

University of Nevada, Reno
Department of Mathematics and Statistics

M.S. Program in Mathematics

Handbook of Policies and Procedures
for Current Graduate Students
2020-21



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1 Introduction

The program of *Master of Science (MS) in Mathematics* at the University of Nevada, Reno (UNR) is offered by the Department of Mathematics & Statistics. The department is home of a dynamic group of over 25 award-winning graduate faculty with diverse interests and expertise in pure and applied mathematics and probability, statistics and data science.

Teaching assistantships, research assistantships, as well as department and university-wide scholarships, are available for qualified students. All graduate students accepted to the program with teaching assistantships, receive a stipend, tuition waiver, and a subsidized medical plan.

Faculty of the Department of Mathematics and Statistics are engaged in cutting edge research on topics spanning pure mathematics, applied mathematics, and statistics/probability. They collaborate with other researchers, both locally and at multiple institutions throughout the US and internationally. Their work is interdisciplinary, and includes joint projects with experimentalists. Graduate students have the opportunity to be part of these exciting activities. UNR and the Reno business community provide ample opportunities for internships and external research.

Located where the Sierra Nevada mountains meets the Great Basin, the university is 45 minutes from Lake Tahoe and 4 hours from San Francisco and the Napa-Sonoma wine country. Reno offers an excellent living environment, year-round outdoor activities, short commutes, a growing arts community, and an increasingly cosmopolitan flavor.

Contact Information

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2 Degree requirements

2.1 Degree Plans (Thesis vs. Non-Thesis)

Students may complete the program of “Master of Science in Mathematics” by choosing one of two possible degree plans:

- The Master’s Thesis Degree Plan (**Thesis Plan**), or
- The Comprehensive Exam Plan (**Non-Thesis Plan**).

To complete their master’s degree via the *Thesis Plan*, students must

- Complete at least 30 credits of acceptable graduate courses.
- Complete at least 6 thesis credits (by enrolling in the thesis course MATH 797).
- Complete at least 12 non-thesis credits of 700-level courses.
- Complete at least 21 credits through on-campus courses at the university. For transfer credits, please consult the Graduate Director.

To complete their master’s degree via the *Non-Thesis Plan*, students must

- Complete at least 32 credits of acceptable graduate courses.
- Complete at least 18 non-thesis credits of 700-level courses.
- Complete at least 23 credits through on-campus courses at the university. For transfer credits, please consult the Graduate Director.
- Pass the Comprehensive Exam, and complete 1 credit of the Comprehensive Exam course MATH 795.

2.2 Degree Options (Pure Mathematics vs. Applied Mathematics)

Within the program of “Master of Science in Mathematics”, each student chooses either *Pure Mathematics* or *Applied Mathematics* as their *Degree Option*. This choice determines the list of courses the student needs to complete for successful graduation.

2.2.1 Pure Mathematics

The Pure Mathematics option provides a solid foundation in the theoretical aspects of mathematics. To graduate, students must successfully complete the following two courses:

- MATH 713 (Abstract and Real Analysis I, offered every fall semester),
- MATH 731 (Modern Algebra I, offered in fall semesters of odd numbered calendar years).

Additionally, students must also complete at least one of the following three courses:

- MATH 714 (Abstract and Real Analysis II, offered in spring semesters of odd numbered calendar years),

- MATH 732 (Modern Algebra II, offered in spring semesters of even numbered calendar years),
- MATH 741 (Algebraic Topology I, offered in fall semesters of even numbered calendar years).

2.2.2 Applied Mathematics

The Applied Mathematics option provides a broad technical background for solving real-world problems. Students are required to complete

- MATH 713 (Abstract and Real Analysis I, offered every fall semester).

Additionally, student must also complete one of the following sequences of courses:

- MATH 701-702 (Numerical Analysis and Approximation I and II)
- MATH 721-722 (Nonlinear Dynamics and Chaos I and II),
- MATH 751-752 (Operations Research I and II),
- MATH 761-762 (Methods in Applied Math I and II).

An internship may be included in the plan of study, subject to availability and approval of the Graduate Advisor.

2.3 Electives

Electives will be approved by the student's Graduate Committee (Section 4). Appropriate courses outside the Department of Mathematics and Statistics may be approved, depending on the student's research interests.

