B.A. IN MATHEMATICS

College of the Sciences and Mathematics

Curriculum

Curricun		
Code	Title	Credits
	DUCATION REQUIREMENTS (http://	
	du/undergraduate/general-education-	
requirements/)	1	
Academic Foun		
_	ience requirement	4
	sition requirement	6-7
Mathematics rec	*	3-4
Interdisciplinary	-	3
	inities requirement	3
Ethics requirem		3
~	ciplinary Foundations	()
Science requiren		6-8
	cial Science requirement	6
Humanities requ		6
Arts requiremen		3
	L BACCALAUREATE	
	NTS (http://catalog.wcupa.edu/ general-education-requirements/)	
University Requ		
Writing Empha		9
Speaking Emph	*	9
Degree Require		,
Language/Cultu		0-15
	-	0-13
intermediate	ng language proficiency through the level (202).	
Capstone require		1-15
MAJOR REQU		
Required Cours	4	
MAT 161	Calculus I ¹	4
MAT 162	Calculus II	4
MAT 200	The Nature of Mathematics	3
MAT 261	Calculus III	4
MAT 311	Linear Algebra	3
MAT 411	Algebra I	3
MAT 421	Mathematical Statistics I	3
MAT 441	Real Analysis I	3
Mathematics E	lectives	
Five (5) upper-d courses, at least	livision (300 level or higher) mathematics one in each of the three areas below.	15
Algebra Elec		
MAT 321	Combinatorics and Graph Theory	
MAT 412	Algebra II	
MAT 414	Theory of Numbers	
MAT 415	Introduction to Cryptography	
Analysis Elec		
MAT 343	Differential Equations	
MAT 432	Topology	
MAT 442	Real Analysis II	
MAT 443	Applied Analysis I	
MAT 444	Applied Analysis I	
MAT 445	Complex Variables	
	hematics Elective	
Applied Mat	nematics Elective	

MAT 325	Numerical Analysis I	
MAT 343	Differential Equations	
MAT 371	Mathematics of Finance	
MAT 413	Computer Algebra	
MAT 415	Introduction to Cryptography	
MAT 422	Mathematical Statistics II	
MAT 423	Applied Probability	
MAT 425	Numerical Analysis II	
MAT 427	Introduction to Optimization Techniques	
MAT 433	Mathematical Modeling	
MAT 478	Fundamentals of Actuarial Science	
MAT 479	Financial Calculus	
STA 319	Applied Statistics	
	, students may select 3 additional upper- tics courses with approval of the advisor hair.	
Related/Cognate	Requirements	
CSC 141	Computer Science I ¹	3
PHY 170	Physics I ¹	4
Capstone Requir	ement	
MAT 480	Capstone in Mathematics ²	3
Total Minimum	Credits Required	120

Satisfies general education requirement.
This course fulfills the Capstone requirement and is also a Writing Emphasis and Speaking Emphasis course.

Accelerated B.A. in Mathematics to M.A. in **Mathematics Program**

Students may substitute up to 5 graduate courses for B.A. course requirements, subject to the following guidelines:

Code	Title	Credits
Algebra Elective		
May be replaced by	one of the following:	
MAT 513	Linear Algebra	
MAT 514	Theory of Numbers	
MAT 515	Algebra I	
MAT 516	Algebra II	
Analysis Elective		
May be replaced by	one of the following:	
MAT 535	Topology	
MAT 543	Topics in Differential Equations	
MAT 545	Real Analysis I	
MAT 546	Real Analysis II	
Applied Mathemat	ics Elective	
May be replaced by	one of the following:	
STA 505	Mathematical Statistics I ¹	
MAT 548	Industrial Mathematics - Continuous Models	
MAT 549	Industrial Mathematics - Discrete Models	
MAT 552	Operations Research	
MAT 553	Stochastic Modeling	
MAT 554	Scientific Computing	
MAT 555	Industrial Practicum - Continuous Models	
Mathematics Elect	ives	

May be replaced by any course from the three areas above or any of the following:

MAT 521	Discrete Mathematics & Graph Theory
MAT 532	Geometry I
MAT 533	Geometry II
MAT 595	Topics in Mathematics
0 1 11 1	

Student Electives

May be replaced by any course from the four areas above or any other 500-level MAT, MTE, STA, or CSC course.

