

Cybersecurity Certificate

The need for Cybersecurity professionals is rapidly growing. Nearly every government, military, financial institution, medical establishment, and viable businesses collect, process, and store confidential information in databases. Cyber-attacks and digital spying can take many forms, including high visibility and very damaging offenses such as data breaches, phishing, and identity theft. Attacks can take place within databases, while data is processed, or when it is transmitted across networks. In the world of today, cyber-attacks may be a greater threat than terrorism.

The Graduate Certificate Program in Cybersecurity delivered cooperatively among North Dakota State University (NDSU), the University of North Dakota (UND), and Minot State University (MSU). Regardless of their home campus, enrolled students will take fully online courses from all three institutions. Students will learn best practices, new technology, and research in Cybersecurity.

Completion of the Graduate Certificate in Cybersecurity requires completion of 12 graduate credits. This includes three required courses, taken at NDSU, as well as one elective course which can be taken at NDSU or through a partnership with the University of North Dakota or Minot State University. Please contact the cybersecurity program coordinator regarding course options at UND and Minot State, as prospective courses will be individually approved.

| Code | Title | Credits |
|--|--|---------|
| Required Courses | | |
| CSCI 603 | Defensive Network Security | 3 |
| CSCI 604 | Ethical Hacking | 3 |
| CSCI 610 | Computer Crime and Forensics | 3 |
| Required Elective: Select 3 credits from the list below. | | 3 |
| CSCI 609 | Cybersecurity Law and Policy | |
| CSCI 669 | Network Security | |
| CSCI 773 | Foundations of the Digital Enterprise | |
| CSCI 774 | Topics of the Digital Enterprise | |
| CSCI 783 | Topics In Software Systems (cybersecurity focus) | |
| Total Credits | | 12 |

Students can request consideration of other courses for the required elective by contacting the cybersecurity program coordinator.

Department Faculty

Anne Denton, Ph.D.

University of Mainz, 1996

Research Interests: Data Mining, Bioinformatics, Scientific Informatics, Databases, Geospatial Data, Cloud Computing

Jun Kong, Ph.D.

University of Texas, Dallas, 2005

Research Interests: Human Computer Interaction, Mobile Computing, Software Engineering

Juan (Jen) Li, Ph.D.

University of British Columbia, 2008

Research Interests: Smart and Connected Health, Semantic Web Technologies, Internet of Things (IoT)

Lu Liu, Ph.D.

University of Texas San Antonio, 2017

Research Interests: Bioinformatics, Data Mining, Machine Learning, Data Science

Simone Ludwig, Ph.D.

Brunel University, 2004

Research Interests: Swarm Intelligence, Evolutionary Computation, Deep Neural Networks, Fuzzy Reasoning, Machine Learning

Kenneth Magel, Ph.D.

Brown University, 1977

Research Interests: Software Engineering, Human-Computer Interfaces, Software Complexity, and Software Design

M. Zubair Malik, Ph.D.

University of Texas at Austin, 2014

Research Interests: Program Analysis, Automated Program Repair, Secure Software Development, Software Verification-Validation and Testing, Software Systems (especially large scale Distributed Systems for Data science and Machine Learning), Formal Methods, Application of Artificial Intelligence in Program Analysis

Saeed Salem, Ph.D.

Rensselaer Polytechnic Institute, 2009

Research Interests: Bio-Informatics and Data Mining

Jeremy Straub, Ph.D.

University of North Dakota, 2015

Research Interests: Multi-tier Mission Architecture & Control, Autonomous Data Link Reduction, Autonomous Vehicle Control, Machine Vision, Super Resolution

Vasant Ubhaya, Ph.D.

University of California-Berkeley, 1971

Research Interests: Algorithm Analysis, Approximation and Optimization

Changhui Yan, Ph.D.

Iowa State University, 2005

Research Interests: Bioinformatics, Computational Biology, Genomics, Machine Learning, Data Mining, Big Data, Cloud Computing

Professors of Practice

Oksana Myronovych, Ph.D.

North Dakota State University, 2009

Affiliate Faculty

Otto Borchert, Ph.D.

North Dakota State University, 2015

Research Interests: Artificial Intelligence, Educational Games, STEM Learning

Hassan Reza, Ph.D.

North Dakota State University, 2002

Research Interests: Software Architecture, Cloud Computing, Architectural Analysis and Description