



CYBERSECURITY GRADUATE PROGRAMS

Whether you already have a degree in an information technology discipline or are seeking to expand your knowledge of cybersecurity for your own professional development, UMBC's graduate cybersecurity programs will leverage your experience toward a range of opportunities within the cybersecurity and cyber operations profession.

Our offerings include:

Master in Professional Studies: CYBERSECURITY

The ten-course MPS is designed to prepare technical professionals and others in the 'cyber' fields to fill management and leadership roles in cybersecurity, cyber operations, and/or related organizations in the government or private sector. Established with significant industry input, this interdisciplinary degree program includes a core curriculum providing students the required knowledge necessary for effective cybersecurity activities and then allows them to pursue specialized technical or non-technical knowledge through a range of elective offerings to create a tailored educational plan best suited for their specific requirements or interests.

Post-Baccalaureate Certificate: CYBERSECURITY STRATEGY AND POLICY

This four-course graduate certificate is oriented towards students seeking broad exposure to cybersecurity principles and how they relate to national or global cybersecurity. This program is available to students with a variety of undergraduate backgrounds.

Post-Baccalaureate Certificate: CYBERSECURITY OPERATIONS

This four-course graduate certificate is oriented towards students seeking broad exposure to cybersecurity principles, best practices, and technologies. This certificate includes three required cybersecurity courses and one student-selected exploratory elective on a cybersecurity topic of interest or professional relevance.

Either certificate may be completed in one year. Students may choose to complete a certificate by itself, or after completing the certificate they may choose to complete the full master's degree. If a student is accepted into the M.P.S.: Cybersecurity, all four certificate courses count toward that degree.

COSTS

Maryland Resident

Tuition per credit: \$585 (plus mandatory fees)*

Non-Resident

Tuition per credit: \$968 (plus mandatory fees)*

For more information on tuition and fees, please visit:
www.umbc.edu/sbs.

*For Academic Year 2015/2016

ADMISSION REQUIREMENTS

For M.P.S.:

Applicants to the MPS degree program are expected to have current industry experience and/or a solid academic background. Those without technical backgrounds must demonstrate other relevant professional or academic expertise that may qualify them for admission.

- A bachelor's degree in Computer Science, Information Systems, Mathematics, or a related field.
- GRE scores are not required for admission
- Applicants should have a minimum undergraduate GPA of 3.0 on a 4.0 scale. (Students with a GPA less than 3.0 may be admitted to the program with relevant professional or academic experience.)

For Post-Baccalaureate Certificate:

There are no specific constraints on the type of undergraduate degree required for this certificate. However, students with a background in computer science or information systems, or those with significant professional experience in the IT industry, are encouraged to apply.

- GRE scores are not required for admission
- Applicants should have a minimum undergraduate GPA of 3.0 on a 4.0 scale (Students with a GPA less than 3.0 may be admitted to the program with relevant professional or academic experience.)

International Students:

- A bachelor's degree in Computer Science, Information Systems, Mathematics, or a related field (Applicants with professional experience in the IT or Cybersecurity fields are strongly encouraged to apply.)
- Minimum undergraduate GPA of 3.0 on 4.0 scale, or equivalent, is desired. Applicants with grades on a scale other than 4.0, will be evaluated based on standards for the country of their degree.
- Graduate Record Exam (GRE) scores with a minimum combined score of 306. Verbal Reasoning should be at least 153 and Analytical Writing at least 4.5. GRE scores are not required if your undergraduate degree was completed at an accredited U.S. university.
- TOEFL Scores: Minimum scores: 99 (iBT). Scores must be less than 2 years old. iBT Score Breakdown: Writing (23), Listening (23), Reading (25), Speaking (28, 23 acceptable if have 2 years' work experience in supervisory or management position in the U.S.)

OR

- IELTS Score: Minimum score of 7.5 required.

*If you have a three-year degree versus a four-year degree, your transcript will be reviewed to determine whether you have met the necessary pre-requisites for the program. Eligibility for admission can only be determined upon receipt of a complete application.

