Statistical & Data Sciences Major Requirements (updated Spr21)

[prerequisites are shown in brackets]

SDS core courses (5.0 credits)	Mathematics (2.5 credits)
DATA 102: Intro to Statistics# DATA 106: Intro to Data Science DATA 201: Data Visualization [102 or 106] DATA 231: Applied Statistical Methods (W) [102] DATA 325: Applied Data Science [106 & 23x] (or CS 310)	MATH 110: Applied Differential Calculus ^ [105/placement] MATH 115: Theory of Differential Calculus^ [110] MATH 120: Applied Integral Calculus^ [110] MATH 211: Linear Algebra [120]
Computer Science (4.25 credits)	Application & Research (2.25 credits)
CSCI 100: Scientific Computing (or CSCI 102) CSCI 110: Imperative Problem Solving [100 or 102] CSCI 120: Data Structures & Algorithms + lab (1.25 cr.) [110] CSCI 232: Software Engineering – Databases [120]	Required minor or 2nd major (not MATH or CS) DATA 410 or IDPT 415: Internship (0.25+ cr.) [see p. 2] DATA 451: Senior I.S. [D231, M120, & CS110] DATA 452: Senior I.S. [D451]

#Any of ECON 110, BIOL 203, or PSYC 250 can be taken in place of MATH 102   ^ 0.5 credits, half-semester

Statistical & Data Sciences Minor (6 credits)
DATA 102#, DATA 106, CSCI 100 (or 102), CSCI 110, DATA 201, DATA 230 or 231

Offered EVERY semester

MATH 110: Applied Differential Calculus^
MATH 115: Theory of Differential Calculus^
MATH 120: Applied Integral Calculus^
MATH 211: Linear Algebra

CSCI 100: Scientific Computing (or CSCI 102, fall only)
CSCI 110: Imperative Problem Solving
CSCI 120: Data Structures & Algorithms

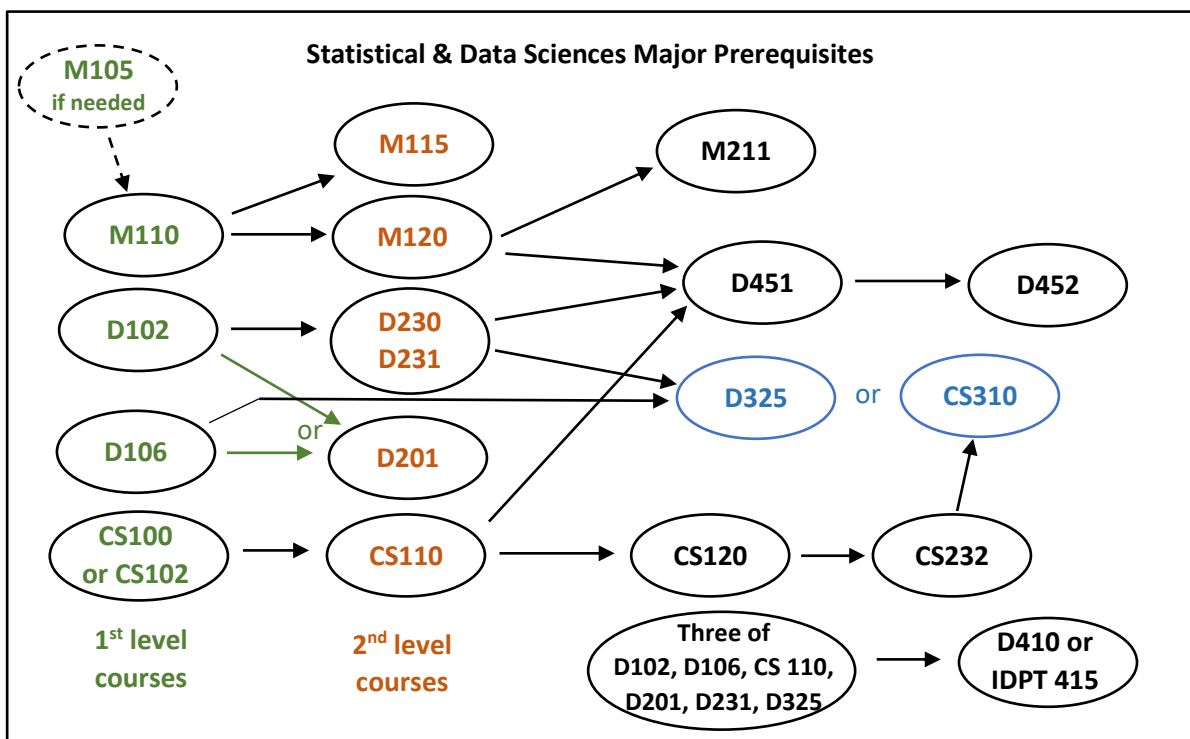| FALL only	SPRING only
DATA 106: Intro to Data Science DATA 230: Applied Statistics (for minors & non-majors) DATA 231: Applied Statistical Methods (W)	DATA 102: Intro to Statistics DATA 201: Data Visualization DATA 325: Applied Data Science@ CSCI 232: Software Engineering – Databases CSCI 310: Machine Intelligence**

