New England Cybersecurity Academic Resource Guide

Bay Path University
Boston College
Boston University
Brandeis University
Brown University
Dartmouth College
Harvard Kennedy School
Massachusetts Institute of Technology
Mount Wachusett Community College
New England Institute of Technology
Northeastern University
University of Massachusetts, Amherst
University of Massachusetts, Boston
University of Massachusetts, Dartmouth
University of Massachusetts, Lowell
Worcester Polytechnic Institute

2017 - 2018
About the Advanced Cyber Security Center

The ACSC is a collaborative, cross-sector research facility working to address the most critical and sophisticated cyber security challenges. Based at the MITRE Corporation campus in Bedford, MA, the Center takes advantage of the region’s unparalleled university, industrial and research resources to develop next-generation solutions and strategies for protecting the nation’s public and private IT infrastructure.

By drawing on expertise from across health care, energy, defense, financial services and technology, the Center brings together expert practitioners to share best practices, conduct real-time threat analysis and develop next-generation secure computing architecture, among other functions.

About Mass Insight Global Partnerships

Mass Insight Global Partnerships, founded in 1989, is a Boston-based consulting and research firm that builds strategic pre-competitive alliances between higher education, industry and government, both regionally and globally. We focus on market-driven solutions that are supported by the appropriate role of government.

Mass Insight organizes collaborative, performance-based leadership initiatives supported by individual members, and uses communications, publications, policy research and public opinion surveys to shape public-private actions and develop innovative partnerships.

Our clients, partners and sponsors represent a range of sectors, including universities, financial institutions, IT/communications, life sciences, defense, utilities, professional firms, nonprofits and foundations, trade organizations, and state agencies.

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Bay Path University

Accreditations:
Bay Path is fully accredited by the New England Association of Schools and Colleges through its Commission on Institutions of Higher Education.

Degree/Certificate Programs:
- MS, Cybersecurity Management (completely online)
- BS, Cybersecurity: Digital Forensics (online or on campus)
- BS, Cybersecurity: Information Assurance (online or on campus)

Sampling of Graduate Courses:
- Foundations of Cybersecurity
- Compliance & Legal Issues
- Financing, Cost Control & Project Management of Cybersecurity
- Emerging Cyber Threats
- Human Organizational Aspects of Cybersecurity
- Information Assurance Management & Analytics
- Strategic Cybersecurity Crisis Management
- Digital Forensics

Cybersecurity Summit – held each year on campus (Longmeadow, Mass.) at Bay Path University
- 2013 Summit
  “The Human Side of Cybersecurity Management” Cyber Crimes, Cyber Threats, Cyber Terrorism
  **Keynote Speaker:** Robert Milton, Retired commander of the London Metropolitan Police Service, New Scotland Yard; Managing Director, Milton Tezelin Ltd. providing international antiterrorism security training.
- 2014 Summit
  “Career Pathways in CyberSecurity”
  **Keynote Speaker:** Jennifer Lesser Henley, Director of Cybersecurity Operations at Facebook
- 2015 Summit
  “Cybersecurity Threats to Businesses”
  **Keynote Speaker:** Thomas Doyle, Intelligence Analyst FBI
- 2016 Summit
  “The Business of Cybersecurity”
  **Keynote Speaker:** Jillian Munro, Senior Vice President of Resiliency & Business Engagement for the Enterprise Cybersecurity (ECS) organization at Fidelity Investments
- 2017 Summit
  “Building a Cybersecurity Ecosystem: The Roles of Higher Education, Law Enforcement and Technology”
  **Keynote Speakes:** Timothy Connelly, Executive Director of the Massachusetts Technology Collaborative (MassTech), Dr. Carol Leary, President of Bay Path University and appointed
member of the Homeland Security Academic Advisory Council (HSAAC), and Timothy Russell, Supervisory Special Agent for the Boston Criminal Cyber squad

Faculty Experts; Research and Interests:

- **Lawrence Snyder, PhD**, Division Director of Cybersecurity, Criminal Justice, and Legal Studies Programs; Associate Professor Dr. Snyder has nearly 3 decades in law enforcement, fraud, and auditing in the U.S. Army and a variety of industries, and 9 years as a pioneer in the field of cybersecurity education. He has presented at conferences on topics such as: “Building Evidence in an IT Fraud Investigation” and “Computer Forensics Role in Complying with the ‘Big 4’.” He is also a member of the Association of Certified Fraud Examiners, IEEE Computer Society, Comptia Academic Alliance, Infragard, and the Information Systems Audit and Control Association.

- **James Scripture, MS**, Assistant Professor A 36-year veteran of the Federal Bureau of Investigations (FBI), Professor Scripture was most recently a Special Agent with the organization. In that role, he was assigned to a wide array of investigations, including cases pertaining to general criminal and national security matters. A member of the FBI Computer Analysis Response Team (CART), a unit that specializes in extracting and examining digital evidence, Professor Scripture spent the last 20 years of his career as a computer forensic examiner.

- **Robert Price, MS**, Adjunct Professor Professor Price is a forensic scientist for the North Carolina Crime Lab. He has extensive knowledge and expertise in the field of digital forensics analysis. Price is also the lead faculty member for the TAWC cybersecurity program and brings many years of academic experience into the virtual classroom.

- **Ken Katz, CSM, PMP, SA**, Adjunct Professor Professor Katz has an extensive background in aerospace engineering and IT project management. He is a practitioner of both traditional and agile project management methodologies. Katz has led globally distributed teams working on large, complex software development projects in the financial data services and health insurance sectors.

- **Kurt Shouse, MS**, Adjunct Faculty Professor Shouse is currently the Cyber Security Administrator-Information Security Officer for Florence Bank, located in Florence, Massachusetts. He has held various positions in information technology over the last 15 years and also served in the United States Air Force in the Security Forces field.

- **Justin Petitt, MS, PMP**, Adjunct Faculty. Professor Petitt has many years of experience in cybersecurity management and project management. He is the Director of Cybersecurity for Stratum Networks which is a leading global enterprise specializing in security solutions for large enterprises.

For more information please contact:
Office of Graduate Admissions
Bay Path University
588 Longmeadow Street
Longmeadow, MA 01106
graduate@baypath.edu
413.565.1332
Boston College
Woods College of Advancing Studies

Degree/Certificate Programs:
- Master of Science in Cybersecurity Policy & Governance
  - [www.bc.edu/mscybersecurity](http://www.bc.edu/mscybersecurity)
  - [@BCcybersecurity](https://twitter.com/BCcybersecurity)

Sampling of Courses:
- Cyber Ecosystem & Cybersecurity
- Cybersecurity Policy: Privacy & Legal Requirements
- Network & Infrastructure Security
- Incident Response & Management
- Organizational Effectiveness: Governance, Risk Management & Compliancy
- Ethical Issues in Cybersecurity & the Ignatian Paradigm
- International Cybersecurity
- Investigations & Forensics
- Managing Cyber Risk: Mobile Devices & Social Networking
- Establishing the Business Case & Resource Allocation
- Security in the Cloud
- Role of Intelligence: Enabling Proactive Security
- Applied Research Project
- Directed Practicum

