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1 Program Description

The Ph.D. program in Mathematics is designed to provide training in fundamental methods and concepts of modern Mathematics, including interdisciplinary collaborative research. The program builds research skills that will position students to be competitive in pursuing careers in academic, government, and business environment.

1.1 Student Learning Outcomes (SLOs)

After completion of the program the students will:

- Attain and demonstrate the appropriate level of expertise in fundamental mathematics areas and in the individual's research field.
- Demonstrate the ability to do independent original research in mathematics on the level of a Ph.D. dissertation.
- Demonstrate the ability to communicate the results of the research both orally and in writing.

For more information about the program, please contact

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2 Degree Requirements

2.1 Coursework

Candidates for the Doctor of Philosophy degree must satisfy all general requirements of the Graduate School. In addition, students must complete a minimum of 72 hours of graduate credits including at least 48 hours of coursework. At least 30 of the course credits should be at the 700 level, and at most 24 should be dissertation credits (as required by the graduate school).

2.1.1 Required Courses

The following courses or their equivalents must be satisfactorily completed for the doctoral degree in mathematics:

- MATH 640 – Topology (3 units)
- MATH 701 – Numerical Analysis and Approximation I (3 units)
- MATH 713 – Abstract and Real Analysis I (3 units)
- MATH 714 – Abstract and Real Analysis II (3 units)
- MATH 715 – Complex Function Theory I (3 units)
- MATH 731 – Modern Algebra I (3 units)
- MATH 751 – Operations Research I (3 units)
- MATH 7xx – Advanced Linear Algebra (3 units)
- STAT 705 – Probability Theory (3 units)
- MATH 799 – Dissertation (24 units S/U required)
- Approved electives, based on research interests (21 units)
  - 12 credit maximum of independent studies
  - 8 credit maximum of MATH 7xx – Colloquium
2.1.2 Electives

Electives will be approved by the student’s graduate advisory committee. Appropriate courses outside the Department of Mathematics & Statistics may be approved, depending on the student’s research interests.

Students entering with a master’s degree may receive up to 24 credits for previous course work (excluding thesis credits), and these credits may satisfy some course requirements with the approval of the Graduate Director.

2.2 Qualifying Exams

After the first year, and by the end of the second year, every student must pass written qualifying exams in Analysis (MATH 713, MATH 714, MATH 715) and Algebra (MATH 731, MATH 7xx), and in one of the following areas: Topology (MATH 640), Numerical Analysis and Approximation (MATH 701), Operations Research (MATH 751), or Probability (STAT 705). The students will be allowed a maximum of two attempts at each of the exams in the first two years of the Ph.D. program. Each exam can be passed at M.S. level (low pass) or Ph.D. level (high pass). To proceed with the Ph.D. program all exams must be passed at the Ph.D. level. If all exams are passed at the M.S. level but not all at the Ph.D. level, and other requirements for the M.S. degree are satisfied, the student will end her/his program with an M.S. degree in Mathematics.

2.3 M.S. degree along the way to Ph.D.

Students in the Ph.D. program in Mathematics may earn an M.S. degree in Mathematics along the way to Ph.D., by satisfying the current M.S. degree requirements. Students qualify in the semester in which all degree requirements for the master’s have been met. Students may not receive a master’s degree along the way to the Ph.D. if the student has earned a previous master’s degree at any time and units from that degree are counted towards the Ph.D.

2.4 Admittance to Candidacy

To be admitted into Ph.D. candidacy, after successfully completing the first 2 years of coursework and passing written qualifying exams, a student must pass an oral exam in the area of specialty. Students will be expected to complete their oral exam by the end of their third year. The exam is directed by the student’s graduate advisory committee. The purpose of the exam is two-fold, serving both as a subject-specific oral exam and a dissertation proposal. It provides students an opportunity to formulate a clear plan for their dissertation research, and to strengthen their background following their written exams and in preparation for conducting their own dissertation research.

2.5 Ph.D. Dissertation

The student will prepare a Ph.D. dissertation supervised by a graduate faculty member in the Mathematics & Statistics department and approved by the student’s dissertation committee, followed by a public oral presentation. The dissertation is then submitted for the Graduate School and institutional approval. See also Section 7.

2.6 Graduate School Academic Requirements

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: Students whose cumulative graduate GPA is 0.1 to 0.6 points below that needed for a 3.0 GPA are put on probation. Students are placed on academic probation for one semester. If they fail to raise their cumulative GPA to 3.0 by the end of one semester, they are dismissed from their graduate program. Thesis, dissertation, S/U graded credits, and transfer credits have no impact on a student’s GPA.

