

B.S. Degree – Data Analytics Major Degree Requirements

Data Visualization Specialization

The program requirements for the Bachelor of Science degree with a major in Data Analytics and a specialization in **Data Visualization** are given below. A minimum of 130 total degree hours are required for graduation.

The Required Core courses follow a strict prerequisite structure. Some courses are only offered once per year. Failure to successfully enroll in and complete these courses *will* delay graduation.

Data Analytics Major Requirements

| Course Number | Course Title | Credit Hours | Terms Offered |
|-------------------------------|---|--------------|---------------|
| Prerequisites | | | |
| CSE 1223 or 1224 ^a | Intro to Computer Programming in Java or Python | 3 | AU/SP/SU |
| Math 1152 ^b | Calculus II | 5 | AU/SP/SU |
| Required Core | | | |
| Math 2568 | Linear Algebra | 3 | AU/SP/SU |
| ISE 3230 | Systems Modeling and Optimization | 3 | AU |
| CSE 2221 ^b | Software I: Software Components | 4 | AU/SP/SU |
| CSE 2231 | Software II: Development and Design | 4 | AU/SP/SU |
| CSE 2321 | Foundations I: Discrete Structures | 3 | AU/SP/SU |
| CSE 2421 or 3430 | Systems I: Computer Systems and Organization | 4 | AU/SP/SU |
| CSE 3241 | Databases I: Computer Architecture | 3 | AU/SP/SU |
| CSE 3244 or 5242 | Data Management in the Cloud or Advanced Database Systems | 3 | AU/SP |
| CSE 5243 | Data Mining | 3 | AU/SP |
| ISE 5760 | Data Visualization | 3 | AU/SP |
| STAT 3201 | Probability for Data Analytics | 3 | AU/SP |
| STAT 3202 | Statistical Inference for Data Analytics | 4 | AU/SP/SU |
| STAT 3301 | Statistical Modeling for Discovery I | 3 | AU |
| STAT 3302 | Statistical Modeling for Discovery II | 3 | SP |
| STAT 4620 | Statistical Learning | 2 | AU |
| STAT 3303 | Statistical Decision Making | 3 | SP |
| TOTAL | | 51 | |

^a CSE 1222 or CSE placement level A can also fulfill this prerequisite; however, 1223 or 1224 is *strongly preferred*.

^b Math 1152 and CSE 2221 must be completed before applying to the Data Analytics major program.

Data Visualization Specialization

| | | | |
|-------------|----------------------------|----|-------|
| Design 5505 | | 3 | AU |
| CSE 5544 | | 3 | AU/SP |
| ACCAD 5141 | | 3 | SP |
| ACCAD 5150 | | 3 | SP |
| STAT 4911 | Capstone in Data Analytics | 4 | SP |
| TOTAL | | 16 | |

General Education and College of Arts & Sciences Requirements

Students must satisfy the General Education requirements for the Bachelor of Science degree in the College of Arts and Sciences. Math 1151^c is required for the major core curriculum; it is suggested that students use this course to satisfy the category indicated in the table below. Students in the Data Analytics major satisfy the GE's embedded literacy requirements by taking Stat 3301 (embedded literacy in data analysis) and Stat 3302 (embedded literacies in advanced writing and technology).

| GE Category ^d | Suggested Course | Category | Credit Hours |
|--|-------------------------------------|----------|--------------|
| Launch Seminar (GENED 1201) | | | 1 |
| F: Writing and Information Literacy | | | 3 |
| F: Mathematical and Quantitative Reasoning/Data Analysis | Math 1151 ^c (5 cr. hrs.) | | 3-5 |
| F: Literary, Visual and Performing Arts | | | 3 |
| F: Historical and Cultural Studies | | | 3 |
| F: Natural Science | | | 4-5 |
| F: Social and Behavioral Sciences | | | 3 |
| F: Race, Ethnicity, and Gender Diversity | | | 3 |
| T: Citizenship for a Diverse and Just World | | | 4-6 |
| T: Student Choice | | | 4-6 |
| Reflection Seminar (GENED 4001) | | | 1 |
| World Languages | | | 12 |
| ARTSSCI 1100.xx Survey | | | 1 |
| Minimum Total Credit Hours (w/Math 1151) | | | 51 |

^c Math 1151 may be replaced by Math 1140 and 1141.

^d F: GE Foundations; T: GE Theme.

Sample Four-Year Curriculum

This should be used as a **guide** only. Semester offerings are subject to change. Students should meet with the Data Analytics academic advisor every semester to ensure an on-time graduation.

| Year | Autumn | | Spring | |
|------|---|-----------|---|-----------|
| | Course | Hours | Course | Hours |
| 1 | ASC 1100.10 | 1 | GENED 1201 | 1 |
| | MATH 1151/1141/1161/1181H | 5 | MATH 1152/2162/1172/2182H | 5 |
| | CSE 1223, 1224, or equiv | 3 | CSE 2221 | 4 |
| | GE World Language 1 | 4 | GE World Language 2 | 4 |
| | GE Writing and Info Literacy | 3 | GE Race, Ethnicity, and Gender Diversity | 3 |
| | Total: 16 | | Total: 17 | |
| 2 | CSE 2231 | 4 | MATH 2568 | 3 |
| | CSE 2321 | 3 | CSE 2421 or 3430 | 4 |
| | STAT 3201 | 3 | STAT 3202 | 4 |
| | GE World Language 3 | 4 | GE Natural Science | 4-5 |
| | Elective | 2 | | |
| | Total: 16 | | Total: 15-16 | |
| 3 | ISE 3230 | 3 | CSE 3244 | 3 |
| | CSE 3241 | 3 | STAT 3302 | 3 |
| | STAT 3301 | 3 | ISE 5760 | 3 |
| | Design 5505 | 3 | ACCAD 5141 | 3 |
| | GE Citizenship for a Diverse and Just World | 3 | GE Citizenship for a Diverse and Just World | 3 |
| | | | GE Thematic Pathway Choice ^e | 3 |
| | Total: 15 | | Total: 18 | |
| 4 | CSE 5243 | 3 | STAT 3303 | 3 |
| | STAT 4620 | 2 | ACCAD 5150 | 3 |
| | CSE 5544 | 3 | GE Historical and Cultural Studies | 3 |
| | GE Literary, Visual and Performing Arts | 3 | STAT 4911 Capstone | 4 |
| | GE Thematic Pathway Choice ^e | 3 | GENED 4001 | 1 |
| | GE Social and Behavioral Sciences | 3 | Elective | 2 |
| | | Total: 17 | | Total: 16 |

^e The 4–6 GE Thematic Pathway Choice credit hours must be taken in the same theme.