Faculty Experts and Lecturers:
- Don Ulsch, Sr. Managing Director, Cybercrime & Breach Response - PricewaterhouseCoopers LLP
- Cheryl A. Davis, Director of Cybersecurity, National Security Council - White House
- Kevin Swindon, Supervisory Special Agent, CYBER/ CART/Photo - Federal Bureau of Investigation
- Cynthia J. Larose, Partner and Chair, Privacy & Security Practice Group - Mintz Levin
- Dianne J. Bourque, Partner, Privacy & Security Practice (Health Law) - Mintz Levin
- Susan L. Foster, PhD, Partner, Privacy & Security Practice Group (European Data Protection Compliancy) - Mintz Levin
- Dr. Neil Jenkins, Director, National Cybersecurity and Communications Integration Center - U.S. Department of Homeland Security
- Kevin Burns, Chief Information Security Officer - Draper Labs
- Jamie Klein, Senior Counsel - IBM Security
- Katherine J. Fick, Privacy Counsel - IBM Corporation
- Manasi Raveendran, Corporate Attorney (Cybersecurity & CSIRT) - IBM Security
- Diana Kelley, Executive Security Advisor - IBM Security
- Etay Maor, Senior Cybersecurity Strategist - IBM Security
• Timothy Stinson, Associate General Counsel, Information Assurance/Cyber Security - National Security Agency
• Hans Olson, Assistant Undersecretary for Homeland Security, Anti-Terrorism & Cyber Security - Massachusetts Executive Office of Public Safety & Security
• Phil Aldrich, Director, Enterprise Risk Management/Governance, Risk, & Compliance - EMC
• Michael Brown, RADM, USN (ret.), Vice President & General Manager, Global Public Sector - RSA
• Samir Kapuria, Senior VP & General Manager, Cyber Security Services - Symantec
• Clint Sand, Sr. Director, Worldwide Emerging Cyber Security Services - Symantec
• James Lugabihl, Director, Execution Assurance, Global Security Organization - ADP
• David Wilkinson, Senior Director, Security & Risk Management - Gartner Consulting
• William Purdue, Counsel, Litigation Management - Locke Lord, LLP
• Ted Augustino, Partner, Cybersecurity & Privacy - Locke Lord, LLP
• John R. Schramm, Vice President, Global Info Risk Management & CIRO - Manulife/John Hancock
• Adam Cottini, Managing Director and Area Senior Vice President, Cyber Liability Insurance Practice - Arthur J. Gallagher & Co.
• David Escalante, Director Computer Policy and Security - Boston College
• Kevin R. Powders, J.D., Director, MS in Cybersecurity Policy & Governance - Boston College Assistant Professor of the Practice, Business Law and Society Department, Carroll School of Management - Boston College
• Michael Steinmetz, Director, Digital Risk & Security, Strategy & Planning - National Grid
• Paul A. Ferrillo, Counsel, Cybersecurity, Data Privacy & Information Management Practice Group - Weil, Gotshal & Manges LLP
• Paul Steinau, Sr. Manager, Cyber Threat, Trust & Safety - LinkedIn
• Peter A. Ridgley, President & Founder, Governance, Risk, and Compliance - Verterim
• David J. Grady, Principal Client Partner, Security Solutions - Verizon
• Ken Magee, Associate General Counsel, Cyber Warfare - U.S. Department of Defense Institute of International Legal Studies
• Nathan Kearns, Associate General Counsel, Cyber Warfare - U.S. Department of Defense Institute of International Legal Studies

Advisory Council:
• Michael Bourque, Vice President & Chief Information Officer - Boston College
• Michael Brown, RADM, USN (ret.), Vice President & General Manager, Global Public Sector - RSA
• Rev. James Burns, Dean, Woods College of Advancing Studies - Boston College
• Patrick Cain, President - The Cooper-Cain Group, Inc.
• Dr. Robert Cherinka, Senior Principal Information Systems Engineer - The MITRE Corporation
• Sean M. Doherty, Senior Public Policy Analyst - Bank of America Merrill Lynch
• Cheryl A. Davis, Director of Cybersecurity, National Security Council - White House
• John C. Eckenrode, Senior Vice President and Chief Security Officer - State Street
• David Escalante, Director Computer Policy and Security - Boston College
• David Goodman, Associate Dean of Academic Affairs, Woods College - Boston College
• Cynthia J. Larose, Partner and Chair, Privacy & Security Practice Group - Mintz Levin
• John T. Martinez, Vice President and IIS General Counsel - Raytheon Intelligence, Information and Services
• Kevin R. Powers, J.D., Director, MS in Cybersecurity Policy & Governance - Boston College
  Assistant Professor of the Practice, Business Law and Society Department, Carroll School of Management - Boston College
• Sam Ransbotham, Associate Professor, Information Systems Department, Carroll School of Management - Boston College
• Kevin Swindon, Supervisory Special Agent, Federal Bureau of Investigation - Boston
• Michael Steinmetz, Director, Digital Risk and Security, Strategy and Planning - National Grid
• Howard Straubing, Professor, Computer Science Department - Boston College
• Don Ulsch, Senior Managing Director, Cybercrime and Breach Response - Pricewaterhouse Coopers (PwC)
• David Wilkinson, Senior Director, Security & Risk Management - Gartner Consulting
• Graham Wright, Chief Information Security Officer - National Grid
Accreditations:
- National Center for Academic Excellence in Information Assurance Education and Research

Degree/Certificate Programs:
- MS, Computer Science with specialization in Cybersecurity-College of Arts and Sciences, Computer Science Department;
- MS, Engineering with specialization in Cybersecurity-College of Engineering, Electrical and Computer Engineering Department
- MEng, Engineering with specialization in Cybersecurity-College of Engineering, Electrical and Computer Engineering Department
- MS, Computer Information Systems with concentration in Security (online, hybrid, on-campus, part-time studies) – Metropolitan College, Computer Science Department
- MS, Computer Science with concentration in Security (hybrid, on-campus, part-time studies) – Metropolitan College, Computer Science Department
- Graduate Certificates in Digital Forensics, Information Security and Medical Information Security and Privacy (online, hybrid, on-campus, part-time studies) – Metropolitan College, Computer Science Department

Research Centers, Consortia and Collaborative Initiatives:
- Center for Reliable Information Systems and Cyber Security (RISCS)
  - Cryptology
    - Compositional Security
    - Obfuscation
    - Zero-Knowledge Computation
    - Pseudo Randomness
    - Quantum Computation
  - Networks
    - Wireless Networks
    - Internet Measurements and Modeling
    - Information Theoretic Approaches
  - Trustworthy Cloud Computing
  - Compositional Programming and Certification of Internet Flow Networks and Cyber-Physical Systems
  - Data Mining with emphasis on Social-Network Analysis
  - Economic Approaches for Reducing Spam and Malware
- Major Collaborative Research Initiatives:
  - “NSF Frontier: A Modular Approach to Cloud Security (MACS)” (Aims to build information systems for the cloud with meaningful multi-layered security; a $10 M, 5-year project led by Professor Ran Canetti at Boston University in
collaboration with Massachusetts Institute of Technology, the University of Connecticut and Northeastern University

- “Towards Trustworthy Interactions in the Cloud” (Addressing security and privacy concerns in cloud computing; $3M, 5-year project led by Professor Azer Bestavros in collaboration with Brown University and UC Irvine)
- “Securing the Open Softphone” (Addressing new threats harbored by softphones from the user and system standpoints; $3M, 5-year project led by Professor Mark Crovella)
- “A recursive InterNet Architecture (RINA)” (RINA is a new recursive network architecture through which application processes communicate via a distributed IPC facility; $500,000 5-year project led by Professor Ibrahim Matta)
- “Holistic Security for Cloud Computing: Architecture for Modular System and Network Design” (Exploring core operating system design for a cloud, networking security in a multi-party cloud. $300,000 1.5 year project led by Professor Orran Krieger)
- Holistic Security for Cloud Computing: Verifiable Computation” (Developing mechanisms that provide holistic security guarantees to information systems; $200,000 1.5 year project led by Professor Ran Canetti)

- Other Research Initiatives:
  - “Centralized Authorities in Internet Security Risk Assessment, Mitigation, and New Architectures”; $583,696, Professor Sharon Goldberg
  - “Managing and Mining Uncertain Graphs”; $500,000, Professor George Kollios, Professor Evimaria Terzi
  - New Directions in Cryptography: Non-Black-Box Techniques Against Non-Black-Box Attacks; $497,369, Professor Ran Canetti
  - “Noisy Secrets as Alternatives to Passwords and PKI”; $499,691, Professor Leonid Reyzin
  - “Formal Methods for Embedded System Security”; $110,000, Professor Azer Bestavros
  - “Hardening the RPKI Against Faulty or Misbehaving Authorities”; $99,095, Professor Sharon Goldberg, Professor Leonid Reyzin

Faculty Experts; Research and Interests:

