of C or less in one graduate-level course will cause a student to be placed on academic probation and will elicit a critical review of the student's program by the Graduate Studies Committee.

In consultation with their advisor, a student will organize a thesis committee of at least three departmental members. In addition, a fourth member from outside the department, known as the Graduate College Representative, must be appointed. An additional committee member may be added at the student and department's discretion. Please see Graduate College policy for committee appointment guidelines.

Graduation Requirements

The student must submit all required forms to the Graduate College and then apply for graduation up to two semesters prior to completing their degree requirements.

The student must submit and successfully defend their thesis by the posted deadline. The defense must be advertised and is open to the public.

After the thesis defense, the student must electronically submit a properly formatted pdf copy of their thesis to the Graduate College for format check. Once the thesis format has been approved by the Graduate College, the student will submit the approved electronic version to ProQuest. Deadlines for thesis defenses, format check submissions, and the final ProQuest submission can be found here.

Subplan 6 Requirements: Applied Statistics - Comprehensive Exam Track

Total Credits Required: 30

Course Requirements

Required Courses – Credits: 6

Complete 6 credits by completing all of the following courses:

MAT 657 Introduction to Real Analysis I	3
MAT 663 Advanced Matrix Theory and Applications	3

Core Courses – Credits: 12

Complete 12 credits by completing all of the following courses:

STA 761 Regression Analysis I	3
STA 762 Regression Analysis II	3
STA 767 Mathematical Statistics I	3
STA 768 Mathematical Statistics II	3

Statistics Courses – Credits: 6

Complete an additional 6 credits of 700-level STA coursework in a field of special interest to the student.

Elective Courses – Credits: 6

Complete 6 credits of 600- or 700-level MAT or STA courses (excluding MAT 711 & 712), or other advisor-approved courses.

Degree Requirements

Students must complete a minimum of 30 credits with a minimum GPA of 3.00.

Of the 30 required credits, 27 must be coursework. Of those 27 coursework credits, at least 18 must be 700-level.

A student will be placed on academic probation if a minimum of 3.00 GPA is not maintained in all work taken in the degree program. A grade of C or less in one graduate-level course will cause a student to be placed on academic probation and will elicit a critical review of the student's program by the Graduate Studies Committee.

In consultation with their advisor, a student will organize an advisory committee of at least three departmental members. In addition, a fourth member from outside the department, known as the Graduate College Representative, must be appointed. An additional committee member may be added at the student and department's discretion. Please see Graduate College policy for committee appointment guidelines.

Graduation Requirements

The student must submit all required forms to the Graduate College and then apply for graduation up to two semesters prior to completing their degree requirements.

The student must pass a final comprehensive examination.

Subplan 7 Requirements: Teaching Mathematics - Professional Paper Track

Total Credits Required: 30

Course Requirements

Required Courses – Credits: 9

Complete 9 credits by completing all of the following courses:

MAT 711 Survey of Mathematical Problems I	3
MAT 712 Survey of Mathematical Problems II	3
MAT 714 History of Mathematics	3

Algebra Course – Credits: 3

Complete one of the following courses:

MAT 653 Abstract Algebra I	3
MAT 654 Abstract Algebra II	3
MAT 655 Elementary Theory of Numbers I	3
MAT 669 Combinatorics I	3
MAT 670 Combinatorics II	3
MAT 703 Abstract Algebra III	3
MAT 704 Abstract Algebra IV	3

Analysis Course – Credits: 3

Complete one of the following courses:

MAT 657 Introduction to Real Analysis I	3
MAT 658 Introduction to Real Analysis II	3
MAT 659 Elementary Complex Analysis	3

MAT 688 Partial Differential Equations	3
MAT 707 Real Analysis I	3
MAT 708 Real Analysis II	3
MAT 709 Complex Function Theory I	3
MAT 710 Complex Function Theory II	3

Foundations Course – Credits: 3

Complete one of the following courses:

MAT 651 Foundations of Mathematics I	3
MAT 652 Foundations of Mathematics II	3
MAT 680 College Geometry	3
MAT 683 General Topology I	3
MAT 684 General Topology II	3
MAT 701 Foundations of Mathematics III	3
MAT 702 Foundations of Mathematics IV	3

Education Courses – Credits: 6

Complete two of the following courses:

CIS 622 Instructional Middle School Mathematics Education	3
CIS 624 Instruction Secondary Mathematics Education	3
CIG 620 Principles of Learning Mathematics	3

Elective Courses – Credits: 3

Complete 3 credits of 600- or 700-level MAT or STA courses, or other advisor-approved courses.

