

Curriculum Vitae
Charles “Casey” W. O’Brien

University of Illinois Urbana-Champaign (UIUC)
Grainger College of Engineering / Information Trust Institute (ITI)
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Biographical Information

- U. S. Citizen

Education

- Ph.D. Candidate (Education), UIUC, Expected Graduation, 2025.
- M.A. (Psychology), Duquesne University, 1993.
- B.A. (Psychology), University of St. Thomas, 1992.

Current Positions

- 2021-Present: Assistant Director, Cyber Defense Education and Training, ITI, UIUC
- 2021-Present: Assistant Executive Director & Co-Principal Investigator (Co-PI), National CyberWatch Center, Prince George’s Community College (PGCC).
- 2014-Present: CEO & Founder, CaseVero, LLC.

Previous Positions

- 2021-2012: Executive Director and Principal Investigator (PI), National CyberWatch Center, PGCC.
- 2018-2012: President, Co-Founder & Commissioner, National Cyber League, Inc.
- 2012: Director, CyberWatch Center, PGCC.
- 2012-2010: Director & Founder, Institute for Cyber Security, Community College of Baltimore County (CCBC).
- 2012-2002: Associate Professor, Network Technology Department, CCBC.
- 2011-2010: Instructor, Computer Science, George Washington University.
- 2011-2005: Co-Director, CyberWatch Center, PGCC.
- 2002-2000: Director of Technical Services, USC/Canterbury Corp.
- 2000-1996: Director & Founder, Internet Services Group, Center for Communication Programs, Johns Hopkins University.
- 1996-1995: Research Assistant, Research & Evaluation Division, Center for Communication Programs, Johns Hopkins University.
- 1995-1993: Researcher, Internet Business Information Services.

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Advisory Boards of Scientific and Scholarly Organizations

- 2012-2013: National Academy of Sciences, National Research Council (NRC) Computer Science and Telecommunications Board (CSTB): *Professionalizing the Nation’s Cybersecurity Workforce? Criteria for Future Decision-Making.*

Committees

- 2017-2015: National Initiative for Cybersecurity Education (NICE), Collegiate Sub-Group, Co-Chair.
- 2013-2012: Maryland Commission for Cybersecurity Innovation and Excellence, Subcommittee on Education and Training.
- 2010: Chair, National Collegiate Cyber Defense Competition (CCDC) Rules and Operations Committee.
- 2006: Colloquium for Information Systems Security (CISSE). University of Maryland University College, Adelphi, MD, June 5-8.
- 1998: The Population and Health Materials Working Group Second Internet Meeting. Johns Hopkins University, Baltimore, MD, January 21-22.
- 1996: Internet Connections: Communicating with Developing Countries About Population and Reproductive Health. Johns Hopkins University, Baltimore, MD, January 25.

Books: Lab Exercises

- 2011: *Principles of Computer Security: CompTIA Security+ and Beyond Lab Manual, Second Edition.* McGraw Hill. ISBN: 9780071748568.

Books: Consulting/Technical Editor

- 2017: *National CyberWatch’s Information Security Curricula Guide: A Complete Solution for Higher Education Institutions,* National CyberWatch Center Digital Press.
- 2017: *Introduction to Scripting, National CyberWatch Center Edition.* Jones & Bartlett Learning. ISBN(s): 1284108074, 9781284108071.
- 2017: *Linux Fundamentals, National CyberWatch Center Edition.* Jones & Bartlett Learning. ISBN(s): 1284108058, 9781284108057.
- 2017: *Networking Fundamentals, National CyberWatch Center Edition.* Jones & Bartlett Learning. ISBN(s): 1284108066, 9781284108064.
- 2016: *Ethical Hacking and Systems Defense, National CyberWatch Center Edition.* Jones & Bartlett Learning. ISBN(s): 1284239659, 9781284239652.
- 2016: *Information Security Fundamentals, National CyberWatch Center Edition.* Jones & Bartlett Learning. ISBN(s): 1284239640, 9781284239645.

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Other Publications

- 2013: *Professionalizing the Nation’s Cybersecurity Workforce? Criteria for Decision-Making*. National Academy of Sciences, National Research Council (NRC), Computer Science and Telecommunications Board (CSTB). ISBN-13: 978-0-309-29104-0.