- Azer Bestavros, Director, Hariri Institute for Computing and Computational Science and Engineering and Professor: Networking, Trustworthy Cloud Computing
- Eric Braude, Associate Professor: Software Engineering, Security Policies
- John Byers, Professor: Cybersecurity Architectures
- Ran Canetti, Director, Center for Reliable Information Systems and Cyber Security (RISCS) and Professor: Cryptography, Obfuscation, Compositional Security
- Peter Chin, Research Professor, Hariri Institute Fellow: Misinformation and Disinformation models
- Marten van Dijk, Hariri Institute Fellow: Tamper-resilient Hardware, Trusted Hardware Platforms
• Lou Chitkushev, Associate Professor and Associate Dean, Metropolitan College: Network Security, Biomedical Informatics, Security and Privacy of Biomedical Data
• Mark Crovella, Professor and Chair, CAS Computer Science Department: Networking, Security of SoftPhones
• Steve Homer, Professor: Quantum Computing, Complexity, Experimental Algorithms
• Sharon Goldberg, Assistant Professor: Network Security, Applied Cryptography
• Suresh Kalathur, Assistant Professor: Web Technologies, Secure Programming, Secure Data Mining
• George Kollios, Professor: Secure Databases, Secure Outsourced Computation
• Assaf Kfoury, Professor: Software Inspection and Certification; Formal Models
• Orran Krieger, Research Professor, Hariri Institute Fellow: Secure Cloud Computing Platforms
• Leonid Levin, Professor: Cryptography; Pseudo Randomness
• Yannis Paschalidis, Professor: Numerical Approaches to Anomaly Detection
• Leo Reyzin, Professor: Cryptography and Zero-Knowledge Computation
• David Starobinski, Professor: Network Modeling, Performance Evaluation, and Security of High-Speed, Wireless, and Sensor Networks
• Evimaria Terzi, Associate Professor: Database Privacy, Privacy in Social Networks
• Ari Trachtenberg, Professor: Error-Correcting Codes, Security of Wireless and Sensor Networks
• Anatoly Temkin, Assistant Professor and Chair, MET Computer Science Department: Cryptography, Information Security Education
• Nikos Triandopoulos, Adjunct Assistant Professor, Boston University; Research Scientist, EMC: Information Security and Privacy, Cloud Security
• Marshall Van Alstyne, Professor: Economic Models Spam and Malware Reduction
• Hongwei Xi, Associate Professor: Type-safe Programming Languages
• Tanya Zlateva, Director of Education, Center for Reliable Information Systems and Cyber Security (RISCS); Associate Professor and ad interim Dean, Metropolitan College: Information Security Education, Security and Privacy in Mobile Healthcare Systems, Biometrics
Brandeis University, Graduate Professional Studies

Accreditation:
Brandeis University is accredited by the New England Association of Schools and Colleges.

Degree
- Master of Science in Information Security Leadership
- Part-time, fully online
- 10 courses, 30 credits
- gps@brandeis.edu | 781-736-8787

Program overview
With the pervasive growth of Cloud computing, mobile devices and web-based applications, information security issues are becoming increasingly relevant at both national and global levels. As news about severe security breaches make headlines on a regular basis, organizations in both the public and private sectors seek to proactively protect themselves against malicious security attacks. Information security professionals in leadership roles are needed more than ever.

Students in the MS in Information Security leadership program learn to:
- Develop a business case for investing in security and risk management.
- Inform and influence senior executives to commit to obtaining and maintaining this investment.
- Oversee the planning, acquisition and evolution of secure infrastructures.
- Assess the impact of security policies and regulatory requirements on complex systems and organizational objectives.

A sample curriculum includes:
- Foundations of Information Security
- Information Security Management
- Principles of Computer Incident Response and Investigation
- Principles of Risk Management in IT Security
- IT Security and Compliance
- Leading Security in Complex Organizations
- Applied Cryptography and Identity Management
- Information Technology Forensics and Investigations
- Securing Applications, Web Services, and Software as a Service (SAAS)
- Software Security Testing and Code Assessment

Courses are taught by active professionals in the field and are designed using best practices in online learning.
Program Chair
Joseph (Joe) Dalessandro, MS, has extensive experience in Information Security, Risk and Audit. He is currently Head of Security and Technology Audit and Audit Data Analytics for an Australian corporation. Prior to this role, Joe was in a leadership role in Kaon Security, a well-established professional services and information security consultancy in Auckland, New Zealand, with clients in New Zealand, Australia, and United Kingdom. The company’s client base includes globally recognized commercial enterprises and government agencies. Prior to Kaon, Joe worked in the US in Information Security for Vanguard, the largest mutual fund company in the world with over three trillion dollars in assets under management, where his role was part advisory serving as Information Security liaison with the Asia-Pacific offices of Vanguard, and part operative, performing Information Security risk assessments of Vanguard’s vendors and partners. Prior to this role, Joe spent four years in Australia and was the Head of Internal Audit for the Asia-Pacific region for Vanguard covering Australia, Singapore, Hong Kong and Japan. He earned his MS in Information Security from Norwich University.

Partial List of Faculty
Faculty are leaders in their fields and bring real-world experiences and connections to their classrooms.

- Jenelle Davis, M.S., is a senior-level lead consultant with over fifteen years of experience in Information Technology with a specific focus in Application Security, Mobile Security, Network Security and Information Security. She is a member of (ISC)2, IEEE, ISACA, and OWASP and is a CISM, CISA, CISSP, and CSSLP Her expertise focuses on Application Security testing, including static and dynamic analysis methods. Jenelle earned her MS from The George Washington University

- Derek E. Brink, CISSP is a Vice President and Research Fellow covering topics in IT Security and IT GRC for Aberdeen Group, a Harte-Hanks Company. He helps organizations to improve their security and compliance initiatives by researching, writing about and speaking about the people, processes and technologies that correspond most strongly with leading performance. He helps solution providers to refine and communicate their value propositions and marketing messages to potential buyers by creating and leveraging fact-based content. He helps individuals to improve their critical thinking, leadership skills and communication skills by teaching graduate courses in information security. Expertise: Extensive high-tech industry experience in strategy development and execution, corporate / business development, product management and product marketing. Results-oriented business leader with proven track record of driving growth through new and enhanced product offerings. Unique blend of analytical / technical background, combined with excellent communication skills and extensive information security industry expertise. MBA with honors from the Harvard Business School; BS in Applied Mathematics with highest honors from the Rochester Institute of Technology.

- Matthew McFadden, PhD is the Chief Technologist for the Defense Innovation Cell and a Distinguished Engineer for CSRA. The Innovation Cell provides expertise and innovation through consultancy to significant challenges through leading-edge technologies, processes, and advisor relationships. As a technical cyber subject matter expert, he has developed advanced cyber solutions for federal, defense, and commercial customers and performed cyber defense, training, forensics, incident response, and cyber analytical support. Dr. McFadden is also a
A published author, presenter, researcher, has obtained his (ISC)²’s CISSP, and holds a Doctorate of Computer Science in Information Assurance from Colorado Technical University.

- Ramesh Nagappan, MS, CISSP, CISA, CRISC is a Cyber Security Technologist at Oracle (Formerly Sun Microsystems). He has extensive experience with, and remains focused on, Information Security, Cryptography, Identity Management and Securing Cloud Infrastructures and Enterprise applications. He is the co-author of Core Security Patterns (Prentice Hall) and four other books on topics related to Java Security, Java Enterprise Applications (Java EE) and XML Web services. He frequently speaks at industry conferences and contributes to industry standards and open-source initiatives on Java, XML and Security. Expertise: Applied Cryptography, Information Security, Securing Cloud Infrastructures, Identity Management and Multi-factor authentication technologies including PKI, Smartcards and Biometrics.

**Advisory Board Members**
Advisory board members offer strategic guidance and expertise on industry advances and demands.

- Josh Corman, Director, *Cyber Statecraft Initiative, Brent Scowcroft Center on International Security, Atlantic Council*
- Josh Feinblum, VP, Information Security, *Rapid7*
- Paul Howell, Chief Cyberinfrastructure Security Officer, *Internet2*
- David Sherry, Chief Information Security Officer, *Princeton University*
- Dennis Kallelis, Chief Security Officer, *Morpho Trust*
- Greg Neville, VP, Information Security/Information Security Officer, *Best Doctors*
- Joseph Davis, Senior Director, Cloud Services, *Avanade*
- Ken Leeser, CISM, President, *Kaliber Data Security and Compliance Consultants*
- Mark Arnold, Senior Research Principal, *Optiva Solutions R&D*
- Matthew Rosenquist, Cyber Security Strategist, *Intel*
- Sandra Silk, Director of IT Security Education and Consultant, *Harvard University*
Faculty Experts; Research and Interests:

