

Mathematical & Computational Science Program Planning Requirements 2018-2019

Follow all requirements as stated for the year of the program sheet used.

Name: _____ SU ID #: _____

Email: _____ Program: _____

Today's Date: _____ Exp. degree conferral (qtr/yr): _____

Advisor: _____ Coterm MS: Y / N _____

MATH Requirements 28 - 31 units

Dept	Course	Title	✓ if Transfer or AP	MCS approved	Units	Grade
MATH	19*	Calculus (or AP credit)			3	
	20*	Calculus (or AP credit)			3	
	21*	Calculus (or AP credit)			4	
Select one of the following sequences:						
MATH	51	Linear Algebra and Differential Calculus of Several Variables			5	
	52	Integral Calculus of Several Variables			5	
	53	Ordinary Differential Equations with Linear Algebra			5	
or						
MATH	61CM	Continuous Methods I				
	62CM	Continuous Methods II				
	63CM	Continuous Methods III				
or						
MATH	61DM	Discrete Methods I				
	62DM	Discrete Methods II				
	63DM	Discrete Methods III				
Select one from the following:						
MATH	104	Applied Matrix Theory			3	
	113	Linear Algebra and Matrix Theory			3	
					MATH Unit Total	31

* MATH 19, 20 and 21 or AP credit.

CS Requirements 22 - 24 units

Dept	Course	Title	transfer or course substitutions	MCS approved	Units	Grade
CS	103	Mathematical Foundations of Computing			5	
	106A	Programming Methodology			5	
	106B/X	Programming Abstractions/ accelerated			5	
Select two from the following:						
CME	108	Introduction to Scientific Computing			4	
CS	107	Computer Organization & Systems			5	
	154	Introduction to Automata and Complexity Theory			4	
	161	Design and Analysis of Algorithms			5	
	181W	Computers, Ethics, and Public Policy			3	
					CS Unit Total	36

MS&E Requirements 7 - 11 units

Dept	Course	Title	transfer or course substitutions	MCS approved	Units	Grade
MS&E	111X/211X	Introduction to Optimization (Accelerated)			4	
	221	Stochastic Modeling			3	
Or select three from the following:						
MS&E	111/211	Introduction to Optimization			4	
	121	Introduction to Stochastic Modeling			4	
	111X/211X	Introduction to Optimization (Accelerated)			4	
	213	Introduction to Optimization Theory			3	
	221	Stochastic Modeling			3	
	251	Stochastic Control			3	
					MS&E Unit Total	28

STATS Requirements

11 - 12 units

Dept	Course	Title	transfer or course substitutions	MCS approved	Units	Grade
STATS	116	Theory of Probability			5	
	200**	Introduction to Statistical Inference			3	
Select one from the following:						
STATS	191	Introduction to Applied Statistics			3	
	203	Introduction to Regression Models and Analysis of Variance			3	
** REQUIRED					STATS Unit Total	14

WIM Requirements

3 units

Dept	Course	Title	transfer or course substitutions	MCS approved	Units	Grade
Select one from the following:						
MATH	109	Applied Group Theory			3	
	110	Applied Number Theory and Field Theory			3	
	120	Groups and Rings			3	
	171	Fundamental Concepts of Analysis			3	
CS	181W	Computers, Ethics, and Public Policy			4	
STATS	155	Statistical Methods in Computational Genetics			3	
					WIM Unit Total	16

Electives

9 units

Dept	Course	Title	Honors or major track	MCS approved	Units	Grade
					Electives Unit Total	0

Program Approvals

Student Signature _____ Date: _____

Adviser Signature _____ Date: _____

MCS Signature: _____ Date: _____

NOTES

- All courses used to fulfill major requirements must be taken for a letter grade with the exception of courses offered satisfactory/no credit only.
- Students who earn less than a 'C+' in **STATS 116** Theory of Probability or **STATS 200** Introduction to Statistical Inference **must repeat the course.**
- All transfer and AP credits must first be approved by the University; Transfer courses deemed equivalent to those required by the major must first be approved by the University and then submitted to the department for approval by the major advisor.
- Only one MCS core course can be substituted by filing a petition with their adviser (with the exception of STATS 200 Introduction to Statistical Inference which cannot be substituted). The Course Substitution Form must be submitted the quarter prior to enrolling in the course.
- With the adviser's approval, courses other than those offered by the sponsoring departments may be used to fulfill part of the elective requirement. These may be in fields such as biology, economics, electrical engineering, industrial engineering, and medicine, etc., that are relevant to a mathematical sciences major, depending on a student's interests.
- At least three quarters before graduation, majors must file with their adviser a plan for completing degree requirements. Use a program sheet from the year you declared MCS. The printed form must be signed by the advisor and, if required, by the departmental representative. Changes must be initialed in ink.