Resource Guides

- 2023: O’Brien, C., *National CyberWatch’s Cybersecurity Curricula Guide: A Complete Solution for Higher Education Institutions*. National CyberWatch Center Press.
- 2021: O’Brien, C. and multiple other authors, *Federal Cybersecurity Apprenticeship Resource Guide*. National CyberWatch Center Press.
- 2020: O’Brien, C., *National CyberWatch’s Information Security Curricula Guide: A Complete Solution for Higher Education Institutions*. National CyberWatch Center Press.
- 2015: Pusey P. O’Brien, C. & Lightner L., *Preparing for the Collegiate Cyber Defense Competition (CCDC): A Guide for New Teams and Recommendations for Experienced Players*. National CyberWatch Center Press.
- 2014: Klappenberger F., Pusey P., Zdravkovich V., O’Brien C., Sands J., Sands S., Sande C., Burt M., Jackson D., *A Guide for Mapping Courses to Knowledge Units (KUs)*. National CyberWatch Center Press.
- 2014: Lucarelli A. & O’Brien C., *Optimizing the Physical Learning Environment for Cybersecurity Education and Training: A Collaborative Design Initiative*. National CyberWatch Center Press.

Peer-Reviewed Publications

- 2020: Golaszewski, E., Sherman, T., Oliva, L., Peterson, P., Bailey, M., Bohon, S., Bonyadi, C., Borrer, C., Coleman, R., Flenner, J., Enamorado, E., Eren, M., Khan, M., Larbi, E., Marshall, K., Morgan, W., Mundy, L., Onana, G., Gomez Orr, S., Parker, L., Pinkney, C., Rather, M., Rodriguez, J., Solis, B., Tete, W., Tsega, T., Valdez, E., Varga, C., Weber, B., Wnuk-Fink, R., Yonkeu, A., Zetlmeisl, L., Doyle, D., O’Brien, C., Roundy, J., Suess, J., *Project-based Learning Continues to Inspire Cybersecurity Students: The 2018--2019 SFS Research Studies at UMBC*, ACM Inroads, June, Vol. 11, No. 2.
<https://dl.acm.org/doi/pdf/10.1145/3386363>.

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- 2019: Sherman A., Peterson, P., Golaszewski, E., LaFemina, E., Goldschen, E., Khan M., Mundy L., Rather M., Solis B., Tete W., Valdez E., Weber B., Doyle D., O’Brien C., Oliva L., Roundy J., Suess J., *Project-Based Learning Inspires Cybersecurity Students: A Scholarship-for-Service Research Study*, IEEE Security & Privacy, May/June, Vol. 17, No. 3.
<https://ieeexplore.ieee.org/document/8713283>.
- 2019: Sherman A., Golaszewski E., LaFemina E., Goldschen E., Khan M., Mundy L., Rather M., Solis B., Tete W., Valdez E., Weber B., Doyle D., O’Brien C., Oliva L., Roundy J., Suess J. *The SFS Summer Research Study at UMBC: Project-based Learning Inspires Cybersecurity Students*, Cryptologia, Volume 43, Issue 4. DOI: 10.1080/01611194.2018.1557298.
- 2018: Watkins A., Tobey D. & O’Brien C., *Applying Competency-Based Learning Methodologies to Cybersecurity Education and Training: Creating a Job-Ready Cybersecurity Workforce*, InfraGard Journal, August.
- 2018: Tobey D., Watkins A., Gandhi R. & O’Brien C., *Competency is Not a Three Letter Word: A Glossary Supporting Competency-based Instructional Design in Cybersecurity*, Cybersecurity Skills Journal: Practice and Research, 3CS Anniversary Special Issue: Five Years of Raising the Capability Maturity Bar, August.
- 2010: Rosenberg T. & O’Brien C., *Interdisciplinary Collegiate Cyber Exercises: 2011 CyberWatch Mid-Atlantic Collegiate Cyber Defense Competition (MA CCDC)*. 26th International Federation for Information Processing TC-11 International Information Security Conference (IFIP SEC2011), Luzern, Switzerland, June.
- 2008: Rosenberg T. & O’Brien C., *The Growth of the Mid-Atlantic Collegiate Cyber Defense Competition (CCDC): Public-Private Partnerships at Work*. 12th Colloquium for Information Systems Security Education, Dallas, TX, June.
- 2006: Odubiyi J. & O’Brien C., *Information Security Attack Tree Modeling as an Effective Approach for Enhancing Student Learning*. 7th Workshop on Education in Computer Security, Naval Postgraduate School, Monterey, CA, January.