- Tom Doeppner, Associate Professor (Research) of Computer Science and Vice Chair
  - expertise: OS support for security
  - research interests and current research: OS and distributed systems
- Rodrigo Fonseca, Assistant Professor of Computer Science
  - expertise: Distributed systems, networking, operating systems
  - research interests and current research: understanding execution of distributed systems, software-defined networking, power modeling
- Shriram Krishnamurthi, Associate Professor of Computer Science.
  - expertise: programming languages, verification, software engineering
  - research interests and current research: secure language design, program analyses for security, access-control policy analysis, human policy authoring interfaces
- Anna Lysyanskaya, Associate Professor of Computer Science
  - expertise: privacy-enhancing technologies
  - research interests and current research: cryptographic protocols
- Steve Reiss, Professor of Computer Science
  - expertise: software engineering
  - research interests and current research: understanding the dynamic behavior of software systems; development tools and environments
- John Savage, An Wang Professor of Computer Science
  - expertise: theoretical computer science, cybersecurity technology and policy.
  - research interests and current research: secure computation, Internet governance
- Roberto Tamassia, Plastech Professor of Computer Science
  - expertise: applied cryptography, analysis and design of algorithms, data management, distributed systems
  - research interests and current research: security and privacy issues in cloud computing, data integrity and persistence in outsource storage systems, security visualization, mobile data management
Research Centers, Consortia and Collaborative Initiatives:

- Trustworthy Health and Wellness (THaW) (thaw.org)
- Mobile Health Technology (Amulet) (amulet-project.org)
- Trustworthy Cyber Structure for the Power Grid (TCIPG) (tcipg.org)
- Institute for Security, Technology, and Society (ISTS)
  ISTS engages in interdisciplinary research, education and outreach programs that focus on information technology (IT) and its role in society, particularly the impact of IT in security and privacy broadly conceived. ISTS nurtures leaders and scholars, educates students and the community, and collaborates with its partners to develop and deploy IT, and to better understand how IT relates to socio-economic forces, cultural values and political influences.
- Center for Digital Strategies at the Tuck School of Business
  - Cyber and Information Security in Corporations
  - Information Security and Risk Management
  - (CISO) Corporate Information Security Officer Workshops
  - Business Engagement and the Information Security Professional (course)
  - Technology and Trust
- Institute for Information Infrastructure Protection (I3P)
  The I3P is a national consortium of leading academic organizations, national laboratories, and non-profit research organizations dedicated to strengthening the cyber infrastructure of the United States.
  - Program Development in Cybersecurity with Focus on Business and Healthcare Concepts
  - Improving CSIRTs (Computer Security Incidence Response Teams) Skills, Dynamics, and Effectiveness

Faculty Experts; Research and Interests:

- Sean Smith, Professor, Department of Computer Science and Research Director, Institute for Security, Technology, and Society
  - Interests: Infrastructure for trust, privacy, security, secure coprocessing, trusted computing, PKI, reliability, usability, e-commerce, and applied formal methods
- David Kotz, Champion International Professor, Department of Computer Science; Associate Dean, Faculty for the Sciences
  - Interests: security and privacy issues in pervasive computing, mobile health technology
- Stephen Taylor, Professor of Computer Engineering, Thayer School of Engineering
  - Information Operations; Distributed Computing and Systems; Computer and Network Security; Surveillance Technologies
- Eugene Santos, Professor of Engineering, Thayer School of Engineering
  - Research Interests: Intelligent systems; Artificial intelligence; Probabilistic reasoning; Adversarial modeling; Intent inferencing; User modeling; Information retrieval; Evolutionary computation; Socio-cultural modeling
• Denise Anthony, Vice Provost for Academic Initiatives, Professor of Sociology, Faculty Affiliate and past Director, Institute for Security, Technology, & Society, Faculty Affiliate, The Dartmouth Institute for Health Policy and Clinical Practice
  o Faculty Research and Teaching Interests: Collective Action Problems; Economic Sociology; Health Care and Health Policy; Organizations and Institutions; Trust and Social Control
• Hans Brechbuhl, Executive Director of Glassmeyer/McNamee Center for Digital Strategies; Tuck School of Business
  o Areas of Expertise: Use of digital strategies in corporations, business in emerging markets, telecommunications
• Hany Farid, Professor, Computer Science; Chief Technology Officer and co-founder, Fourandsix Technologies, Inc.
  o Digital forensics, image analysis, computer vision, and human perception
• Sergey Bratus, Research Associate Professor, Computer Science Department
  o Research Interests: Unix security, in particular in Linux kernel security, detection and reverse engineering of malware (primarily kernel mode, Linux and Windows); wireless networking; visualizations of computer security-related information; applications of Natural Language Processing for better indexing, search and navigation of natural language documents
• George Cybenko, Dorothy and Walter Gramm Professor of Engineering, Thayer School of Engineering
  o Signal Processing; Neural Computing; Parallel Processing; Computational Behavioral Analysis; Machine Learning of Processes; Mission, Network and Computer Security; Insider Threat Analysis; Human Terrain of Computer Networks; Computer Network Operations (CNO) Planning
• Martin Wybourne, Senior Vice Provost for Research; Francis and Mildred Sears Professor of Physics; Chair of the Institute for Information Infrastructure Protection (I3P)
  o Electrical, thermal and mechanical properties of nanoscale systems, ranging from semiconductor devices to nanoparticles organized on biological molecules
• Andrew Campbell, Professor of Computer Science
  o Areas of expertise: mobile sensing, wireless sensor networks, mobile computing and wireless networks, Quality of Service (QOS) in networks
Harvard Kennedy School

Degree/Certificate Program:
- Course in “Technology, Security, and Conflict in the Cyber Age” at the Harvard Kennedy School
- Executive education course offering in “Cybersecurity: The Intersection of Policy and Technology” at the Harvard Kennedy School

Faculty Experts; Research and Interests:
- Venkatesh Narayanamurti, Principal Investigator and Benjamin Peirce Professor of Technology and Public Policy and a Professor of Physics at Harvard. Venky is also the Director of the Science, Technology and Public Policy Program at the Belfer Center for Science and International Affairs at the Harvard Kennedy School (HKS)
  - research interests: solid state, computer, and communication technologies, and on the management of science, technology and public policy
- Joseph Nye, Harvard University Distinguished Service Professor at the Harvard Kennedy School
  - research interests and current research: State and non-state cyber actors and power
- Laura Diaz Anadon, Assistant Professor of Public Policy; Associate Director, Science, Technology, and Public Policy Program; Co-PI, Energy Technology Innovation Policy research group
  - research interests: energy- and environment-oriented technologies
- Calestous Juma, Professor of the Practice of International Development; Director, Science, Technology, and Globalization Project; Principal Investigator, Agricultural Innovation in Africa
  - research interests: science, technology, and the environment

Affiliated Faculty, Advisors, and Fellows: Research and Interests:
- Melissa Hathaway, Senior Advisor, Project on Technology, Security and Conflict in the Cyber Age
- Peter K. Bol, Charles H. Carswell Professor East Asian Languages and Civilizations, Faculty Affiliate, Project on Technology, Security, and Conflict in the Cyber Age
  - research interests: geospatial analysis
- Richard Clarke, Faculty Affiliate, Project on Technology, Security, and Conflict in the Cyber Age
- Chris Dede, Timothy E. Wirth Professor in Learning Technologies at Harvard's Graduate School of Education, Faculty Affiliate, Project on Technology, Security, and Conflict in the Cyber Age
  - research Interests: Emerging technologies, policy, and leadership
- Archon Fung, Ford Foundation Professor of Democracy and Citizenship, Faculty Affiliate, Project on Technology, Security, and Conflict in the Cyber Age
  - research interests: impacts of civic participation, public deliberation, and transparency upon public and private governance
- Ashish Jha, C. Boyden Gray Associate Professor of Health Policy and Management at the Harvard School of Public Health, Faculty Affiliate, Project on Technology, Security, and Conflict in the Cyber Age
- Research interests: the use of information technology among other tools as potential solutions for reducing medical errors and disparities while improving overall quality of hospital care

- James Waldo, Gordon McKay Professor of the Practice of Computer Science; Chief Technical Officer, Harvard University, Faculty Affiliate, Project on Technology, Security, and Conflict in the Cyber Age
  - Research interests: distributed systems and privacy

- Jonathan Zittrain, Professor of Harvard Law School, Harvard School of Government, Professor of Computer Science, Harvard School of Engineering and Applied Sciences; Co-founder and Faculty Co-Director, Berkman Center for Internet & Society, Faculty Affiliate, Project on Technology, Security, and Conflict in the Cyber Age
  - Research interests: control of digital property & content, cryptography, electronic privacy, Internet governance, technology in education

- Ryan Ellis, Fellow, Project on Technology, Security, and Conflict in the Cyber Age
  - Research interests: cybersecurity, infrastructure politics, homeland security, communication law and policy

- Lucas Kello, Fellow, Project on Technology, Security, and Conflict in the Cyber Age
  - Research interests: offensive cyber weapons, international security, international relations

- Alexander Klimburg, Fellow, Project on Technology, Security, and Conflict in the Cyber Age
  - Research interests: power diffusion and cyber conflict
Massachusetts Institute of Technology