2.4 The Master's Thesis

Students who choose the Thesis Plan (Section 4.1) must write a Master's Thesis to complete the program. This process starts with the student choosing a Thesis Advisor (Advisor), a choice typically made during the student's first year in the program. The Advisor is a graduate faculty member of the Department of Mathematics and Statistics who works in a research area of interest to the student. To initiate the Student-Advisor collaboration, the student should approach the faculty member and ask her/him if she/he is willing to serve as the student's Advisor. The student and Advisor jointly choose member of the student's Graduate Committee (Section on [Graduate Committee Selection](#)).

Once an Advisor has been identified, she/he will guide the student through the thesis writing process. This may involve preparatory work such as reading of books and/or research papers, computer programming, intense calculations, etc. While working on the thesis, the student needs to be enrolled in the thesis course MATH 797, completing a total of 6 credits. These are typically broken up as 3 credits in the student's 3rd and 4th semester in the program (though the student could choose to take all

6 credits in the 4th semester, for example).

The Advisor will instruct the student about the content and format of the thesis. A Master's Thesis, unlike a Ph.D. Thesis, is not expected to contain original content, but should demonstrate the student's mastery of a particular area of pure or applied mathematics. Upon completion, the student will defend her/his thesis by giving a public presentation, followed by a period of question by the student's Graduate Committee member.

2.5 The Comprehensive Exam

Students who choose the Non-Thesis Plan must complete the Comprehensive Exam. This exam is offered once a semester, on a Saturday during the last three weeks of the semester. The exact date for the exam is announced by the Graduate Director in a timely fashion.

The Comprehensive Exam is based on four 700-level courses that the student has taken in prior semesters. One of these courses must be MATH 713 (Abstract and Real Analysis I), while the remaining three courses are chosen by the student in concert with the Graduate Director or Graduate Advisor.

The Comprehensive Exam is 6 hours long and is broken up into a 3-hour morning session (9am-noon) and a 3-hour afternoon session (1pm-3pm). During each of the sessions, the student must complete exams in 2 courses. The student is given the choice of which two courses to test on in each of the sessions. If a student completes the exams from the morning session early, she/he may not start the exams of the afternoon session prior to the start of said session at 1pm.

Students will be allowed a maximum of two attempts at passing the Comprehensive Exam. During the semester the students takes the exam, she/he must be enrolled in MATH 795 – the Comprehensive Exam course.

2.6 Graduate School Academic Requirements

Good Standing Each graduate course must be completed with a grade of "C" or better for the credit to be acceptable toward an advanced degree.

In addition, students must maintain good standing with an overall cumulative graduate credit GPA of at least 3.0 on a scale of 4.0. Students must have a minimum GPA of 3.0 in order to meet graduation eligibility. All graduate students must maintain a cumulative graduate GPA of 3.0. If their GPA drops below 3.0 they are either placed on probation or dismissed. Undergraduate courses will not count towards graduate GPA.

Probation If the student's cumulative grade-point total is between 2.31 and 2.99, the student is placed on probation. The student must then raise her/his cumulative graduate GPA to 3.0 by the end of the following semester or the student will be dismissed from graduate standing. Thesis, dissertation, S/U graded credits, and transfer credits have no impact on a student's GPA.

Dismissal If the graduate grade-point total is 2.30 or lower, the student is dismissed from graduate standing, or if the graduate GPA remains below 3.0 for two (2) consecutive semesters, the student is dismissed from graduate standing.

Dismissed students are no longer in a graduate program but may take graduate-level courses as a Grad Special. Students wishing to complete their degree must obtain approval to take graduate-level courses, raise their graduate GPA to at least 3.0 and then re-apply to a graduate program. Any courses taken to raise their GPA will be included in the graduate special/ transfer credit limitation (9 credits for master's degrees).

3 Transfer credits

Transfer credits are credits transferred from another institution. Credits completed at UNR in another program or as a graduate special do not need to be transferred. Transfer credit is requested on the [Graduate Credit Transfer Evaluation Request](#) form available on Graduate School website

The form must be signed by the student, Major Advisor, and Graduate Director. Transfer credits applied to a master's program must comply with the time limitation on master's work (6 years). Thus, if a student took a course five years prior to admission, they would have to complete the degree within one year for the course to apply to the degree. Credits from a completed master's degree will be exempt from the 8-year time limitation for those students earning a doctoral degree.