Keynote Addresses

- 2014: 2nd Annual Symposium on Cybersecurity Education: *A Pipeline Approach: Cybersecurity Education Solutions for the Nation*. Fairleigh Dickinson University, Madison, NJ, April 30, 2014.
- 2011: 15th Colloquium for Information Security Systems Education (CISSE): *Putting a Face on the Center for Academic Excellence Two-Year (CAE2Y) Program*. Air Force Institute of Technology, Fairborn, OH, June 13.

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Conference Presentations

- 2022: National Centers of Academic Excellence in Cybersecurity (NCAE-C) Community Symposium: *The Lack of Incident Response Curriculum in the CAE Community: Call to Action*, Atlanta, GA, June 9, 2022.
- 2022: Community College Cyber Summit (3CS): *Opening the Aperture: Creating Space for Mastery in Cybersecurity Education*, Dayton, OH, May 25, 2022.
- 2022: Community College Cyber Summit (3CS): *Ready or Not? Determining a Student’s Readiness for an Information Security Fundamentals Course*, Dayton, OH, May 24, 2022.
- 2021: ICS Village Hack the Capitol 4.0: *Jumping the Air Gaps of Academia and Industrial Security Workforce Development*, Virtual, May 4, 2021.
- 2021: Western Academy Support & Training Center (WASTC) Winter ICT Educators’ Conference, *Defense in Depth in 2021: Google’s Infrastructure Security Design*, Virtual, January 8, 2021.
- 2020: National Science Foundation (NSF) Advanced Technological Education (ATE) Principal Investigators’ Conference, *Hands-On Virtual Lab Platforms: Lessons from National CyberWatch*, Virtual, October 21, 2020.
- 2020: National Initiative for Cybersecurity Education (NICE) Webinar, *The Challenge of That First Job in Cybersecurity - Entry Level Roles and How to Qualify*, Virtual, June 17, 2020.
- 2019: Community College Cyber Summit (3CS), *Model Cybersecurity Degree & Certificate Programs*, Shreveport, LA, July 31, 2019.
- 2018: National Science Foundation (NSF) Advanced Technological Education (ATE) Principal Investigator’s Conference, *Embedding Emerging Technology for Under \$1,000*, Washington, DC, October 25, 2018.
- 2018: Community College Cyber Summit (3CS), *National CyberWatch Center’s Complete Cloud-Based Lab Solution*, Portland, OR, August 2, 2018.
- 2018: Community College Cyber Summit (3CS), *Model Cybersecurity Degree and Certificate Programs*, Portland, OR, August 2, 2018.
- 2017: Centers of Academic Excellence (CAE) in Cybersecurity Symposium, *Pilot Schools Wanted: Competency-Based Curriculum for Information Security Fundamentals*, Dayton, OH, November 9, 2017.
- 2017: Association of Computing Machinery (ACM) Special Interest Group Computer Science Education (SIGCSE), *The Passion, Beauty, and Joy of Teaching and Learning Cybersecurity*, Seattle, WA, March 10, 2017.