Degree/Certificate Programs:
- Cybersecurity: Technology, Application, and Policy (MIT Professional Education)
- Applied Cyber Security (MIT Professional Education)

Research Centers, Consortia and Collaborative Initiatives:
- CyberSecurity@CSAIL
  - The initiative aims to provide an integrated and formal approach to the security of systems, combining design and analysis methods from cryptography, software and hardware
  - And to identify and develop technologies to address the most significant security issues confronting organizations in the next decade
- MIT Cybersecurity and Internet Policy Initiative
  - The center focuses on establishing quantitative metrics and qualitative models to help inform policymakers in
    (1) making good policy
    (2) measuring progress
    (3) developing sound governance and proper institutional design
    (4) aligning incentives and managing risk
- Interdisciplinary Consortium for Improving Critical Infrastructure Cybersecurity, (IC)³
  - The center will
    (1) Justify top management attention & adoption
    (2) Define actions that can be effective & measured
    (3) Define a culture of Cyber-Safety
    (4) Create a forum for CSO/CISO’s to advance Cybersecurity

Faculty Experts; Research and Interests:
- Howard Shrobe, Principal Research Scientist, MIT’s Computer Science and Artificial Intelligence Laboratory (CSAIL); Director of Cybersecurity@CSAIL
  - Defending against code reuse attacks, hardware
- Adam Chilpala, Assistant Professor, MIT’s Computer Science and Artificial Intelligence Laboratory (CSAIL)
  - formal logic to software development and analysis, design and implementation of functional programming languages
- David Clark, Senior Research Scientist, MIT’s Computer Science and Artificial Intelligence Laboratory (CSAIL)
  - cyber-security technology and policy, societal and policy impact of computer communications, re-definition of the architectural underpinnings of the Internet
- Srini Devadas, Professor, MIT’s Computer Science and Artificial Intelligence Laboratory (CSAIL)
  - Computer-Aided Design (CAD), computer security and computer architecture
- Shafi Goldwasser, Professor, MIT’s Computer Science and Artificial Intelligence Laboratory (CSAIL)
- Cryptography: manipulate encrypted data in the cloud, methods for secure multi-party protocols, leakage-resilient cryptography
  - Daniel Jackson, Professor, MIT’s Computer Science and Artificial Intelligence Laboratory (CSAIL)
    - software engineering: development methods, design and specification, formal methods, and safety critical systems
  - Frans Kaashoek, Professor, MIT’s Computer Science and Artificial Intelligence Laboratory (CSAIL)
    - designing and building computer systems, extensible operating system architecture
  - Martin Rinard, Professor, MIT’s Computer Science and Artificial Intelligence Laboratory (CSAIL)
    - Computer language engineering, Principles of computer systems, structure and interpretation of computer programs
  - Ron Rivest, Professor, MIT’s Computer Science and Artificial Intelligence Laboratory (CSAIL)
    - Cryptography and Information Security, cryptographic design and cryptanalysis, computer algorithms, machine learning, and VLSI design
  - Armando Solar-Lezama, Assistant Professor, MIT’s Computer Science and Artificial Intelligence Laboratory (CSAIL)
    - software synthesis and applications, high-performance computing, information flow security and probabilistic programming
  - Vinod Vaikuntanathan, Assistant Professor, MIT’s Computer Science and Artificial Intelligence Laboratory (CSAIL)
    - lattice-based cryptography, building advanced cryptographic primitives; leakage-resilient cryptography, defining and developing algorithms resilient against leakage, theory and practice of computing on encrypted data, constructing powerful cryptographic objects
  - Daniel Weitzner, Principal Research Scientist, MIT’s Computer Science and Artificial Intelligence Laboratory (CSAIL)
    - Internet public policy, privacy, cybersecurity, internet copyright, and trade policies
  - Nickolai Zeldovich, Assistant Professor, MIT’s Computer Science and Artificial Intelligence Laboratory (CSAIL)
    - building practical secure systems- operating systems and hardware, programming languages and security analysis tools
  - Nazli Choucri, Principal Investigator and Professor of Political Science and Associate Director of MIT’s Technology and Development Program (TDP)
    - Current research: CyberPolitics in International Relations, examines ways in which cyberspace influences, even alters, power and capabilities at local, national, international, and global levels of analysis.
  - Silvio Micali, Ford Professor of Engineering, Computer Science and Artificial Intelligence Laboratory, MIT
    - cryptography, zero knowledge, pseudo-random generation, and secure protocols
  - Stuart Madnick, John Norris Maguire Professor of Information Technology, MIT Sloan School of Management & Professor of Engineering Systems, MIT School of Engineering
    - Database and information integration technologies, impact of information technologies, Internet applications
  - Daniel Goldsmith, Research Associate, MIT Sloan School
    - system dynamics modeling, management science, political dissidents in cyberspace
  - Michael Siegel, Principal Research Scientist for Management Science, MIT Sloan School
o Integration of heterogeneous information systems, information technology, and financial services, strategy, application, and implementation for financial services and electronic commerce

- John R. Williams, Professor MIT Civil and Environmental Engineering Department
  o Internet of Things, anti-counterfeiting, secure supply chain, fraud detection, Global infrastructure simulator, oil and gas cyber security, cyber security education (MIT Professional Education)

- Abel Sanchez, Research Scientist MIT Civil and Environmental Engineering Department
  o Internet of Things, financial industry fraud detection, risk analysis, browser security, secure supply chain, cyber security education (MIT Professional Education)
Mount Wachusett Community College  
School of Business, Science, Technology and Mathematics  
Computer Information Systems Department

Degree/Certificate Program:
- Computer Information Systems Career Program (CIS) includes course work in programming, computer technologies, networking, database management, computer service and repair and principals of information security
- Computer Information Systems Transfer Program (CIT) includes course work in information systems, physics, statistics, programming, economics, accounting, pre-calculus and Java I&II
- Cyber Security Certificate Program (CSC) includes course work in computer technologies, networking, mobile and web development, network security, database management and supporting private clouds
- IT Support Specialist Certificate (ITC) includes course work in computer technologies, networking, computer service and repair, database management and communications

Faculty Experts; Research and Interests:
- Susan Taylor—Professor of Computer Information Systems.  Interests: Software Development, Information Security  
  Degree: B.S. Computer Science, M.S. Computer Science
  Degree: B.S. Industrial Management, M.B.A.,  
  Certifications: CNE, CNI, MCP, MCSE, CTT
- Tina Wilson—Professor of Computer Information Systems.  Interests: Mobile and Web Development, iOS App Development, Database design, Software and Query Language  
  Degree: B.S. Communications/ Media, M.S. Communications Media and Management  
  Certifications: E-Commerce Technologies, W3C Mobile Web and Applications
- Carol Reed—Professor of Computer Information Systems.  Interests: Software, HTML, Microsoft Office, Business Software Applications  

For more information please contact:  
Office of Admissions  
Mount Wachusett Community College  
444 Green Street  
Gardner, MA 01440  
mailto:admissions@mwcc.mass.edu  
phone: 978-630-911
New England Institute of Technology

Accreditations/Competitions:
New England Institute of Technology is accredited by the New England Association of Schools and Colleges, Inc., Commission on Institutions of Higher Education.

