BS in DATA SCIENCE Degree Requirements

2021-2022

Premajor Requirements

C or better *in each course, and a minimum 3.0 average GPA (overall and within pre-major courses) required to apply for full major status.*

1. CS 1400, Intro to Comp Prog_____ (3)
   AND
   CS 1410, Intro to OOP_____(4)
   OR
   CS 1420 Accel OOP_____ (4)
2. CS 2420, Algorithms/Data Struct._____(4)
3. Math 1310, Engineering Calculus I (QR)_____(4)
4. Math 1320, Engineering Calculus II (QR)_____(4)

General Ed Requirements

Honors options also accepted for WR2, CW, and AI requirements.

1. Wrtg 2010, Intermediate Writing (WR2)_____(3)
2. Wrtg 3014 or 3015 (CW)_____(3)
3. American Institutions (AI)_____(3)

Specific Ethics of Data course

4. DS 3390, Ethics in Data Science (BF?)_____(3)

FIVE more Intellectual Exploration (IE) courses required. TWO must be upper division (3000-level or above), ONE must satisfy the Diversity requirement, and ONE must satisfy the International requirement.

5. Fine Arts (FF):_____(3)
6. Fine Arts (FF):_____(3)
7. Humanities (HF):_____(3)
8. Humanities (HF):_____(3)
9. Social/Behavioral Science (BF):_____(3)

   Recommend ECON 2010 or ECON 2020

- *Upper Division (3000+ level IE)* _____
- *Upper Division (3000+ level IE)* _____
- *Diversity (DV)* _____
- *International (IR)* _____

Analytical Foundations[2]

1. CS 2100, Discrete Structures_____(3)
2. Math 2270, Linear Algebra_____(4)
3. Math 3070, Applied Statistics 1_____ (4)
   or CS 3130/ECE 3530, Eng. Prob Stats_____(3)
4. Math 3080, Applied Statistics 2_____(4)
5. DS 3190, Foundations of Data Analysis_____(3)

Computing Foundations[2]

1. DS 2500, Data Wrangling_____(3)
2. CS 3500, Software Practice I_____(3)
3. CS 4150, Algorithms_____(3)

Core Data Science[2]

2.5 GPA required to graduate.

1. DS 4140, Data Mining_____(3)
2. DS 4350, Machine Learning_____(3)
3. DS 4530, Database Systems_____(3)
4. DS 4630, Visualization for Data Science_____(3)

Elective - Data Analysis Breadth[2]

Must choose 3 classes. 2.5 GPA required to graduate. Below are pre-approved options.

1. CS 3540, Human Computer Interactions_____(3)
2. CS 4300, Artificial Intelligence_____(3)
3. CS 4640, Image Processing Basics_____(3)
4. Math 5010, Intro to Probability_____(3)
5. Math 5040, Stochastic Processes 1_____(3)
6. Math 5080, Statistical Inference 1_____(3)
7. Math 5090, Statistical Inference 2_____(3)
8. Math 5770, Optimization_____(3)
9. CS 5150, Advanced Algorithms_____(3)
10. CS 5340, Natural Language Processing_____(3)
11. CS 5635, Visualization for Scientific Data____ (3)

Elective - Data Domain[2]

Must choose 3 classes from this ***LIST***

1. _____(3)
2. _____(3)
3. _____(3)

Capstone Requirements[2]

Choose ONE set (to be replaced with DS-specific ones):

1. DS 4800, Senior Capstone Design_____(3)
2. DS 4850, Senior Capstone Project_____(3)

or

1. DS 4940, Undergraduate Research_____(3)
2. DS 4970, Bachelors Thesis_____(3)

*Must reach total of at least 122 credit hours. This degree requires at least 108 hours.
All DS required courses must be passed with a C or better