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 receives at least a *cum laude* (honors) designation on his or her diploma; students not meeting this GPA criterion are ineligible for honors designations. ("Upper-division GPA" is defined as the the GPA computed from all non-S/U courses taken at UF starting with the first semester in which the student enrolls after he/she has completed 60 hours. The courses themselves may be at any level.) To be eligible for the designation *magna cum laude* (high honors) or *summa cum laude* (highest honors), mathematics majors must write a thesis *in addition meeting the GPA criterion.* The Undergraduate Coordinator will make the final decision on the honors designation after consulting with the student's supervisor. **Effective fall 2005, only students meeting the requirements listed in the latest Undergraduate Catalog will be eligible for the designation *summa cum laude*.** (The highest designation available to students meeting the then-current Bachelor of Arts requirements but not the then-current Bachelor of Science requirements will be *magna cum laude.*)

General thesis guidelines

The thesis must be neatly typed and formatted. The Graduate School's thesis-style requirements should be a target for the quality of the format, though not a requirement. 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. 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 research journal aimed at experts in a mathematical field. In all other cases, the thesis should be written at at such a level that it would be understandable to other students who have successfully completed an appropriate undergraduate course. The content of the thesis must adhere to the University's Academic Honesty Guidelines as they appear on the website `http://www.dso.ufl.edu/judicial/honestybrochure.htm`.

Students whose theses fail to meet these general guidelines but who graduate with an upper-division GPA of at least 3.5 GPA will receive a *cum laude* designation.

Students who start working with a faculty mentor early enough in their academic careers are encouraged to apply for the Undergraduate Scholars Program (USP). 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 USP receives a stipend over the next summer and fall, as well as some travel money. The same project may serve simultaneously for the student's thesis-work and Undergraduate Scholars project. Information on the USP is available at `http://www.scholars.ufl.edu`.

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 supervisor, will decide how many credits to give (1, 2, or 3 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.

Length of thesis

It is up to the student's supervisor to set an appropriate length for the thesis. However, typically, theses are 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.

Guidelines for the designation *magna cum laude*

For a *magna* designation, an undergraduate thesis need not be a standard research-journal-style mathematics paper, or work that could be rewritten as such a paper. Listed below are some acceptable general categories into which the thesis may fall. Other categories are possible, but the supervisor should confer with the Undergraduate Coordinator (who, in turn, may wish to confer with the Undergraduate Committee) before directing the student into a category not listed below.

Among the categories into which the thesis may fall are:

1. *Proof.* The student should 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. *Applied-mathematics model.* The student should provide more than a routine solution of a system of equations intended to model a real-world problem. There should also be an argument for the appropriateness of the model to the problem and some analysis of the role of the problem's parameters.

3. *Data analysis.* The student should demonstrate more than an elementary application of statistical methods. The analysis should be general enough to be transferable to other data-sets that would originate from a similar source or sampling technique.

4. *Computer program.* The student should correctly program a problem and argue for the correctness of the code. If the program is a computer simulation intended

to model a real-world problem there should be an analysis of the behavior of the code for an interesting and broad variety of parameters.

5. *History of mathematics.* Preferably, the student should 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 methods available to the author, the impact at the time of the writing and the present, and possibly how the problem would be approached today.

Guidelines for the Designation *summa cum laude*

This designation is reserved for only a few excellent students who show genuine promise as mathematicians (and, starting fall 2005, who meet the then-current requirements for a Bachelor of Science in Mathematics). The 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 of being published in a peer-reviewed journal—i.e. one that is refereed by mathematicians—although the thesis itself need not be written in journal-ready form.

Submitting the thesis

By the deadlines below, the student should hand in one copy of the thesis to the Academic Advising Center, one copy to the student's supervisor, and one copy to the Undergraduate Coordinator (who will maintain an archive of theses so that future students and supervisors can see what has been done in the past).

1. No later than the last day of classes of the semester in which the student is graduating, an unbound copy of the thesis must be turned in at 105 Academic Advising Center, along with a typed thesis-submission form (available under "QuickLinks" at `www.honors.ufl.edu`).

2. Several weeks before the last day of classes the student should give at least a first draft of the thesis to the supervisor. For the final draft of the thesis, the supervisor will set a deadline no later than two or three weeks before the end of classes. Once the supervisor is satisfied, he or she will communicate a recommended honors-designation to the math department's Undergraduate Coordinator, who will set the final designation. If the student feels he or she deserves a higher designation, he or she may make an appeal to the Undergraduate Coordinator, provided the thesis is handed in early enough (see below).

3. As soon as the student has a draft that the supervisor accepts as final, but no later than the last day of classes, the student should turn in a copy to the

Undergraduate Coordinator. The Undergraduate Coordinator will consider an appeal of the recommended designation *only* if a final draft of the thesis is turned in to him or her *no later than one week before the end of classes.*