



Department of Information Sciences and Technology

Master of Science, Applied Information Technology (2020-2021)

The MS in Applied Information Technology is the very best graduate education in IT for high-potential leaders, especially those working on IT solutions that affect the federal government, industry or non-profit. Its objective is to graduate individuals of competence and character who can lead multidisciplinary teams in the design, justification, development, management, and sustainment of mega-systems from data to decision in the private and federal sectors. The MS in AIT provides a high quality curriculum for students seeking to pursue their careers in the leading IT areas including:

- Cyber Security
- Big Data Analytics
- Knowledge Mining
- Data Analytics in Social Media
- Cyber-Human Interaction

Faculty include professors from the Volgenau School, the School of Business, and the College of Humanities and Social Sciences, plus industry leaders with unique reputations in the subject area as adjunct professors and guest lecturers. The faculty expose students to the pragmatic issues of IT, not just the theory.

Admissions Requirements:

Applicants must have completed a baccalaureate degree from an accredited program with a reputation for high academic standards and an earned GPA of 3.00 or better in their 60 highest-level credits. They must be experienced in the fundamentals of IT and quantitative methods. In addition, applicants must:

- Provide two letters of recommendation, preferably from academic references or references in industry or government who are familiar with the applicant's professional accomplishments.
- Provide a resume and detailed statement of career goals and professional aspirations.
- If their native language is not English, students must earn a minimum TOEFL score of 570 for the paper-based exam or 88 points total with a minimum of 20 points in each section for the internet-based exam (a minimum score of 600 for the paper-based exam or 100 for the Internet-based exam is required for applicants who wish to be considered for a graduate teaching assistantship).

Degree Requirements:

The MS AIT program can be successfully completed in one year (full-time) or two years (part-time), which includes ten courses (minimum of 30 credits). The program consists of four core courses (12 credits) and at least six courses required for the chosen concentration area (minimum of 18 credits). Students in all concentrations may take other VSE graduate-level courses as part of their MS technical electives subject to advisor approval. Students must earn B or better in any core or concentration course in the program.

This document provides general information about the MS in AIT program for information purposes only. The definitive statement of policy and requirements is the University Catalog (<http://catalog.gmu.edu>). In the event of any differences between this sheet and the Catalog, the latter prevails.

MS Applied Information Technology 2020-2021

Core courses:

For students in all concentrations except IT Management (ITMG)	For students in the ITMG concentration
AIT 512: Algorithms and Data Structures Essentials	AIT 580: Analytics: Big Data to Information
AIT 524: Database Management Systems	AIT 524: Database Management Systems
AIT 542: Fundamentals of Computing Platforms	AIT 542: Fundamentals of Computing Platforms
AIT 664: Information: Representation, Processing and Visualization	AIT 664: Information: Representation, Processing and Visualization

Cyber Security (CYBR):

Cyber-Human Systems (CBHS):

Foundation: Select 4 courses from:	Foundation
AIT 660: Cyber Security Fundamentals	AIT 582: Applications of Metadata in Complex Big Data Problems
AIT 670: Cloud Computing Security	AIT 602: Introduction to Research in Applied Information Technology
AIT 681: Secure Software Development	AIT 716: Human Computer Interaction
AIT 682: Network and Systems Security	AIT 724: Data Analytics in Social Media
AIT 702: Incident Handling and Penetration Testing	
	Electives
Electives: Select 2 courses from	AIT 590: Topics in Applied Information Technology
AIT 590: Topics in Applied Information Technology	AIT 614: Big Data Essentials
AIT 636: Interpretable Machine Learning	AIT 624: Knowledge Mining from Big-Data
AIT 672: Identity and Access Management	AIT 636: Interpretable Machine Learning
AIT 690: Advanced Topics in Applied Information Technology	AIT 690: Advanced Topics in Applied Information Technology
AIT 699: Research Project	AIT 699: Research Project
AIT 701: Cyber Security: Emerging Threats and Countermeasures	AIT 711: Rapid Development of Scalable Applications
AIT 712: Applied Biometric Technologies	AIT 722: Theories and Models in Geo-Social Data Analytics
AIT 736: Applied Machine Learning	AIT 726: Natural Language Processing
AIT 790: Advanced Special Topics in Applied Information Technology	AIT 734: Advanced Web Analytics Using Semantics
AIT 799: Master's Thesis	AIT 790: Advanced Special Topics in Applied Information Technology
	AIT 799: Master's Thesis

Data Analytics and Intelligence Methods (DAIN):

IT Management (ITMG):

Foundation: Select four courses from:	Students can select six courses from the list below
AIT 580: Analytics: Big Data to Information	AIT 582: Applications of Metadata in Complex Big Data Problems
AIT 582: Metadata Analytics for Big Data	AIT 590: Topics in Applied Information Technology
AIT 614: Big Data Essentials	AIT 614: Big Data Essentials
AIT 677: Intelligence Analysis Methods	AIT 622: Determining Needs for Complex Big Data Systems
AIT 724: Data Analytics in Social Media	AIT 660: Cyber Security Fundamentals
	AIT 665: Managing Information Technology Programs in Federal Sector
Electives	AIT 670: Cloud Computing Security
AIT 590: Topics in Applied Information Technology	AIT 672: Identity and Access Management
AIT 624: Knowledge Mining from Big-Data	AIT 677: Intelligence Analysis Methods
AIT 636: Interpretable Machine Learning	AIT 678: National Security Challenges
AIT 690: Advanced Topics in Applied Information Technology	AIT 679: Law and Ethics of Big Data
AIT 699: Research Project	AIT 685: Capstone Seminar
AIT 711: Rapid Development of Scalable Applications	AIT 690: Advanced Topics in Applied Information Technology
AIT 716: Human Computer Interaction	AIT 697: Leading Organizations Through Change
AIT 722: Theories and Models in Geo-Social Data Analytics	AIT 701: Cyber Security: Emerging Threats and Countermeasures
AIT 726: Natural Language Processing	
AIT 734: Advanced Web Analytics Using Semantics	
AIT 736: Applied Machine Learning	
AIT 790: Advanced Special Topics in Applied Information Technology	
AIT 799: Master's Thesis	
CFRS 500: Introduction to Forensic Technology and Analysis	
CFRS 660: Network Forensics	