**Spring of odd years only (Spr23, Spr25)   @Intended primarily for juniors

- **The SDS major requires a minor or second major outside the department (not in math or CS).**
- **The SDS major requires an approved internship**, for 0.25-1.00 credits via DATA 410 or IDPT 415.
  Internship credit possibilities include a private internship, a relevant APEX Fellowship, AMRE, etc.
- SDS majors may not double major or minor in Computer Science.
- SDS majors may not double major in Mathematics, but may minor (extra math courses are required).
- Students majoring in Computer Science or Mathematics may minor in Statistical & Data Sciences.
- Other recommended math courses include 125, 212, 229, 329, and 215 (or 130).
- The main software packages emphasized in the major/minor are R, Python, SQL, and C++.

Advanced Placement credit info
- DATA 102 for AP Stat (4+); CSCI 100 for AP Computer Science A (4+); see math info for AP Calculus (3+)
- Students with calculus experience but no AP/IB scores can place out via a departmental exam.

Statistical & Data Sciences Major Prerequisites

M105 *if needed*

M115 · **M110** · **M120** · **M211**

D102 · **D230 D231** · **D451** · **D452**

D325 or **CS310**

D106 · **D201**

CS100 or CS102 · **CS110** · **CS120** · **CS232**

1st level courses · **2nd level courses**

Three of D102, D106, CS 110, D201, D231, D325 → **D410 or IDPT 415**

Statistical & Data Sciences core faculty

Dr. Marian Frazier, Statistics*   Dr. Jillian Morrison, Statistics

Dr. Christina Horr, Statistics   Dr. Drew Pasteur, Mathematics^

Dr. Colby Long, Mathematics   Dr. Sofia Visa, Computer Science

Dr. Moses Luri, Business Economics and Statistics

* SDS associate chair   ^ MCS department chair

Sample Course Planning Timelines

Started toward SDS		Started toward math & CS		Started toward minor field	
Fall	*Spring*	*Fall*	*Spring*	*Fall*	*Spring*
First Year		*First Year*		*First Year*	
D106	D102	M115 & M120	M211		M105, if needed
M110 & M120	CS 100	CS 100	CS 110		
Sophomore Year		*Sophomore Year*		*Sophomore Year*	
M115	D201	D106	D102	D106	D102
CS 110	CS 120	CS120	D201	M110 & M120	M211
Junior Year		*Junior Year*		*Junior Year*	
D231	D325	D231	D325	D231	D325
M211	CS 232		CS 232	CS100	CS 110
				M115	D201
Senior Year		*Senior Year*		*Senior Year*	
D451	D452	M451	M452	D451	D452
				CS 120	CS 232