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- 2016: National Centers of Academic Excellence Cyber Defense (CAE-CD) Community Meeting, *CAE Community Sense of Urgency*, Kansas City, MO, November 3, 2016.
- 2016: Association of Computing Machinery (ACM) Special Interest Group Information Technology Education (SIGITE), *Building an InfoSec Program of Excellence*, Boston, MA, September 29, 2016.
- 2016: Community College Workforce Consortium Meeting: *Building an Information Security Program of Excellence*. Woodbridge, VA, September 21, 2016.
- 2016: Community College Cyber Summit (3CS), *Applying the NIST Framework for Improving Critical Infrastructure Cybersecurity to College Curricula*, Pittsburgh, PA, July 23, 2016.
- 2016: Community College Cyber Summit (3CS), *Complete Cloud-Based Lab Solution*, Pittsburgh, PA, July 23, 2016.
- 2015: Commonwealth Conference on Cyber and Education: *The ‘How and Why’ of Becoming a Cyber Center of Excellence*. Woodbridge, VA, December 2, 2015.
- 2015: Centers of Academic Excellence for Cyber Defense (CAE-CD) Community Meeting: *Collaborative Content Creation*. San Diego, CA, November 2, 2015.
- 2015: Colloquium for Information Systems Security Education (CISSE): *Effective 2/4-Year Information Security Curricula*. Las Vegas, NV, June 16, 2015.
- 2015: Community College Cyber Summit (3CS): *Introducing the New and Updated National CyberWatch Center Degree and Certificate Programs*. Las Vegas, NV, June 18, 2015.
- 2015: Community College Cyber Summit (3CS): *Backstage with the National Cyber League (NCL)*. Las Vegas, NV, June 18, 2015.
- 2015: 95th American Association of Community Colleges Annual Convention: *Advanced Technological Education Centers - Pathways to Completion*. San Antonio, TX, April 20, 2015.
- 2014: National Initiative for Cybersecurity Education (NICE) Workshop: *Innovations in Two-Year College Curriculum and How to Assess It*. Columbia, MD. November 6, 2014.
- 2014: Cyber Security Symposium: *Cybersecurity Education Solutions for the Nation*. Batesville, AR. October 7, 2014.

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- 2014: High Impact Technology Exchange Conference (HI-TEC): *Competition as Curriculum: Why Competitions Will Work in Your Field*. Chicago, IL. July 24, 2014.
- 2014: Community College Cyber Summit (3CS): *Learning and Playing: Integrating Competition Experiences into Formal Curriculum*. Palos Hills, IL. July 21, 2014.
- 2014: Community College Cyber Summit (3CS): *A Practice-Based Pedagogy for Cybersecurity Education*. Palos Hills, IL. July 21, 2014.
- 2014: Society for College and University Planning (SCUP)’s 49th Annual, International Conference: *Optimizing the Physical Learning Environment for Cybersecurity Education and Training: A Collaborative Design Initiative*. Pittsburgh, PA. July 14, 2014.
- 2014: 18th Colloquium for Information Systems Security Education (CISSE): *CAE2Y-to-CAE/SFS Pathways and Employment Opportunities for Students from Community College Cybersecurity Programs*. San Diego, CA. June 17, 2014.
- 2014: 3rd Annual Maryland Cybersecurity Center (MC2) Symposium: *Cybersecurity Education*. College Park, MD. June 10, 2014.
- 2014: 94th American Association of Community Colleges Annual Convention: *Cybersecurity Education Presidents’ Breakfast*. Washington, DC. April 8, 2014.
- 2014: North Carolina Computer Instruction Association Conference: *National Initiatives in Community College Cybersecurity Education*. Raleigh/Durham, NC. March 20, 2014.
- 2014: American Association of Community Colleges Workforce Development Institute: *Preparing the Next Generation of Cybersecurity Workers*. Tampa, FL. January 30, 2014.
- 2014: Winter 2014 ICT Educator Conference: *2013 National Cyber League (NCL) Lessons Learned*. San Francisco, CA. January 6, 2014.
- 2014: Winter 2014 ICT Educator Conference: *What Is the Role of the National CyberWatch Center?* San Francisco, CA. January 7, 2014.
- 2013: Cyber Education Symposium: *Cybersecurity Leadership: Building Capability and National Capacity*. Arlington, VA. November 20, 2013.
- 2013: 4th Annual National Initiative for Cybersecurity Education (NICE) Workshop - Navigating the National Cybersecurity Education Interstate Highway: *The Role of NSF Advanced Technological Education (ATE) Centers in National Cybersecurity Education Efforts*. Washington, DC. September 19, 2013.