Professional Paper – Credits: 3

MAT 793 Teaching Concentration Professional Paper Research	1 – 3

Degree Requirements

Students must complete a minimum of 30 credits with a minimum GPA of 3.00.

Of the 30 required credits, 27 must be coursework. Of those 27 coursework credits, at least 15 must be 700-level.

A student will be placed on academic probation if a minimum of 3.00 GPA is not maintained in all work taken in the degree program. A grade of C or less in one graduate-level course will cause a student to be placed on academic probation and will elicit a critical review of the student's program by the Graduate Studies Committee.

In consultation with their advisor, a student will organize an advisory committee of at least three departmental members. In addition, a fourth member from outside the department, known as the Graduate College Representative, must be appointed. An additional committee member may be added at the student and department's discretion. Please see Graduate College policy for committee appointment guidelines.

Graduation Requirements

The student must submit all required forms to the Graduate College and then apply for graduation up to two semesters prior to completing their degree requirements.

The student must successfully complete and defend a professional paper.

Subplan 8 Requirements: Teaching Mathematics - Comprehensive Exam Track

Total Credits Required: 30

Course Requirements

Required Courses – Credits: 9

Complete 9 credits by completing all of the following courses:

MAT 711 Survey of Mathematical Problems I	3
MAT 712 Survey of Mathematical Problems II	3
MAT 714 History of Mathematics	3

Algebra Course – Credits: 3

Complete one of the following courses:

MAT 653 Abstract Algebra I	3
MAT 654 Abstract Algebra II	3
MAT 655 Elementary Theory of Numbers I	3

MAT 669 Combinatorics I	3
MAT 670 Combinatorics II	3
MAT 703 Abstract Algebra III	3
MAT 704 Abstract Algebra IV	3

Analysis Course – Credits: 3

Complete one of the following courses:

MAT 657 Introduction to Real Analysis I	3
MAT 658 Introduction to Real Analysis II	3
MAT 659 Elementary Complex Analysis	3
MAT 688 Partial Differential Equations	3
MAT 707 Real Analysis I	3
MAT 708 Real Analysis II	3
MAT 709 Complex Function Theory I	3
MAT 710 Complex Function Theory II	3

Foundations Course – Credits: 3

Complete one of the following courses:

MAT 651 Foundations of Mathematics I	3
MAT 652 Foundations of Mathematics II	3
MAT 680 College Geometry	3
MAT 683 General Topology I	3
MAT 684 General Topology II	3
MAT 701 Foundations of Mathematics III	3
MAT 702 Foundations of Mathematics IV	3

Education Courses – Credits: 6

Complete two of the following courses:

CIS 622 Instructional Middle School Mathematics Education	3
CIS 624 Instruction Secondary Mathematics Education	3
CIG 620 Principles of Learning Mathematics	3

Elective Courses – Credits: 6

Complete 6 credits of 600- or 700-level MAT or STA courses, or other advisor-approved courses.

Degree Requirements

Students must complete a minimum of 30 credits with a minimum GPA of 3.00.

Of the 30 required credits, 27 must be coursework. Of those 27 coursework credits, at least 15 must be 700-level.

A student will be placed on academic probation if a minimum of 3.00 GPA is not maintained in all work taken in the degree program. A grade of C or less in one graduate-level course will cause a student to be placed on academic probation and will elicit a critical review of the student's program by the Graduate Studies Committee.

In consultation with their advisor, a student will organize an advisory committee of at least three departmental members. In addition, a fourth member from outside the department, known as the Graduate College Representative, must be appointed. An additional committee member may be added at the student and department's discretion. Please see Graduate College policy for committee appointment guidelines.

Graduation Requirements

The student must submit all required forms to the Graduate College and then apply for graduation up to two semesters prior to completing their degree requirements.

The student must pass a final comprehensive examination.

