

Note: No Major, Support or Concentration courses may be selected as credit/no credit.

MAJOR COURSES		
MATH 141	Calculus I (B4) ¹	4
MATH 142	Calculus II (GE Electives) ¹	4
MATH 143	Calculus III	4
MATH 202	Orientation to Mathematics Major	1
MATH 206	Linear Algebra I	4
MATH 241	Calculus IV	4
MATH 242	Differential Equations I	4
MATH 248	Methods of Proof in Mathematics	4
MATH 306	Linear Algebra II	4
MATH 336	Combinatorial Math	4
MATH 412	Introduction to Analysis I	4
Select from the following: ²		4
MATH 459	Senior Project Seminar	
MATH 460	Senior Project Applied Seminar	
MATH 461	Senior Project I	
& MATH 462	and Senior Project II	
MATH 481	Abstract Algebra I	4
CSC/CPE 101	Fundamentals of Computer Science	4
PHYS 141	General Physics IA	4
Select from the following: ¹		4
PHYS 132	General Physics II (B1 & B3)	
PHYS 133	General Physics III (B1 & B3)	
General Curriculum or Concentration ³		44/56/48/48
Total Major Units		105/117/109/109

GENERAL EDUCATION		
Area A English Language Communication & Critical Thinking		
A1	Oral Communication	4
A2	Written Communication	4
A3	Critical Thinking	4
Area B Scientific Inquiry and Quantitative Reasoning		
B1	Physical Science (4 units in Major) ¹	0
B2	Life Science	4
B3	One lab taken with either a B1 or B2 course	
B4	Math/Quantitative Reasoning (4 units in Major) ¹	0
Upper-Division B		4
Area C Arts and Humanities		
<i>Lower-division courses C must come from 3 different subject prefixes.</i>		
C1	Arts	4
C2	Humanities	4
Lower-Division C Elective - Select from either C1 or C2		4
Upper-Division C		4
Area D Social Sciences		
<i>Select courses from at least two different prefixes</i>		
D1	American Institutions (Title 5, Section 40404 Req)	4
D2	Lower-Division D	4
Upper-Division D		4
Area E Lifelong Learning and Self-Development		
Lower-Division E		4
Area F Ethnic Studies		
Lower-Division F		4
GE Electives in Areas B, C, and D		
<i>Select from two different areas; may be lower- or upper-division crs.</i>		
GE Electives (4 units of Area B in Major) ¹		0
GE Electives (Area C or D)		4
Total GE Units		60
FREE ELECTIVES ³		15/3/11/11
TOTAL DEGREE UNITS		180

FOOTNOTES

¹ Required in Major or Support; also satisfies General Education (GE) requirement.

² MATH 460 is recommended for students in the Applied Mathematics concentration.

³ General Curriculum/Applied Mathematics concentration/Mathematics Teaching concentration/Pure Mathematics concentration.

General Curriculum in Mathematics			
This is the default curriculum required for students who do not declare a concentration.			
STAT 301 or STAT 305	Statistics I Introduction to Probability and Simulation	4	
Tracks		24	
Choose three tracks from the following list, with at least one track chosen from the first four tracks listed. A track consists of two paired courses representing depth of study with a particular focus. ¹			
MATH 413 & MATH 414	Introduction to Analysis II and Introduction to Analysis III		
MATH 482 & MATH 483 or MATH 406	Abstract Algebra II and Abstract Algebra III Linear Algebra III		
MATH 406 & MATH 413 or MATH 440	Linear Algebra III and Introduction to Analysis II Topology I		
MATH 482 & MATH 413 or MATH 440	Abstract Algebra II and Introduction to Analysis II Topology I		
MATH 304 & MATH 404	Vector Analysis and Introduction to Differential Geometry		
MATH 335 & MATH 435	Graph Theory and Discrete Mathematics with Applications I		
MATH 344 & MATH 416 or MATH 418	Linear Analysis II and Differential Equations II Partial Differential Equations		
MATH 341 & MATH 437	Theory of Numbers and Game Theory		
MATH 408 & MATH 409	Complex Analysis I and Complex Analysis II		
MATH 442 & MATH 443	Euclidean Geometry and Modern Geometries		
MATH 451 & MATH 452 or MATH 453	Numerical Analysis I and Numerical Analysis II Numerical Optimization		
Approved Electives , selected from the following: ²		16	
CSC/CPE 202	MATH 414	MATH 461	PHYS 322
CSC/CPE 203	MATH 416	& MATH 462	PHYS 323
CSC 349	MATH 418	MATH 470	PHYS 405
CSC 365	MATH 419	MATH 475 ³	PHYS 408
MATH 304	MATH 435	MATH 476 ³	STAT 301
MATH 335	MATH 437	MATH 482	STAT 302
MATH 341	MATH 440	MATH 483	STAT 305
MATH 344	MATH 442	MATH 531	STAT 425
MATH 350	MATH 443	MATH 541	STAT 426
MATH 404	MATH 451	PHYS 132	STAT 427
MATH 406	MATH 452	or PHYS 133	
MATH 408	MATH 453	PHYS 211	
MATH 409	MATH 459	PHYS 301	
MATH 413	or MATH 460	PHYS 305	
Total Units		44	

1 A single course cannot be used to satisfy multiple tracks.
 2 Consultation with advisor is recommended prior to selecting Approved Electives; selections may impact pursuit of post-bacc. studies and/or goals.
 3 Maximum of 8 units combined between MATH 475 and MATH 476.