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- 2013: 4th Annual National Initiative for Cybersecurity Education (NICE) Workshop - Navigating the National Cybersecurity Education Interstate Highway: *Community College Cybersecurity Curriculum: Standardization, Innovation, Articulation*. Washington, DC. September 19, 2013.
- 2012: Tech Council of Maryland: Cyber Security Conference: *Cyber Defense: Protection from Emerging Threats and Concerns*. Bethesda, MD, October 12, 2012.
- 2012: Mid-Pacific Information, Communication Technologies (MPICT): *The National Cyber League (NCL): Where Cyber Security is a Passion*. San Francisco, CA, January 5, 2012.
- 2011: Cisco Networking Academy Conference: *Cyber Security Information, Labs, and Competitions*. San Jose, CA, June 28, 2011.
- 2010: High Impact Technology Exchange Conference (HI-TEC): *Exploring a National Cyber Security Exercise for Community Colleges*. Orlando, FL, July 29, 2010.
- 2010: Hawaii International Conference on System Sciences (HICSS): *Exploring a National Cyber Security Exercise for Community Colleges*. Kauai, HI, January 5, 2010.
- 2009: League for Innovation in the Community College Conference on Information Technology: *Securing Our Nation’s Information Systems: The CyberWatch ATE Center*. Detroit, MI, October 13, 2009.
- 2007: 11th Colloquium for Information Security Systems Education (CISSE): *Enriching Community College Information Assurance Curricula Through Student Competitions*. Boston University, Boston, MA, June 6, 2007.
- 2007: League for Innovation in the Community College Conference on Information Technology: *HIM+IT=HIIT: A Technology Approach for Healthcare Education*. Nashville, TN, November 12, 2007.
- 2006: American Association of Community Colleges/National Science Foundation Advanced Technological Education Principal Investigators Conference: *Making Articulations Work*. Washington, D.C., October 19, 2006.
- 2006: Cyberethics, Cybersafety, and Cybersecurity (C3) Conference: *Information Security in Today’s World*. University of Maryland at College Park, Adelphi, MD, October 5-7, 2006.

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Invited Speaker

- 2020: National Initiative for Cybersecurity Education (NICE) Webinar: *The Challenge of That First Job in Cybersecurity - Entry Level Roles and How to Qualify*, June 17, 2020.
- 2019: CyberMaryland Conference, *Cybersecurity Workforce in Progress*. Baltimore, MD, December 5, 2019.
- 2019. American Association of Community Colleges Workforce Development Institute: *Cybersecurity and Artificial Intelligence Training at Community Colleges*. San Diego, CA, January 31, 2019.
- 2016. Fall 2016 Community College Workforce Consortium Meeting: *Building an Information Security Program of Excellence*. Woodbridge, VA, September 21, 2016.
- 2014: Montgomery College Cyber Technology Pathways Across Maryland kickoff meeting: *Building a Cybersecurity Center of Academic Excellence*. Rockville, MD, December 11, 2014.
- 2012: Maryland State Department of Education (MSDE) Cisco Conference: *National CyberWatch Center Initiatives*. Towson MD, October 19, 2012.
- 2012: Information Systems Security Association (ISSA)-Northern Virginia Panel: *Finding and Mentoring the Future Cyber Security Professional*. Arlington, VA, October 18, 2012.
- 2011: National Defense University: *Preparing the Pipeline: U.S. Cyber Work Force for the Future Workshop*. Washington, D.C., October 12, 2011.
- 1998: The Population and Health Materials Working Group Second Internet Meeting: *Evaluation of a Web Site*. Johns Hopkins University, Baltimore, MD, January 21-22, 1998.
- 1996: Internet Connections: Communicating with Developing Countries About Population and Reproductive Health: *Who Is Looking at Your Information: Evaluation and How It Works*. Johns Hopkins University, Baltimore, MD, January 25, 1996.

Awards

- 2023: UIUC Information Trust Institute (ITI) Excellence at Work.
- 2015: Educator Leadership. Colloquium for Information Systems Security Education (CISSE).

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Teaching:

- Security Laboratory.
- Network Security.
- Introduction to Cybersecurity.
- Secure Systems Administration.
- Hands-On Cryptography.
- Protocol/Traffic Analysis.
- Enterprise Cybersecurity Risk Management.

Professional Memberships

- American Educational Research Association (AERA).
- Association for Computing Machinery (ACM) Special Interest Group Computer Science Education (SIGCSE).
- Federal Bureau of Investigation (FBI) InfraGard Member (Springfield, IL Chapter).

Professional Certifications

- Certified Information Systems Security Professional (CISSP).

