Department of Mathematics
University of Florida

Guidelines for Graduation with Honors in Mathematics

Every graduate of the College of Liberal Arts and Sciences with an upper-division grade point average (GPA) of 3.5 or better shall receive at least a cum laude (honors) designation on their diploma; a student not meeting the GPA criterion shall not be eligible for any honors designation. To be eligible for the designation *magna cum laude* (high honors) or *summa cum laude* (highest honors), a mathematics major must meet the GPA criterion, write, and submit an additional thesis. The thesis advisor(s) will make a recommendation for the specific honors designation based on their reading of the thesis. The final decision on the honors designation will be made by the Undergraduate Coordinator who may further consult with the Undergraduate Committee.

1 Distinctions Between Magna and Summa Designations

This *summa cum laude* designation is reserved for only a few excellent students who show genuine promise as mathematicians. Their honors thesis should display originality in the solution of an acknowledged open problem, provide a proof of a new result, or provide a new proof of a known result. The quality of the work should be exceptional for an undergraduate and should carry the possibility for a publication in a peer-reviewed mathematical journal although the thesis itself need not be written in journal-ready format.

For a *magna cum laude* designation, a thesis need not be at the publication-ready level. The thesis advisor(s) may confer with the Undergraduate Coordinator before directing a student into a specific thesis category. Below is the list that includes but is not limited to thesis categories appropriate for a magna designation.

1.1 Sample of thesis categories for a magna designation

1. *Proof.* The student may independently arrive at and write up the proof of a theorem. The result need not be entirely original, but the work is expected to be beyond normal course work. For example, the student might fill in the gaps of a proof in the literature.

2. *Mathematical model with application.* The student may present a novel mathematical model and provide more than a routine analytical/numerical solution of the corresponding system

of equations intended to model a real-world problem. The thesis should also include an argument for the appropriateness of the model to the application and investigate the role of the model's parameters.

3. *Data analysis.* The student may develop more than an elementary application of statistical and/or topological methods to a real-world dataset. The analysis should be general enough to be transferable to other datasets that would originate from a similar source or sampling technique.

4. *Computer code/algorithm.* The student may develop a novel algorithm, correctly code this algorithm and present the proof of the correctness. If the code is a computer simulation intended to model a real-world problem, thesis should also contain an analysis of the behavior of the code for an interesting and broad variety of parameters.

5. *History of mathematics.* The student may read a paper or papers by an original author. The student's writing should show a clear understanding of the basic problem being addressed, the author's approach, the contemporary methods available to the author, the impact at the time of the writing and the present, and possibly discuss how the same problem would be approached using modern mathematical tools.

The thesis may include a combination of the above or belong to a different category approved by the student's thesis advisor(s) in consultation with the Undergraduate Coordinator.

2 General Guidelines for Writing and Submitting a Thesis

2.1 Writing the Thesis

The thesis must be typed professionally using LaTeXor an appropriate substitute approved by the thesis advisor. The Graduate School's thesis-style template and style requirements are highly recommended, although not required. The thesis should be grammatically correct and without spelling errors. The thesis must be mathematically correct, and must represent independent work by the student, even though the results need not be original. The thesis should be written at such a level of detail that the contents would be understandable to other students who have successfully completed an appropriate undergraduate course.

Subject to the approval of the Undergraduate Coordinator, an article authored solely by the student may be submitted as the thesis if the article has already been accepted by a standard peer-reviewed research journal aimed at experts in a mathematical field.

It is up to the student's thesis advisor(s) to set an appropriate length for the thesis. However, a typical thesis is in the 10-20-page range. Theses should not be shorter than this unless they represent new research that happens to be presentable in a shorter format. Expository theses may be longer.

The content of the thesis must adhere to the University's Student Conduct and Honor Code.

2.2 Submitting the Thesis

It is highly recommended that the student begin work on their thesis at least one semester prior to their final/graduating semester.

1. The student must complete a Thesis Submission Form (note that it requires an abstract) and email it to the Undergraduate Coordinator no later than the Friday of the second week of the graduating semester.
2. A copy of the thesis, accepted by the thesis advisor(s) as a final draft, must be submitted by email to the Undergraduate Coordinator no later than one week before the last day of classes.
3. A final version of the thesis must be submitted to the UF Library no later than the last day of classes: `https://guides.uflib.ufl.edu/c.php?g=966329&p=7028773`

The Undergraduate Coordinator will consider an appeal of the honors designation only if the student has adhered to the deadlines and procedures outlined above.

2.3 Additional Recommendations

Students who start working with a faculty mentor early enough in their academic careers are encouraged to apply for the Undergraduate Scholars Program (USP) or the CLAS Scholars Program (CSP). The application deadline is usually in February, and only students who will graduate no earlier than spring of the next calendar year are eligible. Each student in the University Scholars or CLAS Scholars program receives a stipend over the next academic year. The same project may serve simultaneously for the student's thesis work and Undergraduate Scholars project.

Students working on an honors thesis may wish to sign up for MAT 4905, Individual Work. The Undergraduate Coordinator, in consultation with the student's thesis advisor, will decide how many credits to give (one, two, or three in a given semester). However, under no circumstances will Individual Work count towards the math-major requirements; e.g., it cannot substitute for one of the student's four math-major electives. Individual work in general and honors-thesis work in

particular, is done over and above the basic math-major requirements, not in partial fulfillment of them.

3 Recognition of Honors Graduates

All mathematics majors graduating with honors will be recognized at the annual Spring Celebration ceremony.

Each student who submitted an honors thesis will get an opportunity to present their work to other students during the Undergraduate Mathematics Research Symposium typically held in the concluding week of each Spring semester.