4 Graduate Committee Selection

Each master's student on the Thesis Plan must secure a Thesis Advisor (Advisor), and a Graduate Committee. The Graduate Committee (Advisory-Examining Committee), chosen in communication between the student and her/his Advisor, serves as an advisory board to the student, on issues such as class selection, research work, thesis preparation and defense. The student is encouraged to form their committee as early as possible, but not later than the beginning of their 3rd semester.

The Graduate Committee must consist of a minimum of 3 graduate faculty members, including the Advisor, who functions as the committee's chair. At least 2 faculty members must be from the student's major department/program, and 1 faculty, from another department in a field related to the student's major member, serves as the Graduate School's representative. Formal approval of committee is made by the Graduate Dean.

5 Ph.D. Application process

This section contains information for students who wish to join the Ph.D. program in Mathematics, upon completing their MS Degree.

5.1 Required Application Materials

1. Official undergraduate/graduate transcripts from all previous institutions.
2. Official general Graduate Record Exam (GRE) score from within the past 5 years.
3. Official TOEFL/IELTS scores (only required for International students).
4. Three letters of recommendation.
5. Statement of purpose.
6. Resume.

5.2 Application Target Dates

Spring Semester Applications

First Deadline: October 1

Second Deadline: November 1

Fall Semester Applications

First Deadline: February 1

Second Deadline: March 1

Admissions and funding offers will be made shortly after the first deadline. Applications received between the first and second deadline will be given full consideration, but funding will be contingent upon availability. Applications will not be accepted after the second deadline.

Applications need to be submitted through the [Graduate School's website](#).

6 Timeline for degree completion

6.1 Recommended timeline for Thesis Plan

- Take 6-9 graduate credits per semester. For example, to reach the needed 30 credits for graduation, you may take 9 credits for two semesters and 6 credits for the other two semesters.
- Identify a Thesis Advisor and Graduate Committee during your first year in the program.
- As early as possible, but no later than the beginning of your 3rd semester in the program, complete the [Program of Study](#) form.
- Start work on your Master's Thesis by no later than the beginning of your 3rd semester.
- Complete work on your Master's Thesis during your 4th semester. Circulate your complete thesis among members of your Graduate Committee, at least two weeks prior to the thesis defense. In case of a very long or very detailed thesis, committee members may need more time to review your work.
- Schedule a public defense of your thesis. Consult your Advisor and Graduate Committee member about their time and availability.
- Upon a successfully defended thesis, file the [Notice of Completion](#) with the Graduate School.

6.2 Recommended timeline for Non-Thesis Plan

- Take 6-9 graduate credits per semester. For example, to reach the needed 32 credits for graduation, you may take 9 credits for three semesters and 5 credits during the remaining semester.

- As early as possible, but no later than the beginning of your 3rd semester in the program, complete the [Program of Study](#) form.
- Schedule the Comprehensive Exam during your 4th semester of the program. Identify which three courses (in addition to MATH 713) you would like to test in, and notify your instructors from those courses and the Graduate Director. Enroll in MATH 795 – the Comprehensive Exam course
- Upon a successful completion of the Comprehensive Exam, file the [Notice of Completion](#) with the Graduate School.

6.3 Forms required for graduation

Forms that are required to be submitted to the Graduate School during the progression to your terminal degree, can be found on their [Forms](#) web page. They include these forms (listed with a timeline for their submissions):

- [Declaration of Advisor, Major Advisor, Committee Chair](#)
 - For master's students on the Thesis Plan, the completed form must be submitted to Graduate School by the end of the student's 2nd semester.
- [Program of Study](#)
 - For master's students, completed form must be submitted to Graduate School by the end of the student's 3rd semester.
- [Graduation Application](#)
 - Must be submitted to the Graduate School several weeks in advance. Check their [website](#) for exact dates.
- The Notice of Completion form should be submitted after all requirements for the degree have been met.
- Optional [Exit Survey](#), to be completed upon graduation. This survey is voluntary, confidential, and takes about 5 minutes.

Master's degrees: All course work must be completed within six years preceding the awarding of the degree.

7 Master's Thesis Requirements

Each master student on a Thesis Plan must prepare a Master's Thesis guided by her/his Advisor. The Advisor must be selected from the graduate faculty members of the Department of Mathematics and Statistics. The details of thesis preparation and presentation should be discussed with the Advisor.

