DATA SCIENCE - COMPUTER SCIENCE CONCENTRATION	120 total credits required 42 upper division credits required *Please review with the Data Science Advisor*

ALL UNIVERSITY CORE CURRICULUM (AUCC)

Status	Category	Course	Credit
	1A) Intermediate writing	CO 150 or HONR 193	3
	1B) Quantitative Reasoning	MATH 156 (preferred) or MATH 160	4
	1C) Diversity, Equity, and Inclusion		3
	2) Advanced Writing	CO 300, 301B ,302, or JTC 300	3
	3A) Biological and Physical Science w/ lab		4
	3A) Biological and Physical Science		3
	3B) Arts & Humanities	CS 150B	3
	3B) Arts & Humanities	CS 201/PHIL 201	3
	3C) Social & Behavioral Science		3
	3D) Historical Perspectives		3
	4) Depth and Integration	DSCI 445 and DSCI 478	7
		total	39

CORE COURSES (Total of 58 credits) – Must complete ALL core courses

COMPUTER SCIENCE
___ CS 150B - Culture and Coding [3]
___ CS 164 - CS1--Computational Thinking w Java [4]
___ CS 165 CS2--Data Structures [4]
___ CS 201 - Ethical Computing Systems [3]
___ CS 220 - Discrete Structures & their Applications[4]

DATA SCIENCE
___ DSCI 100 - First Year Seminar in Data Science [1]
___ DSCI 235 - Data Wrangling [2]
___ DSCI 320 - Optimization Methods in Data Science[3]
___ DSCI 335 - Inferential Reasoning in Data Analysis [3]
___ DSCI 336 - Data Graphics and Visualization [1]
___ DSCI 369 - Linear Algebra for Data Science [4]
___ DSCI 445 - Statistical Machine Learning [3]
___ DSCI 478 - Capstone in Data Science [4]

MATHEMATICS
___ MATH 151- Math Algorithms in Matlab I [1]
___ MATH 156 - Math for Computational Science I [4]
___ MATH 256 - Math for Computational Science II [4]

STATISTICS
___ STAT 158 - Introduction to R Programming [1]
___ STAT 315 - Intro to Theory & Practice of Statistics[3]
___ STAT 341 - Statistical Data Analysis I [3]
___ STAT 342 - Statistical Data Analysis II [3]

COMPUTER SCIENCE CONCENTRATION REQUIREMENTS

Take Both:
___ CS 214 - Software Development [3]
   (CS 253 meets this requirement)
___ CS 250 - Computer Systems Foundations [4]
   (CS270 or CS 280A1 meets this requirement)

Select One of the Following:
___ CS 320 – Algorithms--Theory and Practice [3]

___ CS 370 – Operating Systems [3]

Select a minimum of two (2) additional computer science electives (not already taken)
___ CS 314 - Software Engineering [3]
___ CS 320 - Algorithms--Theory and Practice [3]
___ CS 370 - Operating Systems [3]
___ CS 420 - Introduction to Analysis of Algorithms [4]
___ CS 425 - Intro to Bioinformatics Algorithms [4]
___ CS 430 - Database Systems [4]
___ CS 435 - Introduction to Big Data [4]

___ CS 440 - Introduction to Artificial Intelligence [4]
___ CS 445 - Introduction to Machine Learning [4]
___ CS 455 - Introduction to Distributed Systems [4]
___ CS 475 - Parallel Programming [4]
___ CS 481A5 - Data Mining at Scale [4]
___ CT 301 - CS++ Fundamentals [2]

* See CS Major check sheet for when upper division CS courses are typically offered.

Data Science Electives – Select at least nine (9) credit hours from Data Science Electives List that you are not already taking (number of courses will vary based on the credit hours of the courses)
___ DS Elective 1: _____ [   ]
___ DS Elective 2: _____ [   ]

___ DS Elective 3: _____ [   ]
___ DS Elective 4: _____ [   ]

Data Science Electives List

DSCI 473 - Intro to Geometric Data Analysis [2]
DSCI 475 - Topological Data Analysis [2]
ECON 202 - Principles of Microeconomics [3]
ECON 204 - Principles of Macroeconomics [3]
ECON 435 - Intermediate Econometrics [3]
MATH 301- Introduction to Combinatorial Theory [3]
MATH 317 - Advanced Calculus of One Variable [3]
MATH 331 - Introduction to Mathematical Modeling [3]
MATH 332 - Partial Differential Equations [3]
MATH 345 - Differential Equations [4]
MATH 360 - Mathematics of Information Security [3]

MATH 450 - Introduction to Numerical Analysis I [3]
MATH 451 - Introduction to Numerical Analysis II [3]
MATH 460 - Information and Coding Theory [3]
STAT 351 - Sports Statistics and Analytics I [3]
STAT 400 - Statistical Computing [3]
STAT 420 - Probability and Mathematical Statistics I [3]
STAT 421 - Introduction to Stochastic Processes [3]
STAT 430 - Probability and Mathematical Statistics I [3]
STAT 440 - Bayesian Data Analysis [3]
STAT 451 - Sports Statistics and Analytics I [3]
STAT 460 - Applied Multivariate Analysis [3]

Additional Notes:

- Although there is not a specified grade required for courses in the major, it is important to be aware of prerequisite requirements. Grades of C are better are often necessary, and some courses require B or better in prerequisite coursework.
- A cumulative GPA of 2.0 or above is required to remain in good academic standing
- Students pursuing the Data Science major with a CS concentration are not eligible for any minors offered by the Computer Science Department
- MATH 160, 161, and 261 will substitute for MATH 156 + 256