COMPUTATIONAL MATHEMATICS, PH.D.

In 2008, UNCG became the only university in the North Carolina system to offer a Ph.D. in Computational Mathematics. Following the advent of the computer, computational mathematics has emerged as an exciting, rapidly growing area of mathematics. Research in computational mathematics brings together computing power and theoretical mathematics. This challenging and rigorous program culminates in the defense of an original dissertation that is suitable for publication in a refereed journal. Upon completion of this degree the successful student will be capable of producing new results in their chosen area of research.

For information regarding deadlines and requirements for admission, please see the Guide to Graduate Admissions.

In addition to the application materials required by The Graduate School, applicants must submit a 500-700 word personal statement to be considered for admission.

M.A. Doctoral Track

The M.A. Doctoral Track offers exceptionally well-qualified applicants the opportunity to gain admission to the master’s and doctoral programs simultaneously. This program is designed for students who would like to obtain their M.A. and then proceed directly to the Ph.D. program. Students accepted into the M.A. Doctoral Track must fulfill all requirements for the M.A. and the Ph.D. and will earn both degrees. Students not accepted into the M.A. Doctoral Track may still be accepted into the M.A. only program.

Ph.D. Track

Students who enter with an M.A. in Mathematics are required to earn a minimum of 48 credit hours, pass the preliminary examination, obtain approval of a dissertation topic, and successfully defend their dissertation. Students entering with other advanced degrees will have their transcripts individually evaluated by the Director of Graduate Study to establish the minimum coursework required.

Degree Program Requirements

Required: 48 credit hours minimum

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Work (27-30 credits)</td>
<td>Select 27-30 credits of advanced coursework (600-/700-level courses) in mathematics, statistics, and related areas *</td>
<td>27-30</td>
</tr>
<tr>
<td>Dissertation (18-21 credits)</td>
<td>MAT 799 Dissertation</td>
<td>18-21</td>
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</tbody>
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Total Credit Hours 45-51

NOTE: All students must complete 48 credit hours for the Ph.D. in Computational Mathematics. The range of total credit hours that appears in the course list above reflects only a minimum-maximum sum of the credits listed for the program requirements.

* The selection of coursework must be approved by the Director of Graduate Study.

Preliminary Examination

Each student must pass the doctoral preliminary exam, which consists of both a written and oral component. For the written part, the student must pass exams in two out of the following three topics: Mathematical Analysis, Linear Algebra and Matrix Theory, and Mathematical Statistics, and these written examinations will be administered by the Graduate Studies Committee. The oral part will be administered by the dissertation committee.

Dissertation Topic Proposal

Each student forms a dissertation committee in consultation with the Director of Graduate Study. With the help of the advisor, the student must propose a dissertation topic in a public oral presentation and defend the topic to their dissertation committee.

Dissertation Defense

Each student must present their completed dissertation research in a public oral presentation and defend the research to their dissertation committee.