Graduate School forms and resources related to Master's Theses:

- [Masters Thesis Filing Guidelines](#)
- [Final Review Approval](#) – Obtain sign-off from advisory committee chair

- [Notice of Completion](#) – completed form should be submitted after all requirements have been met.

8 Graduate Assistantships

Teaching Assistantships award a stipend for the academic year plus a tuition and fee waiver and a subsidized medical plan. Teaching assistants will be expected to perform specific teaching and grading duties. Normally this will not exceed teaching 6 credit hours per semester or the academic equivalent. Awards are based on academic credentials submitted with the Graduate School application. Research Assistantships are sometimes available as well.

Teaching Assistantships (TA-ships) are also subject to the following guidelines

1. TA-ship support for Ph.D. students is normally approved for 8 semesters subject to normal degree progress if entering with a Bachelor's degree, and 4 semesters if entering with a Master's degree. To get TA-ship support beyond this period requires special semester-by-semester approval by the Graduate Committee.
2. Students being supported by a TA-ship are expected to enroll in at least 6 credits of approved graduate coursework. The courses Grad 701 and Math 899 do not count toward this 6-credit requirement.

All graduate students holding an assistantship are considered Nevada residents for tuition purposes. Non-resident tuition is only waived for the duration of the assistantship. To be eligible for an assistantship, students must be admitted to a degree-granting program and be in good academic standing. The student must have an overall GPA of at least 3.0 and must be continuously enrolled in at least 6 graduate level credits (600-700 level courses) throughout the duration of the assistantship.

State-funded assistantships (GTA/GRA) may be held for a maximum of three (3) years for master's degree students, and five (5) years for doctoral degree students.

Information on graduate assistantships can be found on the Graduate School's website at these links:

[General information](#)

[Assistantship handbook](#)

9 Health insurance

All domestic degree seeking graduate students, who are enrolled in 6 or more credits (regardless of the course level) in a semester, will be automatically enrolled and billed for the university sponsored health insurance for each term they are eligible (fall & spring/summer). If a student has other comparable coverage and would like to waive out of the student health insurance, it is the student's responsibility to complete the [University online waiver form](#) prior to the deadline. If approved, a health insurance waiver is good for the current academic year only. A new waiver must be submitted each academic year. All international graduate students are required to carry student health insurance, and

the cost will be automatically added to your student account. Any international graduate students with insurance questions must contact the [Office of International Students and Scholars \(OISS\)](#) directly.

10 Leave of Absence

Continuous Enrollment To maintain “good standing” all graduate students are required to enroll in a minimum of three (3) graduate credits each fall and spring semester until they graduate. International students may be required to enroll in nine graduate credits each fall and spring semester depending on the requirements of their visa. All students holding assistantships (whether teaching or research assistantships) are required to enroll in a minimum of six (6) graduate credits each semester they hold the assistantship.

Leave of Absence Students in good standing may request a leave of absence by completing a [Leave of Absence Form](#) available on the Graduate School’s website, during which time they are not required to maintain continuous registration. Usually, a leave of absence is approved for one or two semesters. The leave of absence request may be extended by the student filing an additional leave of absence form. Students applying for a leave of absence should not have any “incomplete” grades which could be changed to “F” and have a detrimental impact on their cumulative GPA. Requests for leave of absences must be received by the Graduate School no later than the last day of enrollment for the semester the leave is to begin.

Reinstatement to Graduate Standing When a student has been absent for one semester or more without an approved leave of absence, she or he may request reinstatement via the [Notice of Reinstatement to Graduate Standing Form](#). This form allows the program the option to recommend the student be re-admitted to their graduate program based on their previous admission, or require the student to re-apply for admission which would require students to submit a new application for admission and pay the application fee. The Notice of Reinstatement to Graduate Standing must be received by the Graduate School no later than the last day of enrollment for the semester the reinstatement is to begin.

11 Graduate Student Association

The [Graduate Student Association \(GSA\)](#) represents all graduate students and promotes the welfare and interests of the graduate students at the University of Nevada, Reno. The GSA works closely with appropriate university administrative offices, including the Graduate School and Student Services and reports to the President of the University. The GSA government functions through the Council of Representatives, Executive Council and established committees.