Business Cybersecurity Management

Degrees Offered

- Master of Science

Nature of the Program

WVU’s Business Cybersecurity Management Program is a 12-month online program. Our online flexibility encourages students to demonstrate managerial expertise in understanding and investigating complex cybersecurity ideas, evaluate data security of businesses from a data and systems security perspective, use appropriate tools to mitigate cybersecurity threats and communicate the analysis and findings of a comprehensive security audit initiative to enhance the protection and security of an organization.

FACULTY

COORDINATOR

- Janet Fraser - Ph.D. (Pennsylvania State University)
  Teaching Assistant Professor, Management Information Systems

PROFESSOR

- Virginia Kleist - Ph.D. (University of Pittsburgh)
  Professor, Management Information Systems

ASSISTANT PROFESSORS

- Mark Nigrini - Ph.D. (University of Cincinnati)
  Assistant Professor, Accounting

TEACHING ASSISTANT PROFESSORS

- Brian Powell - Ph.D. (West Virginia University)
  Teaching Assistant Professor, Computer Science

ADJUNCT PROFESSORS

- Alex Jalso - M.S. in Business Administration (California University of Pennsylvania)
  Chief Information Officer at West Virginia University
- Christopher Ramezan - Ph.D. (West Virginia University)
  Information Security Officer at West Virginia University

Admissions

The M.S. Business Cybersecurity Management program seeks individuals from diverse academic backgrounds who have an interest and aptitude to be successful in the cybersecurity domain. This program prepares students to become cybersecurity professionals, as well as sharpen the skills of those who currently work in the cybersecurity industry so that they can adapt to growing changes in security technology.

The Admissions Committee will take a holistic approach to the application review process and will consider the strength of the following admissions application requirements:

- GPA - Applicants must earn a cumulative undergraduate GPA of 3.25
- Statement of Purpose
- GMAT Score - Applicants must have an acceptable GMAT score
  - GMAT Waivers - Applicants may request a waiver of the GMAT requirement in their Statement of Purpose if they a) graduated from the WVU Management Information Systems program with a minimum GPA of 3.25 or b) have five or more years of relevant professional work experience
- Letters of Recommendation - Applicants must have three letters of recommendation from individuals who can provide information about their ability to work with others, discipline and ambition, leadership potential, etc.

Degree Requirements

Each student who completes an MS in Business Cybersecurity Management will complete a 10 course online sequence in a one year time period. Students are required to attend an on-campus residency as an introduction to the program in August of their matriculation, and also are required to attend an on-campus residency to present their capstone project at the conclusion of their one year program.
Students must have a cumulative GPA of 3.0 to graduate from the program.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ACCT 582</td>
<td>Fraud Data Analysis</td>
<td>3</td>
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<tr>
<td>BUDA 510</td>
<td>Foundations of Business Intelligence</td>
<td>3</td>
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<tr>
<td>BUDA 520</td>
<td>Data Management</td>
<td>3</td>
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<td>BUDA 550</td>
<td>Business Data Visualization</td>
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<td>CYBR 525</td>
<td>Information Security Assurance Management</td>
<td>3</td>
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<td>CYBR 530</td>
<td>Business Data Communications</td>
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<td>CYBR 535</td>
<td>Business Network Security</td>
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<td>CYBR 540</td>
<td>Information Ethics and Legal Procedures</td>
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<td>CYBR 545</td>
<td>Business Cybercrime Management</td>
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<tr>
<td>CYBR 555</td>
<td>Business Cybersecurity Practicum</td>
<td>3</td>
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Total Hours: 30

* Students may select CPE 538 in place of the CYBR 535 in the Spring semester, on campus.
** Students may select CS 539 in place of the CYBR 540 in the Spring semester, on campus

Suggested Plan of Study

<table>
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<tr>
<th>First Year</th>
<th>Hours</th>
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<td>Fall</td>
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<tr>
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<td>CYBR 535</td>
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<td>BUDA 520</td>
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<td>CYBR 540</td>
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<td>CYBR 525</td>
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<td>CYBR 545</td>
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<tr>
<td>CYBR 530</td>
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Total credit hours: 30

Major Learning Outcomes

BUSINESS CYBERSECURITY MANAGEMENT

Upon completion of this program, students will:

- Students will be able to demonstrate managerial expertise in understanding and investigating complex cybersecurity ideas.
- Students will be able to evaluate the data security of businesses from a data and systems security perspective, and to recommend and initiate appropriate procedures, policies, and security controls to ensure improved data and systems security.
- Students will be able to use appropriate tools to mitigate cybersecurity threats by applying knowledge of topics such as risk management, disaster recovery, business continuity, digital forensics, and computer network defenses.
- Students will be able to communicate the analysis and findings of a comprehensive security audit initiative to enhance the protection and security of an organization.

COURSES

CYBR 525. Information Security Assurance Management. 3 Hours.

This course prepares graduate students to become effective leaders in the management of computer security risks and cyber threats in private and public sector organizations. This comprehensive course introduces students to information assurance strategies, managerial security frameworks, the management of security controls, and the protection of information systems and networks in business. Students are also provided with the managerial tools.

CYBR 530. Business Data Communications. 3 Hours.

Provides an overview of corporate data communications networks, the TCP/IP model and related technologies of the data communications corporate infrastructure as well as a survey of the essential tools and strategies for the management of secure, effective business networks. The course focuses on many related areas. Students will be encouraged to take and pass the Network+ Certification.

CYBR 535. Business Network Security. 3 Hours.

PR: CYBR 525 and CYBR 530. This course prepares graduate students to be effective leaders in business network security management. This course focuses on a practical, managerial approach to assessing and maintaining security in organizational networks and private and public cloud infrastructures. The student is expected to learn, think and act as an executive level manager applying network security technologies, controls and policies.
CYBR 540. Information Ethics and Legal Procedures. 3 Hours.
This course provides an introduction to information ethics, including privacy protection and control, surveillance, link analysis, personally identifiable and sensitive data, data anonymity, privacy, accessibility and sharing, censorship, intellectual property, accuracy, virtual reality and AI. Additionally, laws of data collection and storage, security and law enforcement investigations, compliance management for government, publicly held corporations and the healthcare sectors are covered.

CYBR 545. Business Cybercrime Management. 3 Hours.
PR: CYBR 530 and CYBR 535. Learn the managerial skills to protect, defend, and audit the security of information systems by ensuring confidentiality, integrity, authentications, availability, and non-repudiation through liability assessments, statistical analysis, and risk-based decision making. Upon completion of the course, students should be able to ensure that appropriate business security controls are in place to safeguard digital files and critical electronic infrastructure.

CYBR 555. Business Cybersecurity Practicum. 3 Hours.
PR: CYBR 545 and PR or CONC: BUDA 550. Students will apply business cybersecurity tools to real world information security issues found in a business or non-profit organization. The final project requires integration across the business cybersecurity management skills of business intelligence, data management, information security assurance, data communications, network security, information ethics, legal procedures, business cybercrime management, fraud data analysis and business data visualization using a holistic approach.

CYBR 591. Advanced Topics. 1-6 Hours.
PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

CYBR 593. Special Topics. 1-6 Hours.
A study of contemporary topics selected from recent developments in the field.