Dismissal: Students whose cumulative graduate GPA is 0.7 or more grade points below that needed for a 3.0 GPA are dismissed. 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

These 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:

http://www.unr.edu/Documents/graduate-school/GraduateCreditTransferEvaluationRequest.pdf

The form must be signed by the student, major adviser, 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 Timeline for Degree Completion

4.1 Recommended Timeline

• Take 9 graduate credits per semester

• Between second and fourth semesters: Complete written qualifying exams.

• Beginning of the fourth semester: Secure dissertation committee and begin formulating the topic of the dissertation.

• Fifth semester: Complete Ph.D. Program of Study form, confirm with adviser, and secure committee signatures.

• Fifth semester: Start working on the dissertation with adviser.

• By the end of sixth semester: Complete oral exam in the area of specialty.

• Seventh semester: Begin dissertation draft.

• Eighth semester: Complete dissertation draft, discuss with committee, finalize dissertation according to committee recommendations, present the dissertation.

4.2 Required Forms & Deadlines

• Declaration of Adviser/Major Adviser/Committee Chair
  http://www.unr.edu/grad/forms/declaration-of-advisor
  – Completed form must be submitted to Graduate School by the end of the student’s third semester.

• Program of Study
  http://www.unr.edu/Documents/graduate-school/program-of-study.pdf
  – Completed form must be submitted to Graduate School by the end of the student’s fourth semester.

• Doctoral degree admission to candidacy
  http://www.unr.edu/Documents/graduate-school/17doctoral-degree-admission-to-candidacy.pdf
  – To be completed once all requirements are met except for the dissertation.

• Graduation Application
  http://www.unr.edu/grad/forms/graduation-application
  – Must be submitted to the graduate school several weeks in advance. Check website for exact dates.

• Final Review Approval
  – Obtain sign-off from advisory committee chair once all requirements have been met.
• Notice of Completion
  – Completed form should be submitted after all requirements have been met.

• Exit Survey
http://www.unr.edu/grad/forms/exit-survey

You can find an updated list of forms and requirements at http://www.unr.edu/grad/forms.

5 Committee Selection Guideline

Each student must secure a Ph.D. dissertation committee. The role of the committee is to advise the student during his/her Ph.D. Program career on class selection and order, research work, specialty exam, dissertation preparation and defense. The students are encouraged to form their committee as early as possible, but not later than the end of their fourth semester. The Graduate School requires each student to form the committee by the end of their fourth semester.

The committee must consist of a minimum of five graduate faculty members; the adviser (who will chair the committee), at least two faculty members from the student’s major department/program, at least one faculty member from another department in a field related to the student’s major, and at least one Graduate School representative. Formal approval of committee is made by the Graduate Dean.

6 Comprehensive Exams

See Section 2.2.

7 Dissertation Requirements

Each student must prepare a Ph.D. Dissertation guided by his/her adviser. The adviser must be selected from the graduate faculty members of the Department of Mathematics & Statistics. The details of dissertation preparation and presentation should be discussed with adviser.

7.1 Graduate School Forms and Resources

• Doctoral Dissertation Filing Guidelines
  http://www.unr.edu/grad/forms/dissertation-filing-guidelines

• Dissertation Title Form

8 Graduate Assistantships

Teaching Assistantships award a competitive 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 are also subject to the following guidelines:

1. TA support is normally approved for 8 semesters for students entering with a bachelor degree and 4 semesters for students with a master degree, subject to good academic standing and normal degree progress. To get TA support beyond this period requires special semester-by-semester approval of the Graduate Committee.

2. Students being supported by a TA 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 (teaching GTA or GRA) 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) 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 assistantship in the graduate school website:

- General information
  http://www.unr.edu/grad/funding/graduate-assistantships
- Graduate Assistantship handbook
  http://www.unr.edu/Documents/administration-finance/hr/hr-graduate/GA_handbook.pdf

9 Health Insurance

All domestic degree seeking graduate students, who are enrolled in six 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. See http://www.unr.edu/grad/health-insurance.

10 Leave of Absence

10.1 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.

10.2 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 website (http://www.unr.edu/Documents/graduate-school/leaveofabsencer_9.23.pdf) 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.

10.3 Reinstatement

When a student has been absent for one semester or more without an approved leave of absence, he or she may request reinstatement via the Reinstatement form, available on the Graduate School website (http://www.unr.edu/Documents/graduate-school/noticereinstatementgraduatestanding_9.23.pdf). 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. See http://www.unr.edu/gsa/.