Suggested Sequence for Computer Science Majors
with Data Science Specialization

All courses are 1 Unit (4 credit hours) unless otherwise noted. A full-time student typically takes 4 units, or up to a maximum of 4.5 units, in a semester.
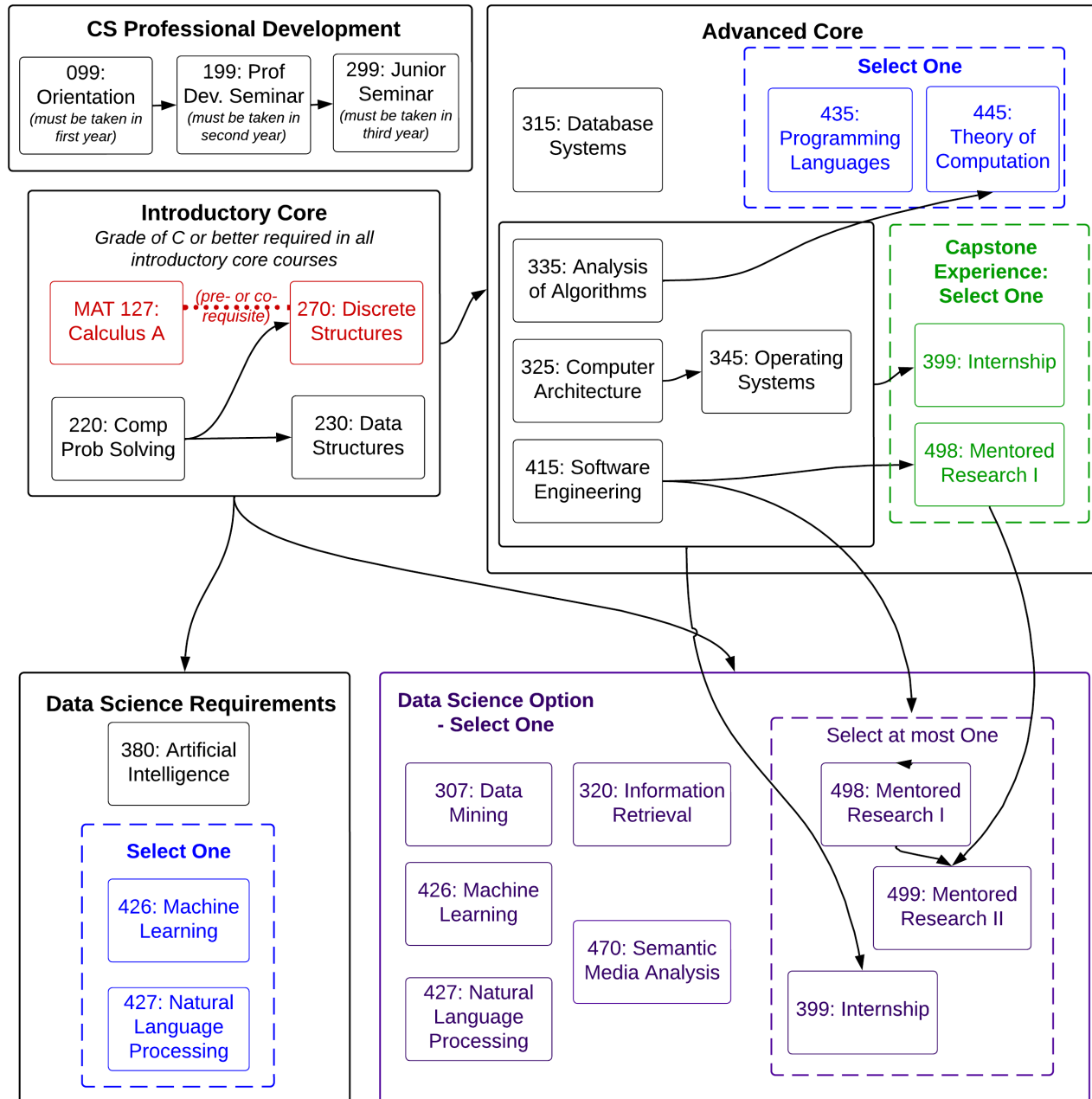
- Green indicates Computer Science courses;
- Blue indicates Math or Science correlate courses;
- Orange indicates College Core / Liberal learning courses, including the world language requirement.
- Black indicates free elective courses.

Year 1 (8 units)	
Fall	**Spring**
CSC 099: Orientation to CS (0 unit; Fall)	
CSC 220: Computational Problem Solving (Fall)	CSC 230: Data Structures (Spring)
MAT 127: Calculus A	CSC 270: Discrete Structures (Spring)
First Year Seminar (Fall)	STA 215: Statistical Inference
World Language 1	World Language 2

Year 2 (8.25 units)	
CSC 199: Prof. Dev. Seminar (0.25 unit; Fall)	
CSC 325: Computer Architecture	MAT 205: Linear Algebra
CSC 335: Analysis of Algorithms	STA 305: Regression Analysis
CSC 345: Operating Systems	STA 306: Multivariate Statistics World
CSC 315 (Spring)	Language 3 (if needed) or College Core/ Liberal Learning

Year 3 (8.25 units)	
CSC 299: Junior Seminar (0.25 unit; Spring)	
CSC 380: Artificial Intelligence	CS Option (from approved list of CS Options for Data Science)
CSC 426: Machine Learning or CSC 427: Natural Language Processing	Science (2 units)
CSC 415: Software Engineering	College Core / Liberal Learning (2 units)

Year 4 (8 units)
CSC 399: Internship or CSC 498: Mentored Research
CSC 435: Programming Languages or CSC 445: Theory of Computation
College Core / Liberal Learning (2-3 units as needed)
Free Elective (3 units) – recommended to take courses from lists of CS Options or additional courses approved for Data Science

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The flowchart below shows the Computer Science core and optional courses. The arrows indicate the prerequisite structure.

Computer Science Major with Data Specialization Course Prerequisite Structure

CS Professional Development

- 099: Orientation *(must be taken in first year)*
- 199: Prof Dev. Seminar *(must be taken in second year)*
- 299: Junior Seminar *(must be taken in third year)*

Introductory Core
Grade of C or better required in all introductory core courses

- MAT 127: Calculus A
- *(pre- or co-requisite)*
- 270: Discrete Structures
- 220: Comp Prob Solving
- 230: Data Structures

Advanced Core

- 315: Database Systems
- 335: Analysis of Algorithms
- 325: Computer Architecture
- 345: Operating Systems
- 415: Software Engineering

Select One
- 435: Programming Languages
- 445: Theory of Computation

Capstone Experience: Select One
- 399: Internship
- 498: Mentored Research I

Data Science Requirements

- 380: Artificial Intelligence

Select One
- 426: Machine Learning
- 427: Natural Language Processing

Data Science Option - Select One

- 307: Data Mining
- 320: Information Retrieval
- 426: Machine Learning
- 470: Semantic Media Analysis
- 427: Natural Language Processing

Select at most One
- 498: Mentored Research I
- 499: Mentored Research II
- 399: Internship

(All course prefixes are CSC, unless otherswise specified)
Legend:
Black: Required Core
Blue: Required Selection
Green: Required Capstone
Purple: Major Elective
Red: Required Math

Effective Fall 2020