

# Bachelor of Science in Data Science and Analytics



Updated 7/16/2024

Catalog Year: 2024-2025

Total Degree Credit Hours: 120

<p><b>I</b> Institutional Priority</p>	<p><b>2 Classes</b>  5 Credit Hours</p>	<p>Complete the following course: ECON 1000</p>	<p>AND</p>	<p>Complete <u>one</u> course from the following: AMST 1102, ASIA 1102, BLCK 1102, COMM 1100, GWST 1102, LALS 1102, LDRS 2300, PAX 1102, ISD 2700, POLS 2401, RELS 1102</p>
<p><b>M</b> Mathematics &amp; Quantitative Skills</p>	<p><b>1 Class</b>  3- 4 Credit Hours</p>	<p>Complete the following course: MATH 1113</p> <p><i>Computing-related Science Majors: Students must take MATH 1113 or higher</i> <i>Computing-related Engineering Majors: Students must take MATH 1190 or higher</i></p>		
<p><b>P</b> Political Science and U.S. History</p>	<p><b>2 Classes</b>  6 Credit Hours</p>	<p>Complete the following course: POLS 1101</p>	<p>AND</p>	<p>Complete <u>one</u> course from the following: HIST 2111, HIST 2112</p>
<p><b>A</b> Arts, Humanities, and Ethics</p>	<p><b>2 Classes</b>  6 Credit Hours</p>	<p>Select <u>one</u> course from the following: CHIN 1001 or CHIN 1002, ENGL 2110, ENGL 2120, ENGL 2130, ENGL 2140, FREN 1001 or FREN 1002, GRMN 1001 or GRMN 1002, HEBR 1001 or HEBR 1002, ITAL 1001 or ITAL 1002, JAPN 1001 or JAPN 1002, KOR 1001 or KOR 1002, LATN 1001 or LATN 1002, PHIL 2010, PORT 1001 or PORT 1002, RUSS 1001 or RUSS 1002, SPAN 1001 or SPAN 1002, WLC 1002, WLC 2209</p>	<p>AND</p>	<p>Complete <u>one</u> course from the following: ART 1107, DANC 1107, MUSI 1107, TPS 1107</p>
<p><b>C</b> Communication in Writing</p>	<p><b>2 Classes</b>  6 Credit Hours</p>	<p>Complete the following course: ENGL 1101</p>	<p>AND</p>	<p>Complete the following course: ENGL 1102</p>
<p><b>T</b> Technology, Mathematics, and Science</p>	<p><b>3 Classes</b>  10-12 Credit Hours</p>	<p>Complete <u>one</u> course from the following: MATH 1190, MATH 2202</p> <p><i>Computing-related Science Majors: Students must take MATH 1190 or higher</i> <i>Computing-related Engineering Majors: Students must take MATH 2202</i></p>	<p>AND</p>	<p><b>Science Majors and Engineering Majors:</b> Select <u>two</u> course pairs from the following (8 Credit Hours) CHEM 1211 <b>and</b> CHEM 1211L CHEM 1212 <b>and</b> CHEM 1212L PHYS 1111 <b>and</b> PHYS 1111L PHYS 1112 <b>and</b> PHYS 1112L PHYS 2211 <b>and</b> PHYS 2211L PHYS 2212 <b>and</b> PHYS 2212L BIOL 1107 <b>and</b> BIOL 1107L BIOL 1108 <b>and</b> BIOL 1108L <i>Please note: Students cannot take both PHYS 1111/L and PHYS 2211/L nor PHYS 1112/L and PHYS 2212/L.</i></p>
<p><b>S</b> Social Sciences</p>	<p><b>2 Classes</b>  6 Credit Hours</p>	<p>Complete <u>one</u> course from the following: HIST 1100, HIST 1111, HIST 1112</p>	<p>AND</p>	<p>Complete <u>one</u> course from the following: CRJU 1101, GEOG 1101, PSYC 1101, SOCI 1101, STS 1101, ANTH 1102, ECON 2106</p>

## Core Field of Study

		Prerequisites	
<b>STAT 1401</b> Elementary Statistics <b>or</b> <b>STAT 2332</b> Probability & Data Analysis	None	3	
	MATH 1190		
<b>CSE 1321/L</b> Programming & Problem Solving I	Lecture & Lab must be taken at the same time	4	
<b>CSE 1322/L</b> Programming & Problem Solving II	Min. grade of 'B' in CSE 1321/L & MATH 1113/1190/2202*	4	
<b>MATH 2202</b> Calculus II	MATH 1190	4	
<b>MATH 2345</b> Discrete Mathematics <b>or</b> <b>CSE 2300</b> Discrete Structures for Computing	MATH 1113/1190	3	
	CSE 1321/L and MATH 1113/1190		

CSE 1321/L and CSE 1322/L have a minimum grade of 'B.' All other courses must have minimum grade of 'C.'

