

# Department of Information Science

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**Jiangping Chen, Chair**

Faculty

The Department of Information Science prepares graduates of our graduate and undergraduate degree programs for dynamic roles in the knowledge age. The department's mission is to provide resources, research and service for education; provide leadership to the library and information community; and prepare information professionals of the highest quality to serve the state, the region and the global community.

The goals of the department are to:

- prepare information professionals who demonstrate excellence in leadership, service, research and education in a technology-driven environment;
- advance and contribute to leading-edge research and scholarship;
- contribute to professional, academic, and public interests through consulting, continuing education and leadership; and
- provide high quality distributed learning opportunities while maintaining a high-quality residential experience.

The department offers a graduate program leading to the Master of Science with majors in information science and library science. In addition, the department administers an interdisciplinary doctoral program with a major in information science. The department also offers two undergraduate programs with Bachelor of Science degrees in information science and data science.

The department offers certificates (non-degree) programs for advanced study in both information science and library science, and graduate academic certificates in multiple areas of professional knowledge and skills.

Graduates are prepared for diverse professional positions in both the public and private sectors and practice in a variety of libraries and information service agencies, including academic, public and school libraries, information analysis centers and information utilities.

Students may take elective courses in library and information science, or they may complete minor programs of study at the graduate level. Students who are not pursuing degree programs may enroll for individual courses, workshops, seminars and institutes with non-degree status. (For undergraduate programs, see the *Undergraduate Catalog*.)

Graduate students may study full time or part time. They may begin their course of study in the fall, spring or summer term/semester.

Prospective applicants for admission should visit the Department of Information Science web site at <http://informationscience.unt.edu/> to access application forms and current program information.

The department's graduate degree programs are available through the Academic Common Market at in-state tuition rates for qualified out-of-state students in the southeastern states who pursue studies on campus.

*The Master of Science degree program is accredited by the American Library Association (50 East Huron Street, Chicago, IL 60611; 800-545-2433).*

## Research

Faculty and graduate students pursue research in diverse areas of data science, library science and information science. Research interests include data analytics; information and communication theory; human information needs, seeking, searching, evaluation and use behaviors; development of information resources and services for specific populations; technology-based social networking in corporate and cultural environments; competency-based learning in the information professions; management and leadership of libraries and information agencies; roles of school library media specialists in instructional delivery; storytelling; scientific and scholarly communication; bibliometrics; human-computer interaction; information systems design, analysis and evaluation; information retrieval including specializations in cross-language, digital image, and multimedia retrieval; technology standards development and application; digital libraries; institutional repositories; metadata and organization of networked resources; philosophy and theories of information organization including information representation and classification; digital information management including bibliographic control and preservation; distributed learning and technologies; automated library systems; medical informatics, legal informatics, and information resources and services in corporate and government fields; text and data mining; competitive intelligence; information policy and ethics; and information technology issues of privacy and security.

## Academic advising

Student advising for the Department of Information Science's programs and courses is available through the College of Information advising and admissions student support services office, Discovery Park, Room C232; 940-565-2445; [ci-advising@unt.edu](mailto:ci-advising@unt.edu). All students should have an approved degree audit on file as early as possible. Out of state students must contact the college advising office for advising clearance before registering for classes. Calls and visits by prospective students are welcomed from 9 a.m. to 5 p.m. Monday through Friday.

## Scholarships

The Department of Information Science provides and connects students to various scholarships and funding opportunities for students in this discipline. These opportunities may be available whether students are undergraduate or graduate, entering or continuing, transfer students, or international students. For specific information and application forms, contact the department chair, administrative assistant, or visit the web page: <http://informationscience.unt.edu/scholarships-and-awards>.

## Further information

For further information about any degree or certificate program, write or call the Department of Information Science or visit the department's web site: <http://informationscience.unt.edu/>. Personal interviews and counseling may be arranged through the department office.

The Department of Information Science does not discriminate on the basis of disability in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of its programs and activities, as specified by federal laws and regulations. Copies of the department's ADA compliance policy are available in the department office. Problems may be reported to the department's ADA liaison, Discovery Park, Room E292; 940-565-2445.

## Master's Degree

### Data Science, MS

The automation of various work processes within the organization has resulted in the creation of large digital repositories and big data warehouses that require highly-trained data science and data analytic professionals who can transform the growing amount of data and information into actionable knowledge. The ability to manage and manipulate the ever-growing volume of data and digital information will depend largely on the resources and expertise available within the organization that can deal with such a problem.

