MASTER OF SCIENCE IN DATA SCIENCE & INFORMATICS (DATA SCIENCE/DATA ANALYTICS)

Web Site: https://twu.edu/informatics/graduate-program/

Informatics is the interprofessional study and application of information science, computer science, cognitive science, and organizational science to the arts, sciences, and professions. Informatics includes a formal study of information, including:

- its structure, properties, uses, and function in society, and
- the people who use the information and the technologies developed to record, organize, store, retrieve, and disseminate it.

The M.S. in Data Science and Informatics program provides graduate students with a flexible, adaptable, interprofessional, and interdisciplinary approach to the study of informatics, delivered in a hybrid learning environment. Academic Components, including Computer Science, Nursing, Health Promotion and Kinesiology, and Library and Information Studies, deliver the program collaboratively. Majors in this program will build upon a set of foundational courses and choose discipline-specific courses within Data Science/Data Analytics to complete the major.

The program covers central knowledge and skill sets that all informatics students explore to refine their understanding of informatics and its application in high-demand professions and careers. Majors will learn to use technology and data analytics to derive meaningful information from data for data and decision-driven practice in user-centered systems.

Marketable Skills

Defined by the Texas Higher Education Coordinating Board's 60x30 Strategic Plan (https://reportcenter.highered.texas.gov/agency-publication/miscellaneous/thecb-60x30-strategic-plan/) as, "Those skills valued by employers that can be applied in a variety of work settings, including interpersonal, cognitive, and applied skills areas. These skills can be either primary or complementary to a major and are acquired by students through education, including curricular, co-curricular, and extracurricular activities."

1. Work as a member of a project team to coordinate database and project development and determine project scope and limitations.
2. Develop and implement procedures for data management, data storage and retrieval, distributed systems, evaluating data quality, data security, data transfer, data analysis, modeling, and visualization.
3. Plan, coordinate, and implement security measures to safeguard information in computer files against accidental or unauthorized damage, modification, or disclosure.
4. Disseminate research by writing reports, publishing papers, or presenting at professional conferences.
5. Design, create, and administer a computer network.
6. Demonstrate personal accountability and work habits, integrity, and ethical behavior.
7. Proficient in needed software tools skills.

Admissions

All students must meet the University requirements as outlined in the Admission to the TWU Graduate School (https://catalog.twu.edu/graduate/graduate-school/admission-graduate-school/) section of the catalog.

The academic program may have additional admission criteria that must also be completed as outlined on the program's website.

Degree Requirements

Effective July 29, 2024: Students without a background in Informatics may be required to complete the proficiency foundational coursework CSCI 5001 and CSCI 5011 at the determination of the program coordinator.

Total Semester Credit Hours Required

The degree program consists of a minimum of 30 semester credit hours (SCH) of graduate coursework, 12 of which are foundations in computer science and 18 of which are discipline-specific coursework, including three SCHs in software/statistical tools. The program is completed with an interprofessional, interdisciplinary capstone project.

Recommended course sequence

1. Students requiring proficiency in courses CSCI 5003 and CSCI 5203 should complete these courses before enrolling in other classes.
2. CSCI 5103 should be taken in the first semester of study.
3. CSCI 5123 and CSCI 5573 should be taken in the first year of study.
4. CSCI 5923 should be taken in the last semester of study.

All other courses may be taken in any sequence unless a required prerequisite is noted. Contact the advisor if you have any questions.

Code	Title	SCHs
Proficiency Courses (may be waived)		**0-6**
CSCI 5003	Information Systems Infrastructure and Programming	
CSCI 5203	Database Systems	
Computer Science Core		
CSCI 5103	Fundamentals of Informatics	3
CSCI 5123	Foundations of Information Systems Security	3
CSCI 5573	Foundations of Data Science	3
CSCI 5673	Big Data: Management, Access, and Use	3
Total SCHs		**12-18**

Application Area: Data Science/Data Analytics Option

Code	Title	SCHs
Application Area Requirements		
CSCI 5443	Human-Computer Interface	3
or CSCI 5513	Data and Information Visualization	
CSCI 5663	Statistical Programming	3
CSCI 5803	Data Warehousing	3
CSCI 5823	Modeling Machine Learning	3
CSCI 5833	Data Mining and Analysis	3

CSCI 5923	Capstone in Informatics	3
Total SCHs		**18**

Cooperative Education

In order for coursework in Cooperative Education to be counted as degree credit, department and advisory committee approval must be received during the semester in which the course is taken. This approval is in addition to approval to enroll in Cooperative Education coursework. Only three semester credit hours of Cooperative Education may be counted toward the Master's degree.