Degree/Certificate Programs:
BS, Cyber Security and Network Engineering
MS, Information Technology

Faculty Experts, Research and Interests:

- **Joe Collins, MS, PMP**, Instructor, Department of Information Technology
  - Expertise: Project Management and Information Security
  - Certifications: Certified Information Systems Auditor (CISA), Certified Information Security Manager (CISM), Certified Information Systems Security Professional (CISSP), Certified in Risk and Information Systems Control (CRISC), Project Management Professional (PMP)

- **Timothy M. Henry, PhD, PMP**, Associate Professor, Program Chair-- Master of Science in Information Technology
  - Expertise: Information Assurance, Information Technology Ethics, Secure Software Development Standards, Digital Forensics and Investigations
  - Certifications: Project Management Professional (PMP)

- **Jason Kayarian, MS**, Assistant Professor, Department of Information Technology
  - Expertise: Networking and Software Development across Heterogeneous Systems, Systems Security

- **Jesse Roberts, MS**, Assistant Professor, Department of Information Technology
  - Certifications: MCSE: Private Cloud; CCNA

- **Luke Xu**, Instructor, Department of Information Technology
  - Expertise: Cloud Platform, Large Scale Web Delivery, Optimization, Cyber Security and Network Engineering, Security Architecture, Intrusion Detection, Computer Forensics, Vulnerability Assessment
  - Certifications: Certified Information Systems Security Professional (CISSP), Project
Management Professional (PMP), Cisco Certified Network Associate (CCNA), Cisco Principal Certified Lotus Professional (PCLP)
Northeastern University

Accreditations/Competitions:
- NSA/DHS designated Center of Academic Excellence (CAE) in Information Assurance / Cyber Defense
  - Focus area in Cyber Investigation
- NSA/DHS designated CAE in Information Assurance Research
- NSA designated CAE in Cyber Operations
- Collegiate Cyber Defense Competition Participant
- Capture the Flag Competition
- Cyber Security Case Study Competition organized by the Economist

Degree/Certificate Programs:
- B.S., Computer Science, College of Computer and Information Science
- B.S., Computer Engineering, College of Engineering
- B.S., Computer Science with concentration in Cyber Operations, College of Computer and Information Science
- B.S., Information Science, College of Computer and Information Science
- M.A., Homeland Security, College of Professional Studies
- M.S., Information Assurance, College of Computer and Information Science
- M.S., Computer Science, College of Computer and Information Science
- Ph.D., Computer Science, College of Computer and Information Science
- Ph.D., Computer Engineering, College of Engineering
- Ph.D., Information Assurance, College of Computer and Information Science and the College of Engineering

Research Centers, Consortia and Collaborative Initiatives:
- Institute for Information Assurance
  - Communications/Networks
    - Malware and vulnerability analysis, Intrusion detection
    - System and Web Security
    - Privacy, Security and Robustness of networked systems, including the Cloud
    - Jamming/anti-jam
    - Networking and Algorithms
    - Communications and Encryption
    - Trust in social networks
  - Database and Information Retrieval
    - Kerf Tool Kit – Machine Learning of Vulnerabilities
    - Reasoning and forecasting under uncertainty
    - Machine Learning and Computational Intelligence
  - Software and Architecture
- Aspectual Security
- Computer Architecture
- Language and Ontology-based Security
- Virtual Machines
- Software Vulnerability
- Formal Verification

- Northeastern University Computer Architecture Research (NUCAR) Lab
  - Side channel analysis
  - Virtual machine introspection
  - Taint analysis
  - Machine learning for intrusion detection

- Systems Security Lab
  Focuses on practical security research, including mobile security, web security, security applications of program analysis, botnets and malware.
  - Darkdroid: exposing the dark side of android marketplaces
  - Zigzag: improving the security of Web 2.0 applications
  - Disclosure: Automatic Botnet Identification

- Northeastern University Energy-Efficient and Secure Systems Lab
  - Hardware security
  - Side channel analysis
  - Secure architectures
  - Counter-measure design

Faculty Experts; Research and Interests:
- Amal Ahmed, Assistant Professor, College of Computer and Information Science
  - Design and analysis of languages for secure platforms
- Albert-László Barabási, Professor, College of Science, College of Computer and Information Science
  - Network science, statistical physics
- Agnes Chan, Professor and Executive Director, College of Computer and Information Science
  - Wireless and cloud security, reconfigurable shift register sequences, nonlinear feedback shift register sequences, electronic cash, secret sharing schemes, cryptography
- Kaushik Chowdhury, Assistant Professor, Department of Electrical & Computer Engineering, College of Engineering
  - Network and wireless security
- Jennifer Dy, Associate Professor, Department of Electrical & Computer Engineering, College of Engineering
  - Anomaly detecting utilizing machine learning, pattern analysis
- David Choffnes, Assistant Professor, College of Computer and Information Science
  - Distributed network and secure VOIP
- Yunsi Fei, Associate Professor, Department of Electrical & Computer Engineering, College of Engineering
- Side-channel analysis and counter measures, hardware-oriented security, architectural support for security
- **Stephen Flynn**, Professor, College of Social Science and Humanities; Co-Director, George J. Kostas Research Institute for Homeland Security; Director, Center for Security and Resilience Studies
  - Public policy, cyber infrastructure resilience, political science
- **Stratis Ioannidis**, Assistant Professor, Department of Electrical & Computer Engineering, College of Engineering
  - Computer and network privacy, machine learning, distributed and cloud systems, data markets
- **David Kaeli**, Professor, Department of Electrical & Computer Engineering, College of Engineering
  - Virtual machine introspection, anomaly detection, side channel analysis, taint analysis, spam filtering, architectural support for security
- **Yong-Bin Kim**, Associate Professor, Department of Electrical & Computer Engineering, College of Engineering
  - Side-channel hardware hardening
- **Engin Kirda**, Professor, College of Computer and Information Science, College of Engineering; Director, Institute for Information Assurance
  - Systems software and network security, malware detection, binary analysis
- **Peter Manolios**, Professor, College of Computer and Information Science
  - Formal verification
- **Mieczyslaw Kokar**, Professor, Department of Electrical & Computer Engineering, College of Engineering
  - Semantic descriptions of threats and formal reasoning about threats and vulnerabilities using policies and ontologies
- **David Lazer**, Professor, College of Computer and Information Science, College of Social Science and Humanities
  - Network Science, Computational Social Science
- **Miriam Leeser**, Professor, Department of Electrical & Computer Engineering, College of Engineering
  - Side-channel analysis, programmable devices, hardware-oriented security, architectural support for security
- **Alan Mislove**, Assistant Professor, College of Computer and Information Science
  - Security associated with social networks
- **Tommaso Melodia**, Associate Professor, Department of Electrical and Computer Engineering, College of Engineering
  - Wireless network security, sensor networks, secure wireless systems
- **Cristina Nita-Rotaru**, Professor, College of Computer and Information Science
  - Network security, distributed systems, secure data analytics, automated verification of distributed systems and network protocols
- **Guevara Noubir**, Professor, College of Computer and Information Science
Network and wireless security

- Alina Oprea, Associate Professor, College of Computer and Information Science
  - Security analytics, cloud security, network security, applied cryptography
- Raj Rajaraman, Professor, College of Computer and Information Science
  - Probabilistic algorithms
- William Robertson, Assistant Professor, College of Computer and Information Science, College of Engineering
  - Web security, program analysis, anomaly detection, secure electronic voting
- Abhi Shelat, Associate Professor, College of Computer and Information Science
  - Cryptography, applied security
- Olin Shivers, Professor, College of Computer and Information Science
  - Design of languages for secure platforms
- Milica Stojanovic, Professor, Department of Electrical & Computer Engineering
  - Underwater wireless communications and autonomous systems
- Ravi Sundaram, Professor, College of Computer and Information Science
  - Distributed denial of service attacks, network protocols
- Jonathan Ullman, Assistant Professor, College of Computer and Information Science
  - Cryptography and differential privacy
- Emmanuele Viola, Associate Professor, College of Computer and Information Science
  - Pseudorandom functions
- Thomas Wahl, Assistant Professor, College of Computer and Information Science
  - Formal verification and software testing
- Daniel Wichs, Assistant Professor, College of Computer and Information Science
  - Cryptography and cloud privacy
- Christo Wilson, Assistant Professor, College of Computer and Information Science
  - Security associated with social network
- Edmund Yeh, Associate Professor, Department of Electrical & Computer Engineering, College of Engineering
  - Robustness of large-scale wireless communication networks and interdependent cyber-physical networks
University of Massachusetts, Amherst

Degree/Certificate Programs:

- BS in Computer Science
  BS in Computer Systems Engineering and Electrical Engineering
- MS and PhD programs in Computer Science and Electrical and Computer Engineering
- Professional Development for Incumbent Workers
  - The Trust, Assurance and Cybersecurity Certificate (TACC) offers remote learning and in-person training for corporations, their employees, and individuals to experience the highest academic level of information assurance instruction and certification without having to travel long distances. Instruction takes place at the UMass Center at Springfield. Four classes are offered: Internet Law and Policy; Cybersecurity; Information Risk Management; and a TACC Capstone Course.
- National Science Foundation CyberCorps Scholarship for Service (SFS) training program
- Selected courses ([https://cybersecurity.umass.edu/all-courses](https://cybersecurity.umass.edu/all-courses))
  - CS 365 and CS 590F: Digital Forensics
  - CS 391L and CS591L: Computer Crime Law and the Technologies of Investigation and Privacy
  - CS 460 and CS597N: Introduction to Computer and Network Security
  - CS 590B: Detecting Interference in Networks
  - CS 591SP Digital Currencies: a multidisciplinary perspective
  - CS 660: Advanced Information Assurance
  - MATH 571: Introduction to Mathematical Cryptography
  - ECE544/644 Trustworthy Computing
  - ECE597/697XX Intro Cryptography