¹ Or higher level STA course

Requirement of a Minor

Students in the B.A. degree program are required to complete either a minor or, with the approval of the student's advisor and the Department of Mathematics chairperson, an additional nine credit hours of upper-division mathematics. The discipline chosen for the minor will reflect a student's post-baccalaureate goals. The department recommends completing a minor in the natural sciences (astronomy (http://catalog.wcupa.edu/undergraduate/sciencesmathematics/earth-space-sciences/astronomy-minor/), biology (http://catalog.wcupa.edu/undergraduate/sciences-mathematics/ biology/biology-minor/), chemistry (http://catalog.wcupa.edu/ undergraduate/sciences-mathematics/chemistry/chemistry-minor/), earth science (http://catalog.wcupa.edu/undergraduate/sciencesmathematics/earth-space-sciences/earth-science-minor/), geology (http://catalog.wcupa.edu/undergraduate/sciences-mathematics/earthspace-sciences/geology-minor/), and physics (http://catalog.wcupa.edu/ undergraduate/sciences-mathematics/physics-engineering/physicsminor/)), computer science (http://catalog.wcupa.edu/undergraduate/ sciences-mathematics/computer-science/computer-science-minor/), economics (http://catalog.wcupa.edu/undergraduate/business-publicmanagement/economics-finance/economics-minor/), or finance (http:// catalog.wcupa.edu/undergraduate/business-public-management/ economics-finance/finance-minor/), but other minors may be selected with the approval of the student's advisor and the mathematics chairperson.

All mathematics major courses must be passed with a C- or better.

Sample Course Plan

To track their individual degree progress, students are advised to access their Degree Progress Report (DPR) via myWCU regularly. For more information, visit wcupa.edu/DegreeProgressReport (http://wcupa.edu/degreeprogressreport/).

The following is a sample suggested course sequence for this program; course offerings and availability are not guaranteed. Students should consult their academic advisor with any questions.

Course Year One Fall	Title	Credits
MAT 161	Calculus I	4
CSC 141	Computer Science I	3
WRT 120 or WRT 123	Effective Writing I or Effective Writing with Supplemental Writing Workshop	3
FYE 100X	First Year Experience	4
Language 102	1	3
	Credits	17
Spring		
MAT 162	Calculus II	4
MAT 200	The Nature of Mathematics	3

PHY 170Physics I4Language 1023Behavioral/Social Science Gen Ed3CreditsFall17Year Two17Fall4MAT 261Calculus IIIMAT 261Calculus IIIMAT 311Linear AlgebraWRT 2XX200-Level WRT CourseLanguage 2013JW Course3Credits16Spring16Applied Mathematics Elective3Minor Elective3Arts Gen Ed3Language 2023Free Elective3Credits15Year Three5Fall3MAT 421Mathematical Statistics I3Minor Elective3Minor Elective3MAT 421Mathematical Statistics I3MAT 421Mathematical Statistics I3Minor Elective3Jis Course3Jis Course3MAT 441Real Analysis I3MAT 4420Capstone in Mathematics3Algebra Elective33Minor Elective3Minor Elective3MAT 480Capstone in Mathematics3Algebra Elective3Munanities Gen Ed3Minor Elective3Mat Four3Mat Four3Mat Four3Mat Four3Mat Four3Munanities Gen Ed
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Minor Elective3Humanities Gen Ed3Credits15Year Four
Credits 15 Year Four
Credits 15 Year Four
Fall
1 411
Analysis Elective 3
Mathematics Elective ¹ 3
Minor Elective 3
Ethics Gen Ed 3
Free Elective 1
Credits 13
Spring
Mathematics Elective ¹ 3
Minor Elective 3
Minor Elective 3
Behavioral/Social Science Gen Ed 3
Credits 12
Total Credits 120

¹ Any courses in mathematics with course numbers above 311, with the exception of those courses with a primary focus on teacher education or those courses restricted to students majoring in elementary education.