BS Mathematical Sciences
Comprehensive Track- Fall 2022

The major in Mathematics – Comprehensive Track is the traditional bachelor's degree in mathematics offering students the possibility of learning rigorously and deeply the fundamental ideas and concepts of modern mathematics. This track is mainly designed for students intending to pursue graduate studies in Mathematics or Graduate schools leading to careers in academia or engineering.

Course Availability: This is when courses are typically offered and is subject to change:
F (Fall), S (Spring), SS (Summer) F = Fall, S = Spring, SS = Summer

Common Prerequisites (26-29 credits)

Complete all of the following with a grade of "C" or better (15 credits)

Course	Description	Pre-requisites	Term offered	Units
MAC 2311	Calculus I	Grade of "C" or higher in MAC 1147 or MAC 1140 + MAC 1114 (or placement score without prior coursework)	F, S, SS	4
MAC 2312	Calculus II	MAC 2311	F, S, SS	4
MAC 2313	Multivariable Calculus	MAC 2312	F, S, SS	4
MAP 2302	Differential Equations	MAC 2312	F, S, SS	3

Complete one of the following with a grade of "C" or better (3-4 credits):

COP 2210	Intro to Programming	MAC 1140 or MAC 1147 or MAC 2233 or MAC 2311, or Advisor's Permission	F, S, SS	4
COP 2250	Java Programming		F, S, SS	3

Complete two lectures with corresponding labs with a grade of "C" or better (8-10 credits):

BSC 2010	General Biology I	Co-requisite: BSC 2010L	F, S, SS	3
BSC 2010L	General Biology I Lab	Co-requisite: BSC 2010	F, S, SS	1
BSC 2011	General Biology II	Co-requisite: BSC 2011L	F, S, SS	3
BSC 2011L	General Biology II Lab	Co-requisite: BSC 2011	F, S, SS	1
CHM 1045	General Chemistry I	"C" grade or higher in MAC 1105 or appropriate placement score (if no prior coursework in Math/Chem) Co-requisite: CHM 1045L	F, S, SS	3
CHM 1045L	General Chemistry I Lab	Co-requisite: CHM 1045	F, S, SS	1
CHM 1046	General Chemistry II	Prerequisite: CHM 1045 Co-requisite: CHM 1046L	F, S, SS	3
CHM 1046L	General Chemistry II Lab	Co-requisite: CHM 1046	F, S, SS	1
PHY2048	Physics W/Calculus I	Pre- or Co-requisite: MAC2311 Co-requisite: PHY 2048L	F, S, SS	4
PHY2048L	General Physics Lab I	Co-requisite: PHY 2048	F, S, SS	1
PHY2049	Physics W/Calculus II	Pre- or Co-requisite: MAC2312 Prerequisite: PHY 2048 Co-requisite: PHY 2049L	F, S, SS	4
PHY2049L	General Physics Lab II	Co-requisite: PHY 2049	F, S, SS	1
GLY 1010	Physical Geology	N/A	F, S, SS	3
GLY 1010L	Physical Geology Lab	N/A	F, S, SS	1

Required Courses (40-41 credits)

Complete all of the following with a grade of "C" or better (19 credits)

Course	Description	Pre-requisites	Term offered	Units
MAD 2104	Discrete Mathematics	MAC 1105 or appropriate placement score	F, S, SS	3
MAS 3105	Linear Algebra	MAC 2312	F, S, SS	3
MAA 3200	Intro to Advanced Math	MAD 2104 and MAC 2312	F, S, SS	3
MAA 4211	Advanced Calculus I	MAC 2313, MAS 3105, and MAA 3200	S	3
MAS 4301	Algebraic Structures	MAS 3105 and MAA 3200	S	3
STA 4321	Mathematical Statistics I	MAC 2313	F	3
MAT 4934	Senior Mathematics Seminar	Sr. Standing	F, S	1

Complete one course from the following list with a grade of "C" or better (3 credits, Global Learning Discipline Specific):

Course	Description	Pre-requisites	Term offered	Units
IDS 4174	Mathematics and Philosophy in Arts- GL	N/A	F	3
MHF 3404	History of Mathematics- GL	MAC 2312	F	3
MHF 4401	Methods in the History of Modern Mathematics- GL	MAC 2313 and MAS 3105	S	3

Complete three courses for each of the following lists with a grade of "C" or better (18-19 credits)

Pick 3 from List 1 (9 credits)

Course	Description	Pre-requisites	Term offered	Units
MAD 4203	Intro to Combinatorics	MAC 2312 and MAD 2104	F	3
MAA 4402	Complex Variables	MAC 2313, and MAP 2302 or MAA 4211	F	3
MTG 3212	College Geometry	MAC 2312 or instructor permission	F	3
MAS 4203	Number Theory	MAA 3200 or MAS 3105 or MTG 2312	SS	3
MAA 4212	Advanced Calculus II	MAA 4211	F	3
MAS 4302	Topics in Algebraic Structures	MAS 4301	F	
MTG 4302	Topology	MAC 2313, MAS 3105 and MAA 3200	SS	3

Pick 3 from List 2 (9-10 credits)

Course	Description	Pre-requisites	Term offered	Units
MAP 4401	Advanced Differential Eqs	MAP 2302 and MAC 2313	S	3
MAD 3301	Graph Theory	COP 2210 or COP 2250 or COP 2270 or CGS 2420 and either MAS 3105 or MAD 2104	F, S, SS	3
MAP 4104C	Topics in Math Modeling	MAP 2302, MAC 2313, MAS 3105	F	4
STA 4322	Mathematical Statistics II	STA 4321	S	3
MAD 3401	Numerical Analysis	COP 2210 or COP 2250 or COP 2270 or CGS 2420 and MAC 2312	F, S, SS	3
MHF 4302	Mathematical Logic	MAA 3200 or MAD 3512	S, alt yrs	3
MHF 4102	Axiomatic Set Theory	MAA 3200 or instructor permission	S, alt yrs	3

Graduation Requirements:

- University Core Curriculum (UCC)
- Minimum of a 2.0 GPA
- 45 credits of Upper Division hours (3000-4000 level)
- 120 credit hours required for graduation
- Foreign Language requirement (FLENT/FLEX)
- Global Learning (GL) requirement
- Civic Literacy requirement

Students interested in Secondary Teacher Certification should contact the College of Arts, Sciences & Education Center for Advising & Student Success at (305) 348-2978