**Department of Mathematics and Statistics: Doctoral Plan Of Study (Fall 2022)**

Student: ___________________________  Program:  Ph.D. in Computational Mathematics
ID #: ___________________________  Advisor: ___________________________

### COURSEWORK (MINIMUM 48 - 54 CREDIT HOURS)

Choose at least two courses from the following list.

- [ ] MAT 630 Computational Discrete Mathematics (3)  
- [ ] MAT 627 Numerical Methods (3)  
- [ ] STA 642 Statistical Computing (3)  

Choose at least 48 credit hours of approved coursework.

- [ ] STA 622 Complex Data Analysis (3)  
- [ ] STA 635 Theory of Linear Regression (3)  
- [ ] STA 642 Statistical Computing (3)  
- [ ] STA 651 Mathematical Statistics (3)  
- [ ] STA 652 Mathematical Statistics (3)  
- [ ] STA 661 Advanced Statistics in the Behavioral and Biological Sciences I (3)  
- [ ] STA 662 Advanced Statistics in the Behavioral and Biological Sciences II (3)  
- [ ] STA 665 Analysis of Survival Data (3)  
- [ ] STA 670 Categorical Data Analysis (3)  
- [ ] STA 671 Multivariate Analysis (3)  
- [ ] STA 673 Statistical Linear Models I (3)  
- [ ] STA 674 Statistical Linear Models II (3)  
- [ ] STA 675 Advanced Experimental Design (3)  
- [ ] STA 676 Sample Survey Methods (3)  
- [ ] STA 682 Theory of Time Series (3)  
- [ ] STA 703 Topics in High Dimensional Data Analysis (3)  

- [ ] MAT 701 Graduate Seminar in Computational Mathematics  
  (___ credit hours)  

- [ ] STA 701 Seminar in Computational Statistics  
  (___ credit hours)  

- [ ] MAT 709 Topics in Computational Mathematics  
  (___ credit hours)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>STA 709</td>
<td>Topics in Computational Statistics</td>
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<tr>
<td>MAT 721</td>
<td>Mathematical Cryptography</td>
<td>(3)</td>
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<tr>
<td>MAT 723</td>
<td>Numerical Mathematics</td>
<td>(3)</td>
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<tr>
<td>MAT 726</td>
<td>Finite Element Methods</td>
<td>(3)</td>
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<tr>
<td>MAT 727</td>
<td>Linear Algebra</td>
<td>(3)</td>
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<tr>
<td>MAT 728</td>
<td>Numerical Linear Algebra</td>
<td>(3)</td>
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<tr>
<td>MAT 735</td>
<td>Ordinary Differential Equations</td>
<td>(3)</td>
</tr>
<tr>
<td>MAT 736</td>
<td>Partial Differential Equations</td>
<td>(3)</td>
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<tr>
<td>MAT 737</td>
<td>General Topology</td>
<td>(3)</td>
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<tr>
<td>MAT 740</td>
<td>Algebra I: Groups and Rings</td>
<td>(3)</td>
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<tr>
<td>MAT 741</td>
<td>Algebra II: Modules and Fields</td>
<td>(3)</td>
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<tr>
<td>MAT 742</td>
<td>Computational Algebraic Number Theory</td>
<td>(3)</td>
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<tr>
<td>MAT 737</td>
<td>Complex Analysis</td>
<td>(3)</td>
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<tr>
<td>MAT 745</td>
<td>Measure Theory</td>
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<td>MAT 746</td>
<td>Real Analysis</td>
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<td>MAT 747</td>
<td>Computational Topology</td>
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<td>MAT 748</td>
<td>Computational Algebra</td>
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<tr>
<td>MAT 749</td>
<td>The Mathematics of Machine Learning</td>
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<tr>
<td>MAT 751</td>
<td>Advanced Topological Data Analysis</td>
<td>(3)</td>
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<tr>
<td>MAT 790</td>
<td>Directed Doctoral Research</td>
<td>(3)</td>
</tr>
<tr>
<td>MAT 799</td>
<td>Dissertation</td>
<td>(3)</td>
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</table>
Choose additional electives that do not count toward the required 48 hours.

☑ MAT 695 Mathematical Analysis (3)  
☑ MAT 696 Mathematical Analysis (3)  
☑ MAT 601 Seminar in the Teaching of Mathematics I (1)  
☑ MAT 602 Seminar in Mathematical Software (3)  
☑ MAT 603 Practicum in the Teaching of Mathematics (2)  

Qualifying Exams

Choose two areas.

☐ Mathematical Analysis  
☐ Linear Algebra and Matrix Theory  
☐ Linear Models  
☐ Mathematical Statistics  

Preliminary Examination

☐ Written component  
☐ Oral component  

Dissertation Research

Include 18–21 credit hours of MAT 799 Dissertation in required 48 hours.

Dissertation committee: ____________________________ (Chair)  
_____________________________________________  
_____________________________________________  
_____________________________________________  
_____________________________________________  

Oral topic proposal and defense  
Written dissertation research outline  
Oral dissertation presentation and defense
SIGNATURES

Sign and print below.

Student: ______________________ Date: ____________

__________________________

DGS: ______________________ Date: ____________

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