- Research Centers, Consortia and Collaborative Initiatives:
  - Cybersecurity Institute (CSI)
    - CSI is the intellectual focal point for multi-disciplinary cybersecurity education and research at UMass. The institute brings together dozens of internationally recognized faculty from across five UMass Amherst schools and colleges to address the critical, cross-industry need for innovative security research and well-trained cybersecurity professionals in the region. Working with partners in government, industry, and academia, the institute seeks to advance scientific and societal understanding of pressing issues related to the field.
      - [https://cybersecurity.umass.edu/](https://cybersecurity.umass.edu/)
  - The Secure, Private Internet (SPIN) Research Group
    - Internet Communications security and privacy
  - UMass Database and Information Management Lab
    - Private Dissemination of Social Network Data
    - Private Dissemination of Communication Traces
    - Security History – privacy and accountability in database systems
• Virtual Center for Super Networks
  o Study and application of supernetworks as applied to many areas, including transportation and logistics, supply chains, the Internet, and economic networks
• Digital Forensics Laboratory
  o Mobile phone triage and forensic investigation
  o Criminal investigation of child exploitation on p2p networks
  o Anonymous communication systems
  o Forensics of wireless and mobile systems
• Computer Networks Research Group
  o Networking protocols and architecture
  o Modeling and analysis
  o Sensor Networks
• Knowledge Discovery Lab
  o Useful patterns in large and complex databases
• Network Systems Lab
  o Future network architecture
  o Router Systems
  o Embedded systems and network security
• PLASMA Research Group
  o Programming Languages
  o Software Engineering and Systems
• VLSI Circuits and Systems
  o Signal Processing
  o Embedded Security
  o Wireless Communications and Graphics

• Faculty Experts; Research and Interests:  Emery Berger, Professor of Computer Science
  o Correctness, reliability, security, and high performance, concurrency and parallelism applications, statistical approaches to correct performance, and data errors
• Yuriy Brun, Professor of Computer Science
  o sTile project addresses a ubiquitous problem in cloud computing services: providers have access to user data. sTile allows the construction of software systems that distribute large computations onto the cloud, while providing guarantees that the cloud nodes cannot learn the computation’s private data.
• Wayne Burleson, Professor of Electrical and Computing Engineering
  o VLSI Circuit Design, VLSI Architectures for DSP, Cryptography, Graphics, Embedded Security (RFID, PUF, TRNG, Side-channels, Payment Systems, Transportation, Medical Devices)
• Jane E. Fountain, Professor of Political Science and Public Policy
  o Information technology policy and governance
• Lixin Gao, Professor Electrical and Computer Engineering
Multimedia Networking, Internet Routing, Network Security, Energy Efficient Wireless Networks

- Krista Gile, Assistant Professor Department of Mathematics and Statistics
  - Social science statistics, social networks, sampling, network sampling, link-tracing sampling, respondent-driven sampling

- Phillipa Gill, Assistant Professor Computer Sciences
  - Computer networking and network measurement. Specifically, measurement to improve the security, reliability and performance of networks.

- Arjun Guha, Professor of Computer Science
  - Fundamental security problems that arise in Web applications

- Dennis Goeckel, Professor of Electrical Engineering
  - RF fingerprinting, Network security theory

- Daniel Holcomb, Assistant Professor Electrical and Computer Engineering
  - Embedded Systems
  - Security
  - Formal Verification and Design Automation
  - VLSI

- Amir Houmansadr, Professor of Computer Science
  - Threats posed by repressive regimes, corporations and advertising companies, and cybercriminals

- David Jensen, Associate Professor of Computer Science
  - Data mining, Statistical aspects and architecture of systems for knowledge discovery in databases

- Sandip Kundu, Professor of Electrical and Computer Engineering
  - Hardware security primitives (HSP) for Internet of Things (IoT) devices and hardware Trojans

- Brian Levine, Professor of Computer Science
  - Center for Forensics, Wireless and mobile networking, Peer-to-peer networking

- Marc Liberatore, Research Scientist and Teaching Faculty in Computer Science
  - Improving network forensic tools and techniques

- Gerome Miklau, Associate Professor of Computer Science
  - Secure management of large-scale data, Privacy, Anonymization

- Anna Nagurney, John F. Smith Memorial Professor of Operations and Information Management
  - Supply chain network design for critical needs, robustness and security of network enterprises in the presence of disruptions

- Senay Solak, Assistant Professor of Operations and Information Management
  - Stochastic modeling and simulation

- Mila Sherman, Associate Professor of Finance
• **Empirical Asset Pricing, Hedge Funds, Systemic Risk, Financial Crises, Financial Institutions, Investments, Financial Econometrics, System Dynamics, Liquidity, Mutual Funds**

• Eric Sommers, Associate Professor Mathematics and Statistics
  - Representation Theory, Algebraic Combinatorics

• Don Towsley, Distinguished Professor of Computer Science
  - Wireless network security, Keying, Anonymization

• Tilman Wolf, Professor, Associate Dean for Research Electrical and Computer Engineering
  - Computer Networks, High Performance Router Design, Network Processors, Embedded Systems
Degree/Certificate Programs:
- BS and MS in Computer Science
- Graduate Certificate in Database Management
- BS in Information Technology (The College of Science and Mathematics and the College of Management)
- MS in Information Technology (College of Management)

Example courses include: Computer forensics, network and mobile forensics, digital forensics and malware analysis, network security administration, computer and information security, health information privacy, and privacy and regulatory compliance.

Faculty Experts; Research and Interests:
- Ping Chen, Associate Professor of Engineering
  - Bioinformatics, Data Mining, and Information Assurance
- Gabriel Ghinita, Assistant Professor of Computer Science
  - Secure Data Provenance and Trustworthiness Assessment, Privacy-Preserving Sharing of Location Data, Secure Data Outsourcing in Cloud Computing, P2P and Grid Data Management
- Xiaohui Liang, Assistant Professor of Computer Science
  - Security, Privacy, and Trustworthiness
- Bo Sheng, Assistant Professor of Computer Science
  - Wireless Networks, Security
- Ramakhrisna Ayyagari, Associate Professor of Management Science and Information Systems
  - Information Security
- Jonathan W. Kim, Assistant Professor of Management Science and Information Systems
  - Information Security and Digital Forensics
- Jean-Pierre Kuilboer, Associate Professor of Management Information Systems
  - Information Security, Privacy, Digital Forensics and Data Mining
- Noushin Ashrafi, Professor of Management Information Systems
  - Privacy protection and regulatory practices
University of Massachusetts, Dartmouth

Degree/Certificate Programs:

- PhD in Electrical Engineering (Computer Engineering Option) with research topics in cyber security, Department of Electrical and Computer Engineering
- MS in Computer Engineering with research topics in cyber security, Department of Electrical and Computer Engineering
- Post-Baccalaureate Certificate in Computing Infrastructure Security, Department of Electrical and Computer Engineering
- BS in Computer Engineering with a concentration in Cyber Security (available in Fall 2018)

UMass Dartmouth took a holistic approach to cybersecurity curriculum development. The Computer Engineering (CPE) curriculum matches the Knowledge Units required to be designated as an NSA/DHS National Center of Academic Excellence (CAE) in Information Assurance/Cyber Defense (IA/CD), and the program is working towards achieving this designation. UMass Dartmouth offers the following three cyber-security related courses. ECE 489/549 Network Security, CIS 477 Computer and Information System Security, and ECE 488/548 Cyber Threats and Security Management. A new course on “computer forensics” (ECE 487) is under development with approval expected for fall 2018.