Grants

- National Security Agency (NSA):
 - Co-PI: ReCIPE: Regional Coalition for Critical Infrastructure Protection, Education, and Practice. \$2,000,000. September 15, 2021 - December 31, 2024. Grant #H982302110168. UIUC.
 - PI: *Cybersecurity Workforce Education - FY 17 CAE Regional Resource Center's Grant*. \$54,397.44, September 25, 2017-September 25, 2018. Grant #H98230-17-1-0428. PGCC.
 - PI: *Prince George's Community College CNAP Curriculum Grant*. \$276,816, April, 2017-April, 2018. Grant #H98230-17-1-0287. PGCC.
 - PI: *Prince George's Community College CNAP CAE Grant*. \$106,060, March, 2017-March, 2019. Grant #H98230-17-1-0231. PGCC.
 - PI: *CAE-2Y Pilot Grant Program - CAE Development of CAE Regional Resource Centers (CRRCs)*. \$72,616, September, 2016-September, 2017. Grant #H98230-16-1-0357. PGCC.

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- National Science Foundation (NSF):
 - Co-PI: NSF Convergence Accelerator Track G: Proactive End-to-End Zero Trust-Based Security Intelligence for Resilient Non-cooperative 5G Networks. \$749,866. July 15, 2022 - June 30, 2023. UIUC.
 - Co-PI: *National CyberWatch Resource Center*. \$1,650,000, NSF Advanced Technological Education (ATE). October 1, 2021-September 30, 2024. Award No. DUE-2054753. PGCC.
 - PI: *National CyberWatch Center*. \$4,803,673, NSF ATE. October 1, 2016-September 30, 2021. Award No. DUE-1601150. PGCC.
 - Co-PI: *Building SFS Relationships Between Community Colleges and Four-Year Schools: A Research-Based Cohort Approach*. \$118,982, NSF CyberCorps™ Scholarship for Service (SFS). September, 2018-August, 2021. Award No. DGE-1753681. PGCC.
 - Co-PI: *Building SFS Relationships Between Community Colleges and Four-Year Schools: A Research-Based Cohort Approach*. \$162,788, NSF CyberCorps™ SFS. September, 2017-August, 2018. Award No. DGE-1241576. PGCC.
 - Co-PI: *Building SFS Relationships Between Community Colleges and Four-Year Schools: A Research-Based Cohort Approach*. \$158,759, NSF CyberCorps™ SFS. September, 2016-August, 2017. Award No. DGE-1241576. PGCC.
 - PI: *National CyberWatch: Cybersecurity Education Solutions for the Nation*. \$5,669,609, NSF ATE. October 1, 2012-September 30, 2016. Award No. DUE-1204533. PGCC.
 - Co-PI: *CyberWatch: Creating the Next Generation of Cybersecurity Professionals*. \$3,531,900, NSF ATE. October 1, 2009-September 30, 2012. Award No. 0902747. PGCC.
 - Co-PI: *CyberWATCH (Cybersecurity: Washington Area Technician and Consortium Headquarters)*. \$3,163,216, NSF ATE. October 1, 2005-September 30, 2009. Award No. 0501828. PGCC.

- Maryland Higher Education Commission (MHEC):
 - Principal Investigator: *Community College of Baltimore County (CCBC) Cybersecurity Training Institute*. \$87,218, Maryland Higher Education Commission (MHEC). January, 2011-September, 2012. Award No. 11-6. CCBC.

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Expertise:

- Enterprise risk management: Frameworks, methodologies, policies and procedures, data centric approaches, operational technologies, physical security, vulnerability management, and ongoing risk assessment/penetration testing.
- Detection Engineering: Threat prevention, threat detection, and incident management.
- Budget: Security projects, business case development, return on investment (ROI), alignment with IT/security projects, contractors, vendor contracts, and regular financial audits.
- Human resource: Talent management (development, acquisition, organizational re-alignment).
- Security and information systems architecture: Network segmentation, application protection, defense-in-depth, remote access, encryption technologies, backup/replication/multiple sites, cloud/hybrid/multiple cloud vendors.
- Project delivery lifecycle: Requirements, design, security testing, and certification/accreditation.
- Information Security exercise design, delivery, and assessment.
- Information Security curriculum development.
- Information Security laboratories/ranges (hands-on, face-to-face, virtual).
- Protocol/traffic analysis.
- Networking hardware (routers and switches) engineering, implementation, and administration.
- Windows/Linux/UNIX (OS X, FreeBSD) system administration.
- Networking at Layers 2-4 and 7 (including all major TCP/IP protocols).