Subplan 9 Requirements: Computational Mathematics - Thesis Track

Total Credits Required: 33

Course Requirements

Computational Mathematics Courses - Credits: 12

Complete 12 credits by completing all of the following courses:

MAT 665 Numerical Methods I	3
MAT 666 Numerical Methods II	3
MAT 765 Advanced Numerical Analysis	3
MAT 766 Advanced Numerical Analysis	3

Applied and Pure Mathematics Courses - Credits: 6

Complete 6 credits by completing 2 of the following courses:

MAT 707 Real Analysis I	3
MAT 708 Real Analysis II	3
MAT 709 Complex Function Theory I	3
MAT 710 Complex Function Theory II	3
MAT 729 Partial Differential Equations I	3
MAT 730 Partial Differential Equations II	3
MAT 771 Applied Analysis I	3
MAT 772 Applied Analysis II	3

Elective Courses - Credits: 9

Complete 9 credits of 600- or 700-level MAT or STA courses (excluding MAT 711 & 712), or other advisor-approved courses.

Thesis – Credits: 6

MAT 791 Thesis	1 – 6

Degree Requirements

Students must complete a minimum of 33 credits with a minimum GPA of 3.00.

Of the 33 required credits, 27 must be coursework. Of those 27 coursework credits, at least 18 must be 700-level.

A student will be placed on academic probation if a minimum of 3.00 GPA is not maintained in all work taken in the degree program. A grade of C or less in one graduate-level course will cause a student to be placed on academic probation and will elicit a critical review of the student's program by the Graduate Studies Committee.

In consultation with their advisor, a student will organize a thesis committee of at least three departmental members. In addition, a fourth member from outside the department, known as the Graduate College Representative, must be appointed. An additional committee member may be added at the student and department's discretion. Please see Graduate College policy for committee appointment guidelines.

Graduation Requirements

The student must submit all required forms to the Graduate College and then apply for graduation up to two semesters prior to completing their degree requirements.

The student must submit and successfully defend their thesis by the posted deadline. The defense must be advertised and is open to the public.

After the thesis defense, the student must electronically submit a properly formatted pdf copy of their thesis to the Graduate College for format check. Once the thesis format has been approved

by the Graduate College, the student will submit the approved electronic version to ProQuest. Deadlines for thesis defenses, format check submissions, and the final ProQuest submission can be found here.

Subplan 10 Requirements: Computational Mathematics - Comprehensive Exam Track

Total Credits Required: 30

Course Requirements

Computational Mathematics Courses - Credits: 12

Complete 12 credits by completing all of the following courses:

MAT 665 Numerical Methods I	3
MAT 666 Numerical Methods II	3
MAT 765 Advanced Numerical Analysis	3
MAT 766 Advanced Numerical Analysis	3

Applied and Pure Mathematics Courses - Credits: 6

Complete 6 credits by completing 2 of the following courses:

MAT 707 Real Analysis I	3
MAT 708 Real Analysis II	3
MAT 709 Complex Function Theory I	3
MAT 710 Complex Function Theory II	3
MAT 729 Partial Differential Equations I	3
MAT 730 Partial Differential Equations II	3
MAT 771 Applied Analysis I	3
MAT 772 Applied Analysis II	3

Elective Courses – Credits: 12

Complete 12 credits of 600- or 700-level MAT or STA courses (excluding MAT 711 & 712), or other advisor-approved courses.

Degree Requirements

Students must complete a minimum of 30 credits with a minimum GPA of 3.00.

Of the 30 required credits, at least 18 must be 700-level.

A student will be placed on academic probation if a minimum of 3.00 GPA is not maintained in all work taken in the degree program. A grade of C or less in one graduate-level course will cause a student to be placed on academic probation and will elicit a critical review of the student's program by the Graduate Studies Committee.

In consultation with their advisor, a student will organize an advisory committee of at least three departmental members. In addition, a fourth member from outside the department, known as the Graduate College Representative, must be appointed. An additional committee member may be added at the student and department's discretion. Please see Graduate College policy for committee appointment guidelines.

Graduation Requirements

The student must submit all required forms to the Graduate College and then apply for graduation up to two semesters prior to completing their degree requirements.

The student must successfully complete a final comprehensive examination.

Plan Graduation Requirements

Refer to your subplan for Graduation Requirements.

Subplan 1: Pure Mathematics – Thesis Track
Subplan 2: Pure Mathematics – Comprehensive Exam Track
Subplan 3: Applied Mathematics – Thesis Track
Subplan 4: Applied Mathematics – Comprehensive Exam Track
Subplan 5: Applied Statistics – Thesis Track
Subplan 6: Applied Statistics – Comprehensive Exam Track
Subplan 7: Teaching Mathematics – Professional Paper Track
Subplan 8: Teaching Mathematics – Comprehensive Exam Track
Subplan 9: Computational Mathematics - Thesis Track
Subplan 10: Computational Mathematics - Comprehensive Exam Track