Faculty Experts; Research and Interests:

- Fiondella, Lance Assistant Professor of Electrical and Computer Engineering: Reliability and security engineering, transportation engineering.
- Fortier, Paul J. Professor of Electrical and Computer Eng: Database systems, real-time systems, computer architecture, networks, sensor/embedded systems and security, database security.
- Liu, Hong (Graduate Program Director beginning January 2015) Professor of Electrical and Computer Engineering: Computer networks, network security, compilers and programming languages.
- Viall, Philip H. Professor of Electrical and Computer Engineering: Computer networking, assembly languages, rehabilitation engineering, computer security.
- Wang, Honggang Associate Professor of Electrical and Computer Engineering: Wireless health, wireless networks, multimedia communication, multimedia & cyber security, sensor networks & cyber-physical system.
- Xing, Liudong Professor of Electrical and Computer Engineering: Reliability and security engineering, network reliability, fault-tolerant computing, risk assessment.
- Xu, Haiping Associate Prof of Computer and Information Science: Distributed software engineering, formal methods, mobile cloud computing, cybersecurity, multi-agent systems, and semantic web.
- Hsieh, Tien-Shih Assistant Professor of Accounting and Finance.
- Shea, Timothy Associate Professor of Management Information Systems
University of Massachusetts, Lowell – Cyber Security

Degree/Certificate Programs:

- PhD in Computer Science with research topics in cyber security
- MS in Computer Science with concentration in cybersecurity, Department of Computer Science
- MA and MS in Security Studies, Department of Criminology and Justice Studies and Department of Computer Science
- Graduate Certificate in Network Security (online), Department of Computer Science
- MS in Information Technology (online), Department of Computer Science
- MS in Business Analytics, Department of Operations & Information Systems


Research Centers, Consortia and Collaborative Initiatives:

- Center for Internet Security and Forensics Education and Research (iSAFE, http://www.uml.edu/Research/isafer/), designated as National Centers of Academic Excellence in Cyber Defense Research (CAE-R) by NSA and DHS
  - Security of cloud storage, wireless security, intrusion detection, cyber forensics theory and applications for public safety and security responses
- Center for Terrorism & Security Studies (CTSS, http://www.uml.edu/Research/CTSS/)
  - The center leads and facilitates scientific research, education and training to help understand and respond to the evolution, convergence and complexity of domestic and foreign security challenges.
- New England Cybersecurity Operation and Research Center (CORE) sponsored by NSF, a collaboration between UMass Lowell’s iSAFE center, and University Information Technology Services (UITS) of the Office of the President of University of Massachusetts

Faculty Experts - Research and Interests:

- Yu Cao, Associate Professor, Computer Science
  - Algorithms and software infrastructure for big data analytics, computational intelligence, multimedia computing, and biomedical informatics
- Guanling Chen, Associate Professor, Computer Science
  - Wireless Network Security, Intrusion Detection System, Location Privacy
- Cindy Chen, Associate Professor, Computer Science
  - Database Management, including Spatio-Temporal Databases, XML, and Ontology, etc.
- Tricia Chigan, Associate Professor, Electrical and Computer Engineering
  - Cyber Security & Information Assurance; Vehicular Ad Hoc Networks; Cognitive Radio Networks & Security; Wireless Ad Hoc and Sensor Networks; Vehicle-To-Grid (V2G) Communications.
• James Forest, Professor, Criminal Justice; Director of Security Studies
  o International security studies, terrorism, weapons of mass destruction, homeland security
• Xinwen Fu, Associate Professor, Computer Science; iSAFER Co-Director
  o Network Security and Privacy, Network Forensics, Computer Forensics, Network Security and Privacy, Network Forensics, Computer Forensics
• Tingjian Ge, Associate Professor, Computer Science
  o Data management, including probabilistic and uncertain data, scientific data, and data security and privacy.
• Xiaobai (Bob) Li, Professor, Operations and Information Systems
  o Decision making, security, socio-psychological factors
• Benyuan Liu, Professor, Computer Science
  o Mobile wireless networks, sensor networks, social computing
• Yan Luo, Professor, Electrical and Computer Engineering
  o Multicore Processor Architecture, Heterogeneous Computing, Network Virtualization, Cloud Computing, Embedded Systems
• Martin Margala, Professor, Electrical and Computer Engineering
  o Adaptable circuit and architecture design, security
• Jay McCarthy, Associate Professor, Computer Science
  o Cryptographic protocols, secure systems, programming language
• Asil Oztekin, Assistant Professor, Operations and Information Systems
  o Healthcare analytics, decision analytics, data mining, medical informatics, decision support systems
• Neil Shortland, Lecturer, Criminology and Justice Studies,
  o Decision making, security, socio-psychological factors
• Yuanchang Xie, Associate Professor, Civil & Environmental Engineering
  o Transportation data analytics, Civil infrastructure data
• Vinod Vokkarane, Associate Professor, Electrical & Computer Engineering
  o Architectures, protocols, and algorithms for ultra-high speed networks, such as Optical networks, Grid/Cloud networks, and Big-data network; Reliability
• Jie Wang, Professor, Computer Science; iSAFER co-Director
  o Network security, cloud storage security
• Harry Zhu, Associate Professor, Operations and Information Systems
  o Data quality and data analytics

Core area list compiled by National Centers of Academic Excellence in Information Assurance/Cyber Defense (IA/CD)

• Security Mechanisms / Functionality
  Cryptography, Identification and Authentication, Authorization and Access Controls
  o Jie Wang, Xinwen Fu
  Wireless, link, and signal security, Virtualization, Audit, monitoring, anomaly detection, DLP (Data Loss Prevention)
  o Xinwen Fu, Benyuan Liu, Guanling Chen, Tricia Chigan
• Architectures
Network models, Cloud, Grid, distributed computing, Custom/specialized architectures (e.g. Ad-Hoc Networks), Interconnectivity and routing
  o Jie Wang, Yan Luo, Benyuan Liu, Xinwen Fu, Guanling Chen

OS/DBMS/Network subjects and objects (active entities and data containers)
  o Cindy Chen, Tingjian Ge

Critical infrastructure security
  o Xinwen Fu, Tricia Chigan, Ioannis Raptis

• Assurance
  Testing (functional, penetration, black box, white box, measurement, etc.)
    o Xinwen Fu, Yan Luo, Jie Wang

• Operations
  Configuration, Security automation, Intrusion detection/analysis/remediation
    o Xinwen Fu, Jie Wang

• Analysis
  Data mining
    o Cindy Chen, Tingjian Ge, Benyuan Liu, Yu Cao, Jie Wang

Malware analysis, Forensics
  o Xinwen Fu, Jie Wang

• Storage
  Cloud storage security
    o Jie Wang

• Non-technical IA Issues
  Legal issues, Policy issues, Privacy, Awareness
    o Xinwen Fu
Worcester Polytechnic Institute

Degree/Certificate Programs:
- MS in Computer Science with a designation in Cyber Security
- Graduate Certificates in Information Security Management, Cybersecurity for Power-Engineering Professionals, and Cybersecurity (through either Computer Science or Electrical and Computer Engineering)
- MS and PhD degrees with research emphases in either Computer Science or Electrical and Computer Engineering

Research Centers, Consortia and Collaborative Initiatives:
- Vernam Group (Electrical and Computer Engineering) Website: http://vernam.wpi.edu/
  - Crypto for ultra-low power devices
  - Hardware security
  - Fault tolerant cryptography
  - Homomorphic Encryption
  - Embedded systems security
  - Wireless Information Security
  - Cyber-physical system security
- Applied Logic and Security Group (ALAS)
  - Web privacy and privacy leakage
  - Policy engineering
  - Access-control policy analysis
  - Authentication protocols
  - Secure-interoperable medical devices
  - Secure internet architectures
  - Privacy and security policy
  - Trust and reputation systems

Faculty Experts; Research and Interests:
Website: https://www.wpi.edu/academics/departments/cybersecurity
- Andrew Clark (ECE): performance and security of cyber-physical systems, system security, security and privacy of mobile wireless networks
- Daniel J. Dougherty (CS): Logic in computer science, with applications to security policies and cryptographic protocols, and databases
- Kathi Fisler (CS): Software security, verification and analysis of security policies, usable security, security education
- Thomas Eisenbarth (ECE): Embedded system security, implementation of cryptographic algorithms
- Susan Landau (Social Science and Policy Studies, joining Fall 2014): cybersecurity, privacy, and public policy
- William Martin (Math): Application of combinatorial and coding-theoretic tools to cryptography, deterministic surrogates for random samples, homomorphic encryption
- Suzanne Mello-Stark (CS): Digital forensics, cryptography, security and networking implementations in current election technologies.
- **Craig Shue (CS):** Internet-scale measurements to help secure networks, security, cloud computing, distributed systems, user-centered security
- **Berk Sunar (ECE):** Cryptography, network security, tamper-resistant cryptographic hardware, high-performance computing
- **Krishna Venkatasubramanian (CS):** Cyber-physical systems and security, trust and reputation management
- **Robert Walls (CS):** Security and digital forensics to analyze and secure the large-scale, complex, inter-connected systems underpinning critical internet services.
- **Craig Wills (CS):** Privacy on the web, distributed systems, networks