Master of Science, Applied Information Technology (2017-2018)

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 575 for the paper-based exam or 230 for the computer-based exam (a minimum score of 600 for the paper-based exam or 250 for the computer-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.
Completion of the MS AIT program requires a minimum of 30 approved graduate credits (10 courses). To provide a common background in the fundamentals of information sciences and technology, all students are required to complete four core courses. In addition to the core courses, students must choose a concentration within the program by taking at least six courses from one of the concentration areas listed below.

Students in all concentrations may take other VSE graduate-level courses not listed below as part of their MS technical electives subject to advisor approval.

### Core courses:

<table>
<thead>
<tr>
<th>For students in all concentrations except IMFS</th>
<th>For students in the IMFS concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 512: Algorithms and Data Structures Essentials</td>
<td>AIT 580: Analytics: Big Data to Information</td>
</tr>
<tr>
<td>AIT 524: Database Management Systems</td>
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</tr>
<tr>
<td>AIT 664: Information: Representation, Processing and Visualization</td>
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<tr>
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<tbody>
<tr>
<td><strong>Foundation</strong></td>
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</tr>
<tr>
<td>AIT 660: Cyber Security Fundamentals</td>
<td>AIT 582: Applications of Metadata in Complex Big Data Problems</td>
</tr>
<tr>
<td>AIT 681: Secure Software Development</td>
<td>AIT 602: Introduction to Research in Applied Information Technology</td>
</tr>
<tr>
<td>AIT 702: Incident Handling and Penetration Testing</td>
<td>AIT 724: Data Analytics in Social Media</td>
</tr>
<tr>
<td><strong>Electives</strong></td>
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</tr>
<tr>
<td>AIT 670: Cloud Computing Security</td>
<td>AIT 614: Big Data Essentials</td>
</tr>
<tr>
<td>AIT 672: Identity and Access Management</td>
<td>AIT 624: Knowledge Mining from Big-Data</td>
</tr>
<tr>
<td>AIT 699: Research Project</td>
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<tr>
<td>AIT 701: Cyber Security: Emerging Threats and Countermeasures</td>
<td>AIT 711: Rapid Development of Scalable Applications</td>
</tr>
<tr>
<td>AIT 799: Master's Thesis</td>
<td>AIT 734: Advanced Web Analytics Using Semantics</td>
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<td></td>
<td>AIT 799: Master's Thesis</td>
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<table>
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<tr>
<th>Data Analytics and Intelligence Methods (DAIN):</th>
<th>IT Management in Federal Sector (IMFS):</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Foundation</strong></td>
<td><strong>Students can select six courses from the list below</strong></td>
</tr>
<tr>
<td>AIT 614: Big Data Essentials</td>
<td>AIT 582: Applications of Metadata in Complex Big Data Problems</td>
</tr>
<tr>
<td>AIT 624: Knowledge Mining from Big-Data</td>
<td>AIT 614: Big Data Essentials</td>
</tr>
<tr>
<td>AIT 677: Intelligence Analysis Methods</td>
<td>AIT 622: Determining Needs for Complex Big Data Systems</td>
</tr>
<tr>
<td>AIT 724: Data Analytics in Social Media</td>
<td>AIT 660: Cyber Security Fundamentals</td>
</tr>
<tr>
<td><strong>Electives</strong></td>
<td><strong>AIT 582: Applications of Metadata in Complex Big Data Problems</strong></td>
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<td>AIT 711: Rapid Development of Scalable Applications</td>
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<tr>
<td>AIT 734: Advanced Web Analytics Using Semantics</td>
<td>AIT 679: Law and Ethics of Big Data</td>
</tr>
<tr>
<td>AIT 799: Master's Thesis</td>
<td>AIT 685: Capstone Seminar</td>
</tr>
<tr>
<td>CFRS 500: Introduction to Forensic Technology and Analysis</td>
<td>AIT 697: Leading Organizations Through Change</td>
</tr>
<tr>
<td>CFRS 660: Network Forensics</td>
<td>AIT 701: Cyber Security: Emerging Threats and Countermeasures</td>
</tr>
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MS Applied Information Technology
2017-2018

Core (12)
- AIT 524
- AIT 542
- AIT 664

Core (cont.)
All Concentrations except IMFS
- AIT 512

CYBR Concentration
(at least 18)
Foundation (12)
- AIT 660
- AIT 681
- AIT 682
- AIT 702
Electives (at least 6)
- AIT 670
- AIT 672
- AIT 699
- AIT 701
- AIT 799

CBHS Concentration
(at least 18)
Foundation (12)
- AIT 582
- AIT 602
- AIT 716
- AIT 724
Electives (at least 6)
- AIT 614
- AIT 624
- AIT 699
- AIT 711
- AIT 734
- AIT 799

DAIN Concentration
(at least 18)
Foundation (12)
- AIT 614
- AIT 624
- AIT 677
- AIT 724
Electives (at least 6)
- AIT 582
- AIT 699
- AIT 711
- AIT 716
- AIT 734
- AIT 799
- CFRS 500
- CFRS 660

IMFS Concentration
(at least 18)
Minimum of any 6
- AIT 582
- AIT 614
- AIT 622
- AIT 660
- AIT 665
- AIT 670
- AIT 672
- AIT 677
- AIT 678
- AIT 679
- AIT 685
- AIT 697
- AIT 701

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**MS AIT Pre-requisite Chart**

2017-2018

Required pre-requisite: $\rightarrow$ Recommended pre-requisite: $\rightarrow$

Core course: AIT xxx

Concentration course: AIT xxx

* Please check [http://catalog.gmu.edu](http://catalog.gmu.edu) for recommended prerequisites