Bachelor of Science in Data Science & Analytics

Catalog Year: 2023

Total Degree Credit Hours: 120

General Education Requirements (See Degreeworks for Prerequisites)

A-1	**ENGL 1101** Composition I	3	
	ENGL 1102 Composition II	3	
A-2	**MATH 1113** Precalculus	3	

Area A: Essential Skills (9 credit hours)
All Area A courses must be completed within the first 30 credit hours with a grade of C or higher.

B-1	**ECON 1000** Contemporary Economic Issues	2	
B-2	**AADS/AMST/ASIA/GWST/LALS/PAX/RELS 1102, COM 1100, FL 1002, LDRS 2300, PERS 2700,** *or* **POLS 2401**	3	

Area B: Institutional Options (5 credit hours)
Choose 1 course from B-2.

C-1	**ENGL 2110, 2120, 2130, 2300,** *or* **PHIL 2010**	3	
C-2	**ART 1107, MUSI 1107, DANC 1107,** *or* **TPS 1107**	3	

Area C: Humanities, Fine Arts, and Ethics (6 cr hrs)
Choose one course from each area.

D-1	**MATH 1190** Calculus I	4	
D-2	**BIOL 1107/L, BIOL 1108/L, CHEM 1211/L, CHEM 1212/L, PHYS 1111/L, PHYS 2211/L, PHYS 1112/L** *or* **PHYS 2212/L**	8	

Area D: Science, Math, and Technology (12 cr hrs)
Choose any two 4 credit hour science courses. A sequence is not necessary. "L" denotes the corresponding Lab course. Students **may not** take both PHYS 1111/L and PHYS 2211/L or PHYS 1112/L and PHYS 2212/L. PHYS 2211/L and 2212/L are recommended.

E-1	**POLS 1101** American Government	3	
E-2	**HIST 2111** *or* **2112** US History	3	
E-3	**HIST 1100, 1111,** *or* **1112** World History	3	
E-4	**CRJU 1101, GEOG 1101, PSYC 1101, SOCI 1101, STS 1101, ANTH 1102,** *or* **ECON 2106**	3	

Area E: Social Sciences (12 credit hours)
Choose one course from each area for E-2, E-3, & E-4.

Area F Lower Division Major Requirements

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

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

*Concurrent prerequisite

Upper Division Major Courses

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

+ 1 hour from MATH 1190
+ 1 hour from the second science lab (C or better)

Major Electives and Related Studies

Major Electives (6 credit hours)

Select 2 courses from the following:

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