Applied Mathematics Concentration			
MATH 304	Vector Analysis		4
MATH 344	Linear Analysis II		4
MATH 350	Mathematical Software or CSC/CPE 202 Data Structures		4
MATH 408	Complex Analysis I		4
MATH 413	Introduction to Analysis II		4
MATH 416	Differential Equations II or MATH 418 Partial Differential Equations		4
MATH 451	Numerical Analysis I		4
STAT 301	Statistics I or STAT 305 Introduction to Probability and Simulation		4
Tracks			
Select courses from one of the following tracks. ^{1,2}			12
Track A			
MATH 335	MATH 416	MATH 453	MATH 482
MATH 341	MATH 418	MATH 460	MATH 483
MATH 406	MATH 435	MATH 461	
MATH 409	MATH 437	& MATH 462	
MATH 414	MATH 452	MATH 476	
Track B			
DATA 301	DATA 401 ³	MATH 335	
	& DATA 403 ³	or MATH 453	
		or MATH 435	
Approved Electives			
Select three courses in one of the following categories, with at least one course at the 300-level or above. ^{4,5}			12
Physics Category:			
ASTR 301	PHYS 211	PHYS 314	PHYS 408
ASTR 302	PHYS 301	PHYS 318	PHYS 412
ASTR 326	PHYS 305	PHYS 322	PHYS 417
PHYS 132	PHYS 306	PHYS 323	
or PHYS 133	PHYS 313	PHYS 405	
Statistics Category:			
STAT 302	STAT 331	STAT 418	STAT 425
STAT 305	STAT 334	STAT 419	STAT 426
STAT 323	STAT 416	STAT 421	STAT 427
STAT 330	STAT 417	STAT 423	
Computer Science Category:			
CSC/CPE 202	CSC 225	CSC/CPE 357	CSC 448
CSC/CPE 203	CSC 349	CSC 365	
Mechanical Engineering Category:			
ME 211	ME 302	ME 341	
ME 212	ME 326		
Economics Category:			
ECON 311	ECON 313	ECON 408	
ECON 312	ECON 403	ECON 409	
Total Units			56

1 Only students in the Applied Mathematics concentration who are pursuing a Data Science minor should select Track B.
 2 Students who select Track B should select Approved Electives from the Statistics Category that will fulfill prerequisites for courses in the Data Science minor.
 3 DATA 401 and DATA 403 must be taken concurrently with DATA 402.
 4 Consultation with advisor is recommended prior to selecting Approved Electives; bear in mind your selections may impact pursuit of post-baccalaureate studies and/or goals.
 5 Other choices are also possible, and should be pre-approved in consultation with an academic advisor. Approved Electives are to be taken outside of the Mathematics department and should have significant applications to mathematics.

Mathematics Teaching Concentration		
MATH 300	Technology in Mathematics Education	4
MATH 341	Theory of Numbers	4
MATH 419	Introduction to the History of Mathematics	4
MATH 423	Advanced Mathematics for Teaching	4
MATH 442	Euclidean Geometry	4
MATH 443	Modern Geometries	4
MATH 482	Abstract Algebra II	4
SCM 300	Early Field Experience ¹	4
STAT 301	Statistics I	4
STAT 302 or STAT 305	Statistics II Introduction to Probability and Simulation	4
Select from the following:		8
CSC/CPE 202	Data Structures	
MATH 304	Vector Analysis	
MATH 335	Graph Theory	
MATH 344	Linear Analysis II	
MATH 350	Mathematical Software	
MATH 406	Linear Algebra III	
MATH 408	Complex Analysis I	
MATH 413	Introduction to Analysis II	
MATH 416	Differential Equations II	
MATH 435	Discrete Mathematics with Applications I	
MATH 437	Game Theory	
MATH 440	Topology I	
MATH 451	Numerical Analysis I	
MATH 459 or MATH 460	Senior Project Seminar Senior Project Applied Seminar	
MATH 461 & MATH 462	Senior Project I and Senior Project II	
MATH 470	Selected Advanced Topics	
MATH 483	Abstract Algebra III	
PHYS 132 or PHYS 133	General Physics II General Physics III	
PHYS 305	Classical Mechanics I	
STAT 425	Probability Theory	
Total Units		48

1 SCM 300 requires 45 hours of observations at local schools. Students should plan their schedules to have a four-hour block free during elementary school hours each week.

Pure Mathematics Concentration		
MATH 408	Complex Analysis I	4
MATH 413	Introduction to Analysis II	4
MATH 440	Topology I	4
MATH 482	Abstract Algebra II	4
Select from the following:		12
MATH 406	Linear Algebra III	
MATH 409	Complex Analysis II	
MATH 414	Introduction to Analysis III	
MATH 435	Discrete Mathematics with Applications I	
MATH 483	Abstract Algebra III	
Select from the following:		4
MATH 350	Mathematical Software	
STAT 301	Statistics I	
STAT 305	Introduction to Probability and Simulation	
Select from the following:		16
MATH 304	Vector Analysis	
MATH 335	Graph Theory	
MATH 341	Theory of Numbers	
MATH 344	Linear Analysis II	
MATH 350	Mathematical Software	
MATH 404	Introduction to Differential Geometry	
MATH 406	Linear Algebra III	
MATH 409	Complex Analysis II	
MATH 414	Introduction to Analysis III	
MATH 416	Differential Equations II	
MATH 418	Partial Differential Equations	
MATH 435	Discrete Mathematics with Applications I	
MATH 437	Game Theory	
MATH 451	Numerical Analysis I	
MATH 452	Numerical Analysis II	
MATH 453	Numerical Optimization	
MATH 459 or MATH 460	Senior Project Seminar Senior Project Applied Seminar	
MATH 461 & MATH 462	Senior Project I and Senior Project II	
MATH 470	Selected Advanced Topics	
MATH 475	Advanced Topics in Mathematics	
MATH 483	Abstract Algebra III	
MATH 531	Discrete Mathematics with Applications II	
MATH 541	Topology II	
STAT 425	Probability Theory	
Total Units		48