# Bachelor of Science in Data Science (Geoscience)

## About This Program

In the Bachelor of Science in Data Science Geoscience concentration, students use data science tools to study Earth systems including geological formations, natural hazards, and spatial data from remote sensing. This track is suitable for students interested in earth observation, energy resources, geospatial analytics, and related areas. Beyond the UTA Core Curriculum requirements, the degree requires a sequence of courses in Mathematics, Data Science, and Geoscience. In addition, students must complete a year-long Capstone project in collaboration with a supervisor within the College of Science or an Industry Partner.

## Competencies

1. Upon completion, students will demonstrate knowledge of fundamentals of mathematics and statistics, in applications to data science.
2. Upon completion, students will demonstrate knowledge of computer programming through receiving a certificate, and therefore passing, a programming course.
3. Upon completion, students will demonstrate the ability to effectively work in teams to complete data science projects

## Curriculum

| Foundations | | |
|---|---|---|
| General Core Requirements (https://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) | | 42 |
| Students must complete specific courses in certain core areas. | | |
| For Communication select: | | |
| ENGL 1301 | RHETORIC AND COMPOSITION I | |
| An additional communication area course | | |
| For Life & Physical Science select: | | |
| GEOL 1301 | EARTH SYSTEMS | |
| GEOL 1302 | EARTH HISTORY | |
| For Mathematics select: | | |
| MATH 1426 | CALCULUS I | |
| MATH 2425 | CALCULUS II | |
| Data Science Foundations | | |
| Additional hours required in core. | | 2 |
| UNIV 1131 | STUDENT SUCCESS | 1 |
| or UNIV-SC 1101 | CAREER PREPARATION AND STUDENT SUCCESS | |
| **Data Science Specialization** | | |
| DATA 3401 | PYTHON FOR DATA SCIENCE 1 | 4 |
| DATA 3402 | PYTHON FOR DATA SCIENCE 2 | 4 |
| DATA 3311 | MATHEMATICS FOR DATA SCIENCE | 3 |
| DATA 3421 | DATA MINING, MANAGEMENT, AND CURATION | 4 |
| DATA 3441 | STATISTICAL METHODS FOR DATA SCIENCE 1 | 4 |
| DATA 3442 | STATISTICAL METHODS FOR DATA SCIENCE 2 | 4 |
| DATA 3461 | MACHINE LEARNING | 4 |
| DATA 4380 | DATA PROBLEMS | 3 |
| DATA 4381 | DATA CAPSTONE PROJECT 1 | 3 |
| DATA 4382 | DATA CAPSTONE PROJECT 2 | 3 |
| **Geoscience Specialization** | | |
| PHYS 1441 | GENERAL COLLEGE PHYSICS I | 4 |
| or PHYS 1443 | GENERAL TECHNICAL PHYSICS I | |
| BIOL 1441 | BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY | 4 |
| CHEM 1441 | GENERAL CHEMISTRY I | 4 |
| CHEM 1442 | GENERAL CHEMISTRY II | 4 |
| GEOL 2445 | MINERALOGY | 4 |
| GEOL 3443 | STRUCTURAL GEOLOGY | 4 |
| GEOL 4330 | UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS | 3 |

| | |
|---|---|
| Select 2 GEOL or ENVR courses numbered 3300 or higher. | 6 |
| Select 2 GEOL of ENVR courses numbered 3300 or higher, or DATA courses numbered 2300 or higher. | 6 |
| **Total Hours** | **120** |

## SUGGESTED COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the Data Science undergraduate advisor, particularly since many courses are not offered every semester. For all entering freshmen, it is important to begin the mathematics sequence, starting with MATH 1426, Calculus I, in the first semester.

**First Year**

| Fall Semester | Hours | Spring Semester | Hours |
|---|---|---|---|
| ENGL 1301 | 3 | Approved Communication Core | 3 |
| CHEM 1441 | 4 | CHEM 1442 | 4 |
| UNIV-SC 1131 or 1101 | 1 | MATH 2425 | 4 |
| MATH 1426 | 4 | POLS 2311 | 3 |
| Component Area Course (Suggested DATA 1301) | 3 | HIST 1301 or 1331 | 3 |
| | **15** | | **17** |

**Second Year**

| Fall Semester | Hours | Spring Semester | Hours |
|---|---|---|---|
| BIOL 1441 | 4 | PHYS 1441 or 1443 | 4 |
| GEOL 2445 | 4 | HIST 1302 or 1332 | 3 |
| ELECTIVE (GEOL or ENVR 33xx+) | 3 | GEOL 1302 | 3 |
| GEOL 1301 | 3 | DATA 3402 | 4 |
| DATA 3401 | 4 | | |
| | **18** | | **14** |

**Third Year**

| Fall Semester | Hours | Spring Semester | Hours |
|---|---|---|---|
| POLS 2312 | 3 | ELECTIVE (GEOL or ENVR 33xx+) | 3 |
| ELECTIVE (GEOL or ENVR 33xx+ or DATA 23xx+) | 3 | DATA 3311 | 3 |
| DATA 3421 | 4 | DATA 3442 | 4 |
| DATA 3441 | 4 | DATA 4380 | 3 |
| | **14** | | **13** |

**Fourth Year**

| Fall Semester | Hours | Spring Semester | Hours |
|---|---|---|---|
| Approved Social & Behavioral Core | 3 | Approved Language, Philosophy, Culture Core | 3 |
| GEOL 4330 | 3 | Approved Creative Arts Core | 3 |
| GEOL 3443 | 4 | ELECTIVE (GEOL or ENVR 33xx+ or DATA 23xx+) | 3 |
| DATA 3461 | 4 | DATA 4382 | 3 |
| DATA 4381 | 3 | | |
| | **17** | | **12** |

**Total Hours: 120**

# Advising Resources

## UNDERGRADUATE AND GRADUATE ADVISING

### Location:

Life Science Building Room 206A and 206B

### Email:

data.advising@uta.edu

### Phone:

817-272-1512

**Web:**

Speak to an advisor in the Division of Data Science or schedule an appointment. (https://www.uta.edu/academics/schools-colleges/science/departments/division-data-science/advising/)