

UMBC UGC Program Changes & Other Request: Computer Science

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Specifics:

The following table compares the requirements of a proposed new Cybersecurity Track with the existing CMSC degree. Most of the courses are already either required or permitted for the existing CMSC degree. The offering expands student's choice by inclusion of the multidisciplinary Cybersecurity electives as electives for BS-CMSC degree.

Course	CyberSecurity Track (New)	Notes
CMSC421	CMSC421	already reqd for BS-CMSC
TrkElect	CMSC426	426 already an elective for CMSC
TrkElect	CMSC481	481 already an elective for CMSC
Elective	Cys Elective	Selected from Information Assurance, Crypto, Malware, Coding Theory
Elective	Cys Elective	Selected from Information Assurance, Crypto, Malware, Coding Theory
Elective	CyS Elective	Selected from Information Assurance, Crypto, Malware, Coding Theory

Rationale:

In conjunction with the B.S. Computer Engineering and the B. S. Information Systems programs, the Computer Science program proposes to add a Cybersecurity Track to its major. The Cybersecurity (CyS) track will require two track electives, and permit three other electives from lists of selected courses. The CyS track will require that courses be selected from a list of Computer Engineering, Computer Science and Information Systems courses that have been closely tied to the CS tracks in all three majors. Thus, the three CyS tracks (CMPE-CyS, CMSC-CyS, IS-CyS) will be cross disciplinary, sharing common content while retaining specialized information more appropriate for the Bachelor's degree with which they are associated.

The key requirements for the track will be;

1. Technical Requirements in Computer Science (CS)

CMSC-421 Principles of Operating Systems, or equivalent courses at other institutions, as determined by the Director. CMSC students already take this course as a requirement.

2. Core Cybersecurity Courses

Complete four courses (at least three credits each) at UMBC from the list of approved courses. One of these will be an introductory overview course, tentatively CMSC 426 Introduction to Security. All courses except possibly the introductory course must be at the 400-level or higher. Courses taken at other institutions may not be substituted except with the permission of the director. In the CMSC program, the requirement will be satisfied by two track electives, initially established as CMSC426 and CMSC481, plus two additional Electives. As the number of Cybersecurity offerings increases, the CMSC program anticipates modifying these requirements.

3. Practical Hands-On Experience

Document practical hands-on experience in Cybersecurity, as judged by the Director.

4. The student must pass all of the CyS track courses with a C or better.

- a) What are the major departures from the current structure and why is the new structure preferable?

As illustrated in the table, the CyS track is just a reshuffling of courses that are currently either required or permitted toward fulfilling the CMSC major. Thus, the addition of the CyS track reflects a different emphasis, but not a new direction for the program. This different emphasis is in keeping with recent NSA and FFRDC awards to the CSEE Department, and will address a frequently-asked question from new or prospective students.

- b) What provisions will be made to accommodate current students if courses are discontinued?

As noted above, the new CyS track draws from a solid foundation of existing courses which have been offered regularly for many (at least five) years. It is expected that courses will be added or eliminated to the CyS interdisciplinary list as appropriate, given the growth and change of technology. The initial list of CyS electives includes Network Security, Information Assurance, Malware, Coding Theory, Field Programmable Logic, VLSI Design, and any course offered in UMBCs CYBER program.

- c) If there is a change in required credits, please provide a specific justification for that change. The proposed CyS track does not change the number of credits required for the CMSC degree.