INFORMATION SCIENCE AND TECHNOLOGY, MS

The Master of Science in Information Science and Technology (MSIST) is a professional graduate degree program for those who seek advanced training to meet the ever increasing need for information technology (IT) professionals. The degree is composed of 30 credit hours and enhances any undergraduate course of study.

The MSIST will provide essential skills and knowledge in the following areas:

- **Data science:** Provides students with advanced knowledge and skills to manage data sets generated by applications.
- **Information security:** Focuses on techniques ensuring the security of all data captured, stored and analyzed through applications.

Admission Requirements

Application Deadlines

Application deadlines vary by program, please review the application deadline chart (http://uwm.edu/graduateschool/program-deadlines/) for specific programs. Other important dates and deadlines can be found by using the One Stop calendars (https://uwm.edu/onestop/dates-and-deadlines/).

Admission

An applicant must meet Graduate School requirements (http://uwm.edu/graduateschool/admission/) plus these departmental requirements to be considered for admission to the program:

- A resume.
- A one to two page reason statement outlining your background and your educational and professional goals.

Prerequisites

Preference will be given to those students who have a baccalaureate degree in information sciences, computer information systems, computer science, engineering, statistics, or a related field. Students with sufficient background gained through work experience or professional training in information technologies, such as networks, web services, and database development, will also be considered for admission to the program. Those who have neither of the aforementioned qualifications will be encouraged to take the following prerequisites, or their equivalents, before taking related courses:

Code	Title	Credits
INFOST 240	Web Design I	3
INFOST 410	Database Information Retrieval Systems	3
INFOST 440	Web Application Development	3

If taken, these courses must have been completed within the last five years with a grade of B or better (B- not acceptable).

Credits and Courses

The program requires 30 graduate-level credits, including 15 credits of required coursework, competency requirement and either 12 or 15 credits of elective credit depending on whether competency is demonstrated through coursework or examination.

Code	Title	Credits
Core Courses		
INFOST 582	Introduction to Data Science	3
INFOST 583	Survey of Information Security	3
COMPST 701	Computing Fundamentals for IT Professionals	3
COMPST 703	Software Development Life Cycle	3
Programming proficiency as demonstrated by one of the following with a "C" or better:		*0-3*
INFOST 350	Introduction to Application Development	
BUSMGMT 744	R Programming for Business Analytics	
COMPST 702	Introductory Programming Using Python	
COMPST 750	Problem Solving with Object-Oriented Programming	
HI 741	Essential Programming for Health Informatics	
PH 718	Data Management and Visualization in R	
Programming Competency Examination		
Culminating Course		
INFOST 790	Project Design, Implementation, and Evaluation	3
Electives		
12-15 credits from any INFOST or COMPST course offerings or from any of the Tracks. Number of credits is dependent on whether programming competency is demonstrated through coursework or examination.		12-15
Total Credits		**30**

Electives

Select 12 or 15 credits of elective credits depending on whether programming competency is demonstrated through coursework or examination. Electives can be used toward Tracks.

Electives for the Information Security Track

12 credits of coursework from any of the courses listed below.

Code	Title	Credits
INFOST 465	Legal Aspects of Information Products and Services (G)	3
INFOST 547	User-Centered Interaction Design	3
INFOST 584	Survey of Web and Mobile Content Development	3
INFOST 660	Information Policy	3
INFOST 661	Information Ethics	3
INFOST 671	Applied Web 3.0: Artificial Intelligence and Blockchain	3
INFOST 691	Special Topics in Information Science:	1-3
INFOST 695	Ethical Hacking I	3
INFOST 696	Ethical Hacking II	3
INFOST 697	Cisco Routing & Switching I	3
INFOST 784	Information Security Management	3

INFOST 785	Database Managment Systems for Information Professionals	3
BUS ADM 743	Information Privacy, Security & Continuity	3
BUS ADM 817	Connected Systems for Business	3
COMPSCI 469	Introduction to Computer Security	3
COMPSCI 520	Computer Networks	3
COMPST 750	Problem Solving with Object-Oriented Programming	3
COMPST 751	Data Structures and Algorithms	3

Electives for the Data Science Track

12 credits of coursework from any of the courses listed below.