\*Concurrent prerequisite

## Major Core Requirements

<b>DATA 3010</b> Computer Applications of Statistics	STAT 1401 or STAT 2332	3	
<b>STAT 3120</b> Statistical Methods I <b>or</b> <b>STAT 3125</b> Biostatistics	DATA 3010	3	
	BIOL 1107 or BIOL 1108 or CHEM 1212		
<b>STAT 3130</b> Statistical Methods II	DATA 3010 and (STAT 3120 or STAT 3125)	3	
<b>DATA 3230</b> Data Visualization	STAT 1401 or STAT 2332 or STAT 3125	3	
<b>CSE 3153</b> Database Systems <b>or</b> <b>CS 3410</b> Introduction to Database Systems	CSE 1322/L with a 'B' or higher	3	
<b>MATH 3260</b> Linear Algebra I	MATH 1190	3	
<b>DATA 3300</b> Data Science Ethics	STAT 3130	3	
<b>DATA 4000</b> Data Science Communication	STAT 2332 or (DATA 3010 and STAT 3120/3125)	3	
<b>DATA 4030</b> Programming in R <b>or</b> <b>DATA 4140</b> Python for Data Science	DATA 3010 or STAT 3125	3	
	DATA 3010 and STAT 3130		
<b>STAT 4210</b> Applied Regression Analysis	STAT 3130	3	
<b>DATA 4310</b> Statistical Data Mining	STAT 3130	3	
<b>DATA 4990</b> Data Science Capstone	STAT 4210	3	

All major courses must have a minimum grade of 'C', except for CSE 1321/L & CSE 1322/L, which must have a minimum grade of 'B.'

+ 2 hours from Technology, Mathematics, and Sciences

## Major Electives and Related Studies

### Major Electives (6 credit hours)

Select 2 courses from the following:

#### Prerequisites

<b>DATA 3396</b> Cooperative Study	Coordinator approval	1-3	
<b>DATA 3398</b> Internship	Coordinator & Dept Chair approval	1-9	
<b>STAT 4025</b> Clinical Trial Design	STAT 3125 or 3120	3	
<b>*DATA 4030</b> Programming in R (if not taken as major requirement)	DATA 3010 or STAT 3125	3	
<b>STAT 4120</b> Applied Experimental Design	STAT 3130	3	
<b>STAT 4125</b> Analysis of Human Studies	STAT 3130	3	
<b>*DATA 4140</b> Python for Data Science (if not taken as major requirement)	DATA 3010 and STAT 3130	3	
<b>DATA 4330</b> Applied Binary Classification	STAT 4210	3	
<b>DATA 4400</b> Directed Study	Dept approval	3	
<b>DATA 4490</b> Special Topics in Statistics	STAT 3130	3	
<b>CSE 4983</b> CSE Computing Internship	Internship coordinator approval	3	

*\*DATA 4030 and DATA 4140 can only be used once toward degree requirements. Therefore, if you take (for ex.) DATA 4030 for your upper division major requirements, you cannot count it toward your major electives hours but you can take and use DATA 4140 as an elective.*

### Related Studies (16 credit hours)

A minimum of 16 credit hours of additional courses taken at the 1000-4000 level. Students are encouraged to take courses that focus on a particular domain with data science applications. These hours can also be used to earn a minor in another discipline. Minimum grade of 'C' required.

Course	Prerequisite(s)	Credits

*Students are recommended to discuss the related studies course choices with their academic advisor and/or program coordinator **prior** to taking them. Students **may not count a course more than once in the curriculum**. Example: If you take STAT 4120 and STAT 4125 for your major electives, you may not also use them toward the 16 hours of related studies credit.*