

M.S. In Cybersecurity

Montana State University's Gianforte School of Computing offers an MS in Cybersecurity. The MS in Cybersecurity requires a minimum of 30 post-baccalaureate credits and is designed for students who have earned a baccalaureate degree in Computer Science (CS) or a related program.

Students may pursue the Master's degree under a thesis option or a courses-only option.

The MS in Cybersecurity is aligned with the requirements necessary to pursue the National Security Agency (NSA) Centers of Academic Excellence (CAE) Cyber Defense Education (CDE) certification. Two tracks (CDE-Masters) are currently being offered which will be validated as *Technical* Program of Studies (PoS) by CAE.

The courses listed below (for both tracks) are designed with outcomes that match Knowledge Units (KUs) necessary to meet certification criteria. A KU is a grouping of topics that needs to be covered by either a single or multiple courses in the PoS. In some cases, a single course may cover multiple KUs. CAE-CDE certification requires that students cover 22 KUs, and both programs are specifically designed to meet this criterion. For specific information regarding the mapping of KUs to courses, please contact Dr. Clemente Izurieta (clemente.izurieta@montana.edu).

Thesis Master's candidates must present and defend their thesis in a public departmental seminar. The number of credits listed at the 500 level or higher (including thesis credits) on the program of study must total at least 21.

Required courses include:

- CSCI 532, Algorithms, 3 credits
- CSCI 538, Computability, 3 credits
- CSCI 590 (Master's Thesis option only), 10 credits

MS in Cybersecurity Program Requirements - ThesisTrack - 30 credits

Students on the thesis track must complete a Program of Study of at least 30 credits which includes at least 20 credits of coursework and 10 credits of thesis. The Program of Study is to be filled out during a student's first semester of graduate school in consultation with his or her advisor.

Note: To enter the program, a student will need to have earned a computer science or closely related bachelor's degree and have the equivalent knowledge of MSU's CSCI 112 (Programming in C) and CSCI 460 (Operating Systems) courses.

Required Courses (that MSU currently offers)

- CSCI 476, Computer Security, 3 credits
- CSCI 466, Computer Networks, 3 credits
- CSCI 521, Distributed System Implementation, 3 credits
- CSCI 540, Advanced Database Systems, 3 credits
- ESOF 422, Advanced Software Engineering, 3 credits
- CSCI 590, Thesis, 10 credits. The Thesis must be aligned with a cybersecurity topic and the student must make an academic contribution that advances the body of knowledge in the domain. CSCI 590 counts for 7 KUs.

MS in Cybersecurity Program Requirements - Courses-Only Track - 30 credits

Students on the courses-only track must complete a Program of Study of at least 30 credits. The Program of Study is to be filled out during a student's first semester of graduate school in consultation with his or her advisor.

Note: To enter the program, a student will need to have earned a computer engineering, electrical engineering or closely related bachelor's degree and have the equivalent knowledge of MSU's CSCI 112 (Programming in C) and CSCI 460 (Operating Systems) courses.

Required Courses (that MSU currently offers)

- CSCI 476, Computer Security, 3 credits
- CSCI 466, Computer Networks, 3 credits
- CSCI 521, Distributed System Implementation, 3 credits
- CSCI 540, Advanced Database Systems, 3 credits
- ESOF 422, Advanced Software Engineering, 3 credits
- CSCI 550, Advanced Data Mining, 3 credits
- 6 credits of elective courses at the discretion of the student in collaboration with an advisor.