Code	Title	Credits
INFOST 465	Legal Aspects of Information Products and Services	3
INFOST 660	Information Policy	3
INFOST 661	Information Ethics	3
INFOST 671	Applied Web 3.0: Artificial Intelligence and Blockchain	3
INFOST 687	Data Analysis for Data Science	3
INFOST 691	Special Topics in Information Science:	1-3
INFOST 714	Metadata	3
INFOST 719	Advanced Topics in Information Organization	3
INFOST 771	Data Curation	3
INFOST 784	Information Security Management	3
INFOST 785	Database Managment Systems for Information Professionals	3
BUS ADM 713	Business Forecasting Methods	3
BUS ADM 741	Web Mining and Analytics	3
BUS ADM 744	Information Technology Strategy and Management	3
BUS ADM 746	Topics in Information Technology Management:	3
BUS ADM 749	Data and Information Management	3
BUS ADM 754	Statistical Analysis	3
BUS ADM 763	Marketing Analytics	3
BUS ADM 769	Database Marketing	3
BUS ADM 810	Development of Web-Based Solutions	3
BUS ADM 816	Business Intelligence Technologies & Solutions	3
BUS ADM 914	Advanced Multivariate Techniques in Management Research	3
BUSMGMT 709	Predictive Analytics for Managers	3
BUSMGMT 744	R Programming for Business Analytics	3
COMPSCI 423	Introduction to Natural Language Processing	3
COMPSCI 425	Introduction to Data Mining	3
COMPSCI 557	Introduction to Database Systems	3
COMPSCI 710	Artificial Intelligence	3
COMPSCI 744	Text Retrieval and Its Applications in Biomedicine	3
COMPST 702	Introductory Programming Using Python	3
COMPST 750	Problem Solving with Object-Oriented Programming	3
COMPST 751	Data Structures and Algorithms	3
COMPST 790	Advanced Topics in Computer Studies:	3-9
ELECENG 711	Introduction to Machine Learning	3
ELECENG 890	Special Topics:	3
GEOG 726	Geographic Information Science	4
HI 741	Essential Programming for Health Informatics	3
HI/COMPSCI 744	Text Retrieval and Its Applications in Biomedicine	3
HI 760	Biomedical and Healthcare Terminology and Ontology	3

Electives for the Generalist Track

Code	Title	Credits
Any Graduate level INFOST or COMPST course.		1-3
Any course from the Data Science Track.		1-3
ART 302	Art and Design Workshop:	3
ART 412	Advanced Creative Technologies	3
ART 423	Experimental Typography	3
ART 496	Sequence and Structure	3
ART 524	Professional Practice in Design:	3-6
ART 929	Advanced Research-Design & Digital Media	1-4
ARCH 583	Emerging Digital Technology:	3
ARCH 771	Representation I	3
BUS ADM 748	Managing Information Technology Projects	3
COMPSCI 459	Fundamentals of Computer Graphics	3
COMPSCI 481	Server-side Internet Programming	3
COMPSCI 482	Rich Internet Applications	3
COMPSCI 522	Computer Game Design	3
COMPSCI 718	Advanced Computer Graphics: Modeling and Animation	3
COMPSCI 737	Software Project Management	3
COMPSCI 743	Intelligent User Interfaces	3
COMPSCI 747	Principles & Practices of User Interface Design	3
GEOG 704	Remote Sensing: Environmental and Land Use Analysis	4
GEOG 705	Cartography	4
GEOG 726	Geographic Information Science	4
GEOG 804	Advanced Remote Sensing	3

Minimum Grade Requirement in the Required Courses

The minimum grade requirement for the required courses is a B. Students who earn a grade of B- or lower have not met the minimum requirement and will be allowed to repeat the required course once. Students are responsible for tuition in the repeated course; no credit is earned from the first attempt at the required course, or any required course for which a B- or lower is earned. Materials and assignments used previously may not be reused or resubmitted when retaking a required course unless approved by the instructor. Those who do not meet the minimum

grade requirements upon repeating the course will be recommended for academic dismissal. Students may not register for a course for which any of the required courses is a prerequisite until the minimum grade requirement is met.

Additional Requirements

Time Limit

All degree requirements must be completed within five years from the date of initial enrollment in the Master's program.

Information Science and Technology MS Learning Outcomes

Students who graduate from the MSIST program will be able to:

1. Explain the fundamental theories, methods, and concepts of information science and technology.
2. Apply systems and tools of information technology to solve problems in the rapidly changing information technology field.
3. Develop analytical and critical thinking skills and capacities in a variety of Information Technology contexts.
4. Assess the quality and ethics of technology-related information as well as its value to those who will ultimately use it for decision-making.
5. Demonstrate the ability to communicate effectively with all stakeholders.

Accelerated Program Option

This program is offered as part of an accelerated graduate program. For more information, see Accelerated Graduate Degrees (https://catalog.uwm.edu/opportunities-resources/accelerated-graduate-degrees/).