The Master of Science with a major in data science (MS-DS) is designed to address the current market needs for highly skilled data science and data analytics professionals. The program is designed to help graduates gain skills and experiences in designing, implementing and transforming data sets into actionable knowledge. It provides students with the skills and knowledge needed to develop competencies in managing data science and analytics projects and work with data analytics tools and technologies. The program will help educate a new generation of information professionals capable of taking the leadership role through connecting the dots and using data to support strategic initiatives within the organization.

## Required courses, 9 hours

- DTSC 5501 - Fundamentals of Data Analytics
- DTSC 5502 - Principles and Techniques for Data Science
- DTSC 5505 - Applied Machine Learning for Data Scientists

## Guided electives, 15 hours

The guided electives are courses with advanced topics in both data science and data analytics. The student can choose from the following courses which concentrate on specific methodologies and tools in data science and data analytics.

Students must take 15 hours from the following list of courses.

- ADTA 5230 - Data Analytics II
- CSCE 5213 - Modeling and Simulation
- CSCE 5218 - Deep Learning
- CSCE 5300 - Introduction to Big Data and Data Science
- DSCI 5240 - Data Mining and Machine Learning for Business
- or
- CSCE 5380 - Data Mining
- DSCI 5330 - Business Intelligence Foundations
- DSCI 5340 - Predictive Analytics and Business Forecasting
- INFO 5040 - Information Behavior
- INFO 5206 - Information Retrieval Design
- INFO 5307 - Knowledge Management Tools and Technologies
- INFO 5503 - Knowledge Management Processes and Practices
- INFO 5810 - Data Analysis and Knowledge Discovery
- DSCI 5360 - Data Visualization for Analytics
- or
- INFO 5709 - Data Visualization and Communication
- LING 5410 - Foundations of Computational Linguistics
- LING 5412 - Advanced Models of Language
- LING 5415 - Special Topics in Computational Linguistics

## General electives, 9 hours

Students must take 9 hours from the following list of courses. They are allowed to pursue courses from outside this list and in their areas of interest with the approval of the advisor.

- BMEN 5210 - Biomedical Engineering Laboratory
- BMEN 5315 - Computational Methods in Biomedical Engineering

- BMEN 5940 - Biomedical Engineering Seminar
- CSCE 5200 - Information Retrieval and Web Search
- CSCE 5214 - Software Development for Artificial Intelligence
- CSCE 5216 - Pattern Recognition
- DTSC 5091 - Data Science Internship
- INFO 5200 - Information Organization
- INFO 5205 - Information Indexing, Abstracting and Retrieval
- INFO 5223 - Metadata for Information Organization and Retrieval I
- INFO 5224 - Metadata for Information Organization and Retrieval II
- INFO 5305 - Systems Analysis and Design
- INFO 5365 - Health Librarianship and Informatics
- INFO 5637 - Medical Informatics
- INFO 5707 - Data Modeling for Information Professionals
- INFO 5731 - Computational Methods for Information Systems
- INFO 5735 - Usability and User Experience Metrics
- INFO 5737 - Information and Cyber-Security
- INFO 5745 - Information Architecture
- INFO 5770 - Introduction to Health Data Analytics
- INFO 6050 - Health Research Methodology
- LING 5405 - Programming for Linguistics
- LTEC 5300 - Learning and Cognition
- LTEC 5320 - Contemporary Issues in Workforce Learning and Performance
- LTEC 5702 - Applications of Artificial Intelligence in Learning Analytics
- LTEC 5703 - Artificial Intelligence Technologies for Learning and Performance

## Practicum/research project/thesis, 3-6 hours

- DTSC 5082 - Seminar in Research and Research Methodology
- INFO 5090 - Practicum and Internship in the Field Study

## Health Informatics, MS

*The Graduate Council approved a change to this program during the academic year. Please refer to the Catalog Addendum for more information.*

The healthcare landscape continues evolving with advancements in technology. Health data is being generated at a pace never witnessed before; new models of health services delivery continue changing, and the available technology is making healthcare more consumer-centric. Health informatics professionals need to be equipped with the competencies to address technical and societal challenges with a data science approach. The UNT Master's of Science in Health Informatics (MSHI) program combines health informatics and data science. The purpose of the MSHI program is to educate leaders in health informatics who can apply data science methods and techniques to improve the delivery of healthcare with a patient-centered focus. We want to educate forward-thinking health informatics professionals that will impact the delivery of healthcare in diversified health environments.