CSUSB Department of Mathematics
BS in Mathematics – Applied Mathematics Concentration

BS – Applied Mathematics Concentration Requirements	Units (67 – 74)	Quarter Equivalent
Lower Division Requirements	31 – 36 total	
Select one of the following: CSE 1100 - Critical Thinking through Computer Programming CSE 1250 - Programming Basics CSE 2010 - Computer Science I	3 – 4	CSE 201
MATH 2210 - Calculus I	4	Math 211/212
MATH 2220 - Calculus II	4	Math 212/213
MATH 2265 - Statistics with Applications	3	Math 262
MATH 2270 - Differential Equations with Dynamical Systems I	3	Math 270
MATH 2310 - Applied Linear Algebra	4	Math 251/331
MATH 2320 - Multivariable Calculus	4	Math 252
In addition to the lower-division CSE requirement, select one 2000-level course from Group I (see page 2) and one additional course from either Group I or Group II (see page 2)	6 - 10	
Upper Division Requirements	18 total	
MATH 3100 - Mathematical Thinking: Communication and Proof	4	None
MATH 3329 - Euclidean Geometry with Transformations	3	Math 329
MATH 4300 - Real Analysis	4	Math 553
MATH 4600 - Theory of Rings and Fields	4	Math 546*
MATH 5310 - Advanced Linear Algebra	3	Math 531
Electives	18-20 total	
Six courses (18-20 units) selected from the following with four courses from Group A and two courses from Group B. At least three electives must be chosen from the 4000-level or above.		
Group A		
MATH 3320 - Mathematical Interest Theory MATH 3372 - Combinatorics MATH 3460 - Probability Theory MATH 3770 - Introduction to Graph Theory MATH 4270 - Differential Equations with Dynamical Systems II MATH 4320 - Introduction to Actuarial Modeling MATH 4360 - Linear Statistical Models MATH 4455 - Partial Differential Equations & Fourier Analysis MATH 5565 - Mathematical Statistics In addition to the two courses already taken from Group I and/or Group II, select at most one additional course from the list on page 2 in consultation with an advisor		Math 320 Math 372 Math 465 None Math 470 None None Math 570/455 Math 565
Group B		
MATH 3345 - Number Theory MATH 3480 - Topics in History of Mathematics MATH 4485 - Differential Geometry MATH 5170 - Complex Analysis MATH 5300 - Advanced Real Analysis MATH 5510 - Topics in Advanced Mathematics MATH 5529 - Advanced Topics in Geometry MATH 5550 - Introduction to Topology MATH 5600 - Group theory MATH 5953 - Independent Study		Math 345 Math 480 Math 485 Math 557 Math 554 Math 510 Math 529 Math 555 Math 545 Math 595

*Note: Students completing quarter catalog requirements under semesters who need Math 545 should complete Math 4600 to substitute for Math 545. They can then take Math 5600 as an elective. If a student has completed Math 545 on quarters and needs an elective, they can take Math 4600 to substitute for the Math 546 elective.

Lower Division Requirements

In addition to the lower-division CSE requirement, select one 2000-level course from Group I below and one additional course from either Group I or Group II:

Group I:
BIOL 2010*, BIOL 2160, BIOL 2170, BIOL 2180, CHEM 2050, CHEM 2070, CHEM 2100, ECON 2202, GEOL 2040, GEOG 2040, PHIL 2100, PHYS 2000, PHYS 2500.
Each course in Group I satisfies one of the following GE categories: A3, B1, B2, or D2.
*Note course has prerequisite(s)

Group II:
BIOL 2020*, CHEM 2060*, CHEM 2200*, CSE 2010*, CSE 2020*, ECON 2201, GEOG 2249, GEOG 2250, PHYS 2010*, PHYS 2510*, PHYS 2700*
*Note course has prerequisite(s)

Electives – Group A

In addition to the Math elective courses listed in Group A, and in addition to the two courses already taken from Group I and/or Group II above, select at most one additional course from the following in consultation with an advisor:

BIOL 2020, BIOL 3100, BIOL 3300, BIOL 3700, BIOL 3800, CHEM 2300, CHEM 2400, CHEM 3200, CSE 2020, CSE 2130, CSE 4200, CSE 4310, CSE 5000, CSE 5120, CSE 5350, CSE 5500, ECON 3103, ECON 3314, ECON 3318, ECON 3400, ECON 3780, GEOG 3710, GEOG 4860, GEOG 4880, PHYS 2700, PHYS 3100, PHYS 3200, or PHYS 3300