

**COURSE REQUIREMENTS
LINCOLN UNIVERSITY
DEPARTMENT OF MATHEMATICS
AND COMPUTER SCIENCE**

Name	Major	BS
SS#	Minor	BA
Advisor	2 nd Major	

MATHEMATICS MAJOR

DEPARTMENTAL CORE COURSES (24 credits)					
Number	Name	Credit	Semester	Grade	
MAT 121	Calculus I	4			
MAT 122	Calculus II	4			
MAT 213	Discrete Mathematics*	3			
MAT 214	Linear Algebra*	3			
MAT 221	Calculus III	4			
MAT 341	Math Statistics I	3			
MAT 421	Analysis I*	3			

Revised Computational Math – Total 60 credits			Current Applied Math Emphasis- Total 72+ credits		
Number	Name	Credits	Number	Name	Credits
	Math Core Courses	24		Math Core Courses	24
MAT 212	Math Modeling	3	MAT 212	Math Modeling	3
MAT 222	Differential Equations	3	MAT 222	Differential Equations	3
MAT 313	Numerical Methods	3	MAT 313	Numerical Methods	3
			MAT 342	Math Stat II	3
CSC 254	Data Structures	3	CSC 254	Data Structures	3
CSC 353	Computer Org & Assembly	3			
CSC 354	Data Base Management	3			
CSC 455	Math & Stat Software	3	CSC 455	Math & Stat Software	3
Electives (6 credits)- choose two			Electives (6 credits)- choose two		
Additional Math Course at the 300-400 level			MAT 422 Analysis II or MAT 423 Complex Variables		
Additional Computer Science course at 300-400 level			CSC 451 Computer Simulation or CSC 4532 Computer Graphics		
Approved computational science course **			PHY 211, 271, 311, or 371		
Required CSC minor (courses listed above)			Required minor (15+ credits)- CSC, BIO, CHE, or PHY		
Computer or Language (6 credits)					
CSC 158	Comp. Programming I	3			
CSC 159	Comp. Programming II	3			
Enrichment (3 credits)- choose one					
MAT 475	Seminar I*	3			
MAT 499	Internship	3			

*Writing Emphasis Courses

** Department Chairperson must approve courses from outside the department

Computational Mathematics Emphasis Program

The Computational Math Emphasis Program is a revision of the current Applied Math Emphasis program, which has not been popular with students. The Computational Mathematics program combines the logic of mathematics with the application of today's fastest and most powerful computers. In Computational Mathematics, more emphasis is given on using the computer as a tool to solve mathematically modeled real-world problems. As a result, computational mathematics integrates mathematical theory into solutions for real-world problems, offering the best of mathematics and computer science. Computational Mathematics includes the study of problems that have applications in engineering, operations research, computer science and other areas of the sciences. Computational Mathematics provides a solid foundation in both mathematics and computational science, preparing its students to fill positions such as mathematical analysts, scientific programmers, computer science, systems analysts, data mining and others.

- The Computational Math Emphasis Program consists of the mathematics major core & applied courses with a built-in CSC minor courses and appropriate electives. This program better fits the strengths of the Mathematics and Computer Science Department and the interests of students who have a talent for math but who are not interested in being an actuary or teacher. This program would be a good complement to the CSC major and the Computational Science minor. In addition, it would be an attractive second major for students majoring in any of the other sciences. Since this program only uses existing courses, approval would not require any new courses or new faculty.
- Computational Math programs are offered at an increasing number of colleges and this proposed program is comparable to similar undergraduate programs offered elsewhere. There is a rising number of Computational Mathematics journals, conferences, and grants available as well as expanded opportunities for students with internships, fellowships, and graduate programs. In addition, a Computational Math graduate with a science minor could also apply for graduate programs in related fields of Computational Science, such as Biostatistics, Bioinformatics, or Computational Chemistry.

ACADEMIC MAJOR: Mathematics - **Computational Mathematics Emphasis**

Department: Lincoln University, Mathematics and Computer Science

DATE

Fall - 1 st year	Spring - 1 st year
(3) MAT-111: PreCalculus ¹ or higher	(4) MAT-121: Calculus I
(3) CSC-158: Programming I ¹	(3) CSC-159: Programming II
(3) ENG-101: Composition I ²	(3) ENG-102: Composition II
(3) FYE 101: First Year Experience	(3) ART-200 or MUS-200 (Intro. to Art or Music)
(3) SOS 151: African American Experience	(2) HPR-101: Dimensions of Wellness
Total: 15 credits	Total: 15 credits
Fall - 2 nd year	Spring - 2 nd year
(4) MAT-122 Calculus II	(4) MAT-221 Calculus III
(3) MAT-213: Discrete Mathematics	(3) MAT 214 Linear Algebra
(3) MAT-212 Math Modeling	(3) MAT 222 Differential Equations
(3) CSC 254 Data Structures	(3) REL 200 or PHL 200 (Intro Religion or Music) ²
(3) ENG-207 or 208: World Literature I or II	(3) Social Science core requirement #1
Total: 16 credits	Total: 16 credits
Fall - 3 rd year	Spring - 3 rd year
(3) MAT 341 Math Stat I	(3) MAT 313 Numerical methods
(3) CSC 353 Computer Org & Assembly	(3) CSC 354 Data Base Management
(3) Program Elective #1	(3) Program Elective #2
(4) Science core course #1	(3-4) Science core course #2
(3) Social Science core requirement #2	(3) Elective
Total: 16 credits	Total: 15-16 credit
Fall - 4 th year	Spring - 4 th year
(3) MAT 421 Analysis I	(3) MAT 475 Seminar I (Capstone)
(3) CSC 455 Math & Stat Software	(3) Program Elective #3
(3) Elective	(3) Elective
(3) Elective	(3) Elective
(3) Elective	(0-3) Elective
Total: 15 credits	Total: 12-15 credits
Total Credits: 120-124*	

Note: Some courses may not be offered at the designated semesters due to low enrollments.

¹ Math prerequisites MAT-110.

² Developmental Courses in ENG or EDU may be needed as prerequisites

