

BEFORE

AFTER

Major Title

Bachelor of Science in Data Science

Major Title

Bachelor of Science in Data Science and Artificial Intelligence

Common Prerequisites

Common Prerequisites (36 credits)

MAC 231	Calculus I (4 credits)
MAC 2312	Calculus II (4 credits)
MAS 3105 or MAC 2313 or COT 3510	Linear Algebra (3 credits) or Calculus III (4 credits) or Applied Linear Structures for Computing (3 credits)
COP 2XXX	Python Programming I (3 credits)
BSC 2010 and BSC 2010L	General Biology I (3 credits) and General Biology I Lab (1 credit)
PHY 2048 and PHY 2048L	Physics with Calculus I (4 credits) and General Physics Lab I (1 credit)
STA 2023 or STA 3111 or STA 3163	Statistics for Business and Economics (3 credits) or Statistics I (3 credits) or Statistical Methods I (3 credits)

MAC 231	Calculus I (4 credits)
MAC 2312	Calculus II (4 credits)
MAS 3105 or MAC 2313 or COT 3510	Linear Algebra (3 credits) or Calculus III (4 credits) or Applied Linear Structures for Computing (3 credits)
COP 2XXX	Python Programming I (3 credits)
BSC 2010 and BSC 2010L	General Biology I (3 credits) and General Biology I Lab (1 credit)
PHY 2048 and PHY 2048L	Physics with Calculus I (4 credits) and General Physics Lab I (1 credit)
STA 2023 or STA 3111 or STA 3163	Statistics for Business and Economics (3 credits) or Statistics I (3 credits) or Statistical Methods I (3 credits)

BEFORE
Core Courses (36 credits)

CTS 1500	Emerging Topics in Digital Life (GL*) (3 credits)
COP 3XXX	Computational Thinking (3 credits)
CAP 2XXX	Introduction to Data Science (3 credits)
COP 3XXX	Python Programming II (3 credits)
CGS 3095	Technology in the Global Arena (GL*) (3 credits)
COT 3100 or MAD 2104	Discrete Structure (3 credits) or Discrete Mathematics (3 credits)
ENC 3249	Prof Tech Writing Comp (3 credits)
COP 3465	Data Structures for IT (3 credits)
CAP 3XXX	Advanced Data Science (3 credits)
CIS 3950	Capstone I (1 credit)
CAP 4770	Introduction to Data Mining (3 credits)
CIS 4951	Capstone II (2 credits)
CAP 4612	Introduction to Machine Learning (3 credits)

REMOVED

AFTER
Core Courses (36 credits)

CTS 1500	Emerging Topics in Digital Life (GL*) (3 credits)
COP 3XXX	Computational Thinking (3 credits)
CAP 2XXX	Introduction to Data Science (3 credits)
COP 3XXX	Python Programming II (3 credits)
CGS 3095	Technology in the Global Arena (GL*) (3 credits)
COT 3100 or MAD 2104	Discrete Structure (3 credits) or Discrete Mathematics (3 credits)
ENC 3249	Prof Tech Writing Comp (3 credits)
COP 3465	Data Structures for IT (3 credits)
CAP 3XXX	Advanced Data Science (3 credits)
CIS 3950	Capstone I (1 credit)
CAP 4630	Artificial Intelligence (3 credits)
CIS 4951	Capstone II (2 credits)
CAP 4612	Introduction to Machine Learning (3 credits)

INCLUDED

BEFORE

Concentration Courses (36 credits)

1. Computational and Big Data Analytics:

CAP XXXX	Introduction to Deep Learning (3 credits)
CAP 4630	Artificial Intelligence (3 credits)
CAP 4641	Natural Language Processing (3 credits)
COT 4431	Applied Parallel Computing (3 credits)
*STA 3164	Statistical Methods II (3 credits)
STA 4234	Introduction to Regression Analysis (3 credits)

**Prerequisite: STA 3163 - Statistical Methods I (3 credits)*

2. Artificial Intelligence and Robotics:

CAP 4630	Artificial Intelligence (3 credits)
CAP 4641	Natural Language Processing (3 credits)
CAP 4453	Robot Vision (3 credits)
CDA 4625	Intro to Mobile Robotics (3 credits)
CAP XXXX	Introduction to Deep Learning (3 credits)

3. Statistical Modeling:

CAP 4830	Fundamentals of Modeling & Simulations (3 credits)
STA 3164	Statistical Methods II (3 credits)
STA 4234	Introduction to Regression Analysis (3 credits)
MAD 3301	Graph Theory (3 credits)
MAD 3401	Numerical Analysis (3 credits)
MAD 4203	Combinatorics (3 credits)

**Prerequisite: STA 3163 - Statistical Methods I (3 credits)*

REMOVED

AFTER

Concentration Courses (36 credits)

1. Computational and Big Data Analytics:

CAP XXXX	Introduction to Deep Learning (3 credits)
CAP 4770	Introduction to Data Mining (3 credits)
COP 4534	Algorithm Techniques (3 credits)
COT 4431	Applied Parallel Computing (3 credits)
CEN 4083	Introduction to Cloud Computing (3 credits)
COP 4703	Information Storage and Retrieval Concepts (3 credits)

2. Artificial Intelligence and Robotics:

CAP 4770	Introduction to Data Mining (3 credits)
CAP 4641	Natural Language Processing (3 credits)
CAP 4453	Introduction to Robot Vision (3 credits)
CDA 4625	Introduction to Mobile Robotics (3 credits)
CAP XXXX	Introduction to Deep Learning (3 credits)
CAP 4506	Introduction to Game Theory (3 credits)

3. Statistical Modeling:

CAP 4830	Fundamentals of Modeling & Simulations (3 credits)
*STA 3164	Statistical Methods II (3 credits)
STA 4234	Introduction to Regression Analysis (3 credits)
MAD 3301	Graph Theory (3 credits)
MAD 3401	Numerical Analysis (3 credits)
CAP 4770	Introduction to Data Mining (3 credits)

**Prerequisite: STA 3163 - Statistical Methods I (3 credits)*

INCLUDED