Effective August 2023

DATA SCIENCE - ECONOMICS 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	ECON 202	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]

Effective August 2023

ECONOMICS CONCENTRATION REQUIREMENTS

Take ALL of the following:

___ ECON 202 - Principles of Microeconomics [3]
___ ECON 204 - Principles of Macroeconomics [3]
___ ECON 211 – Gender in the Economy [3]
___ ECON 304 - Intermediate Macroeconomics [3]
___ ECON 306 - Intermediate Microeconomics [3]
___ ECON/AREC 335 - Introduction to Econometrics [3]
___ECON 435 - Intermediate Econometrics [3]

Select a minimum of six (6) credits from Economics Electives List:

___ ECON 315 - Money and Banking [3]
___ ECON 317 - Population Economics [3]
___ ECON 320 - Economics of Public Finance [3]
___ ECON 325 - Health Economics [3]
___ ECON 327 - Law and Economics [3]
___ ECON 332 - International Political Economy [3]
___ ECON/AREC 340 - Intro-Economics of Natural Resources **[3]**
___ ECON/AREC 346 - Economics of Outdoor Recreation [3]
___ ECON 372 - History of Economic Institutions and Thought [3]
___ ECON 376 - Marxist Economic Thought [3]
___ ECON/HIST 379 - Economic History of the US [3]
___ ECON 404 - Macroeconomic Policy [3]
___ ECON 410 - Labor Economics [3]
___ ECON 440 - Economics of Intl Trade & Policy [3]
___ ECON 442 - Economics of Intl Finance & Policy [3]
___ ECON 460 - Economic Development [3]
___ ECON 463 - Regional Economics [3]
___ ECON 474 - Recent Economic Thought [3]

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:

CS 214 - Software Development [3]
CS 250 - Computer Systems Foundations [4]
CS 270 – Computer Organization [4]
CS 320 - Algorithms--Theory and Practice [3]
CS 370 - Operating Systems [3]
CT 301 – C++ Fundamentals [2]
DSCI 473 - Intro to Geometric Data Analysis [2]
DSCI 475 - Topological Data Analysis [2]
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]
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 sequence will substitute for MATH 156+256 sequence