Mathematics Major Requirements (updated Spr21)

[prerequisites are shown in brackets]

Core courses (6 credits)
CSCI 100: Scientific Computing (or CSCI 110 if placed there)
MATH 110: Applied Differential Calculus^ [105 or placement]
MATH 115: Theory of Differential Calculus^ [110]
MATH 120: Applied Integral Calculus^ [110]
MATH 125: Theory of Integral Calculus^ [115+120]
MATH 211: Linear Algebra [120]
MATH 212: Multivariate Calculus [125]
MATH 215: Transition to Advanced Mathematics (W) [115]
Upper-level elective courses (5 credits)
Five full-credit MATH courses numbered above 215*
Independent Study (2 credits)
MATH 451: Senior I.S. (first semester) [211+212+215+2xx/3xx]
MATH 452: Senior I.S. (second semester) [451]

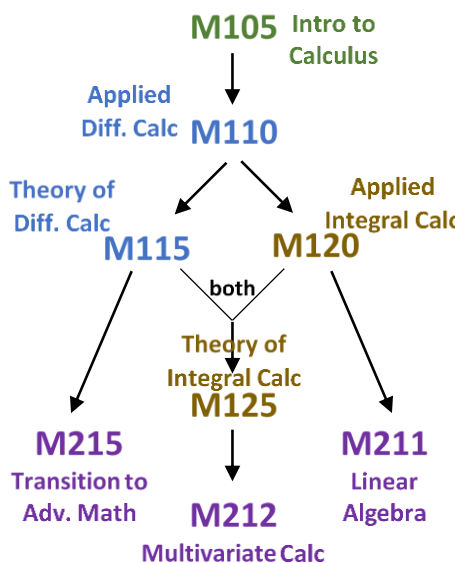* DATA 230 or 231, and DATA 325, may count toward the elective courses   ^ 0.5 credits, half-semester

Mathematics Minor (6 credits)
MATH 110^, 115^, 120^, 125^, 211, and three other full-credit MATH courses above 211*

* DATA 230 or 231, and DATA 325, may count toward the elective courses   ^ 0.5 credits, half-semester

Offered EVERY semester
MATH 110: Applied Differential Calculus^ [105 or placement]
MATH 115: Theory of Differential Calculus^ [110]
MATH 120: Applied Integral Calculus^ [110]
MATH 125: Theory of Integral Calculus^ [115+120]
MATH 211: Linear Algebra [120]
MATH 212: Multivariate Calculus [125]
MATH 215: Transition to Advanced Mathematics (W) [115]
CSCI 100: Scientific Computing
CSCI 110: Imperative Problem Solving [CS10x]

FALL only	**SPRING only**
MATH 221: Differential Equations [120+CS1xx]	MATH 223: Combinatorics & Graph Theory[#] [115/120]
MATH 227: Operations Research [211+212[@]]	MATH 229: Probability Theory [120]
DATA 230: Applied Statistics [D102]	DATA 325: Applied Data Science [D106, D23x]
DATA 231: Applied Stat Methods (W) [D102]	MATH 327: Numerical Analysis[%] [125+211+CS110]
MATH 329: Statistical Theory* [211+229]	MATH 332: Real Analysis [211+215]
MATH 334: Abstract Algebra [211+215]	Other 2xx/3xx courses may be offered
*Offered fall of odd years (F21, F23)	[#]Offered spring of odd years (Spr23, Spr25)
@ 212 may be taken concurrently with 227	[%]Offered spring of even years (Spr22, Spr24)

- Mathematics majors <u>may not</u> double major in Statistical and Data Sciences, but <u>may</u> minor in it.
- Statistical and Data Sciences majors <u>may</u> minor in math, but extra math courses are required.
- AP Calculus AB credit: **3** (M110), **4,5** (M110, M115)
- AP Calculus BC credit: **3** (M110, 115), **4** (M110, 115, 120), **5** (M110, 115, 120, 125), or check AB subscore

Prerequisite Structure

M105 Intro to Calculus

Applied Diff. Calc **M110**

Theory of Diff. Calc **M115**   Applied Integral Calc **M120**

both

Theory of Integral Calc **M125**

M215 Transition to Adv. Math

M211 Linear Algebra

M212 Multivariate Calc

Course Offerings Schedule

		Fall 2021		Spring 2022	
		1st half	2nd half	1st half	2nd half
old M107 ≈	M105	(F21 only ✓)		✓✓	
old M111 Calc 1	M110	✓✓✓	✓	✓	✗
	M115	✗	✓	✓	✓
old M112 Calc 2	M120	✓✓	✓✓	✓	✓
	M125	✗	✓	✗	✓
	M211	✓✓		✓	
	M212	✓		✓	
	M215	✓		✓	

Sample Course Planning Timelines					
Typical		**Accelerated**		**Delayed Start**	
Fall	*Spring*	*Fall*	*Spring*	*Fall*	*Spring*
First Year		*First Year*		*First Year*	
M110 & M115	M120 & M125	M120 & M125	M21x		(M105 if needed)
	CS 100		CS 110		
Sophomore Year		*Sophomore Year*		*Sophomore Year*	
M21x	M21x	M21x	M21x	M110 & M115	M125
Upper-level	M21x	Upper-level	Upper-level	M120	M21x
				CS 100	M21x
Junior Year		*Junior Year*		*Junior Year*	
Upper-level	Upper-level	Upper-level	Upper-level	M21x	Upper-level
Upper-level		Upper-level		Upper-level	Upper-level
Senior Year		*Senior Year*		*Senior Year*	
M451	M452	M451	M452	M451	M452
Upper-level				Upper-level	Upper-level