Master in Professional Studies: CYBERSECURITY (30 CREDITS)

Degree Requirements

Required Core Courses (18 credits)

- CYBR 620: Introduction to Cybersecurity
- CYBR 623: Cybersecurity Law & Policy
- CYBR 624: Cybersecurity Project
- CYBR 650: Managing Cyber Operations
- CYBR 658: Risk Analysis & Compliance
- ENMG 652: Management, Leadership, and Communication

* Some may be substituted via transfer credits or alternative UMBC courses.

Elective Courses* (12 credits) Choose four, such as:

- CMSC 687: Introduction to Network Security
- CMPE 685: Principles of Communications Networks
- CYBR 621: Cyber Warfare
- CYBR 622: Global Cyber Capabilities and Trends
- CYBR 644: Cybersecurity Practitioner Development Lab
- CYBR 691: Special Topics in Cybersecurity
- Other relevant graduate course(s) approved by the Cybersecurity Graduate Program Director

* Some electives may require academic or professional pre-requisites; check with the specific department or program to determine eligibility and suitability.

Post-Baccalaureate Certificate: CYBERSECURITY STRATEGY AND POLICY

Four Required Courses (12 credits)

- CYBR 620: Introduction to Cybersecurity
- CYBR 621: Cyber Warfare
- CYBR 622: Global Cyber Capabilities and Trends
- CYBR 623: Cybersecurity Law & Policy

Post-Baccalaureate Certificate: CYBERSECURITY OPERATIONS

Four Required Courses (12 credits)

- CYBR 620: Introduction to Cybersecurity
- CYBR 650: Managing Cybersecurity Operations
- CYBR 658: Risk Analysis and Compliance
- One Additional Cybersecurity Elective

FACULTY & CURRICULUM

Classes are taught by cybersecurity industry experts with significant current professional experience that is incorporated throughout the curriculum. Guiding the evolution of the program is input from experts from government and commercial agencies, companies, and organizations. Their advice helps ensure the cybersecurity program remains relevant to the needs of the operational cybersecurity workforce in Maryland.

To provide a more engaging and rewarding experience during their studies at UMBC, students in the cybersecurity program are encouraged to participate in UMBC's other activities related to cybersecurity, including the CyberDawgs (our intercollegiate Cyber Competition Team), research activities (via the UMBC CyberDefense Lab), lunchtime seminars, and cybersecurity conferences.

WHY CYBERSECURITY

Cybersecurity is a critical domain of global competition that reaches across social, economic, political and military realms of influence.

As a result, Internet-based systems present multiple targets of opportunity for adversaries of all types. Nation-states, international organizations, and criminal enterprises continually develop new operational doctrines, advanced cyberwarfare capabilities, and techniques to create or exploit technical vulnerabilities. Meeting these challenges in a dynamic security environment requires professionals who understand the discipline of cybersecurity and how to apply it in professional practice.

WHY UMBC?

- UMBC is uniquely positioned to provide education and training that respond to the state's need for qualified technical professionals in the cybersecurity field:
- For six years running (2009-2014), UMBC was ranked #1 in the U.S. News and World Report's list of "national up-and-coming" universities.
- UMBC is certified as a National Center of Academic Excellence in Information Assurance/Cyber Defense Education (CAE-IA/CD) as well as a Center of Academic Excellence in Information Assurance/Cyber Defense Research (CAE-R) sponsored by the National Security Agency and Department of Homeland Security (DHS).
- Students attending UMBC are eligible to apply for scholarships and grants through the Department of Defense Information Assurance Scholarship Program (IASP) and/or Federal CyberCorps Scholarship for Service (SFS). Both scholarships require US Citizenship and eligibility for government security clearances.
- UMBC is conveniently located off of I-95 near the BWI Airport, approximately ten miles from Fort Meade (home of DISA, NSA, and the U.S. Cyber Command). UMBC is convenient to a host of other federal agencies and government contractors that need cyber-related research, education, and training.

FOR MORE DETAILS

umbc.edu/cyber

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