

Raymond E. Trygstad

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Illinois Institute of Technology
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Education

Ph.D. studies in Computer Science and Technical Communication, Illinois Institute of Technology
Diploma in Aviation Safety, Naval Postgraduate School
Master of Science in Systems Management, University of Denver
4.0 GPA; specialization in Information Systems Management
Naval Aviator, Undergraduate Pilot Training - Rotary Wing, Training Air Wing 5, United States Navy
Bachelor of Science, major in European Studies, United States Naval Academy

Professional History

Illinois Institute of Technology

Ranks

Industry Professor of Information Technology and Management with the rank of Teaching Professor,
2023-present, Full time

Industry Professor of Information Technology and Management, 2010-present, Full time

Responsible for creating, teaching, and managing courses in a broad variety of information technology areas including operating system virtualization, disaster recovery/business continuity, legal and ethical issues, and systems integration/introduction to the profession. Designed curriculum and drafted proposals for the following degrees: **Bachelor of Science in Applied Cybersecurity and Information Technology**, **Bachelor of Information Technology (Coursera)**, **Master of Cyber Forensics and Security**, **Master of Science in Information Technology and Management**, **Master of Science in Applied Cybersecurity and Digital Forensics**, **Master of Information Technology (Coursera)**, **Doctor of Philosophy in Information Technology**. Chair the ITM Curriculum Committee. Chaired or Associate Chaired several Faculty Search Committees.

Adjunct Professor of Public Administration, 2007-present, Part time

Designed and taught or co-taught MPA courses in Cybercrime & Information Security and Disaster Recovery & Business Continuity. With Jennifer Lin, co-taught two courses in Cybercrime & Computer Security for the Beijing Police Department. Taught seminar courses in Cybersecurity for MBA students from University of Sao Paulo Brazil.

Lecturer in Information Technology and Management, 2002-2010, Full time

With Dr. C. Robert Carlson, founded the Information Technology and Management degree programs and the Center for Professional Development, which later become the School of Applied Technology. Responsible for creating, teaching, and managing courses in a broad variety of information technology areas including web design, web application development, operating systems, cybersecurity management, and multimedia. Designed and drafted original curriculum for the **Bachelor of Information Technology and Management** and **Master of Information Technology and Management** degrees. When the ACM/IEEE *Curriculum Guidelines for Undergraduate Degree Programs in Information Technology* were published in 2008, only one course had to be added to bring the Bachelor of Information Technology and Management into full compliance with the guidelines. Wrote all of the course descriptions for all courses in the program.

Lecturer in Computer Science, 2001-2002, Part time

Lecturer in Business (E-Commerce), 2000-2002, Part Time

Adjunct Assistant Professor of Computer Science 1995-2001, Part time

Assistant Professor of Naval Science, 1992-1994, Full time

Roles

Associate Chair, Department of Information Technology and Management, 2012-present

Managed and led accreditation process leading to ABET Computing Accreditation Commission accreditation of the Bachelor of Information Technology and Management degree in 2016 and re-accreditation in 2021. Drafted and compiled *ABET Accreditation Self Study* documents, **282 pages for 2015** and **346 pages for 2020**. Created and maintain ITM Department **Student Information** and **Faculty Information** webpages. Drafted, revise, and annually publish **ITM Faculty Information and Departmental Policies** and **Graduate and Undergraduate Student Information and Departmental Policies**. In order to assist students in course selection and provide reference for parties outside the university, created and publish **ITM Departmental Syllabi** for undergraduate courses and **ITM Courses to Certification Mapping**. Design and conduct annual **new student orientation** and **new faculty orientation** and regularly advise and mentor ITM Department faculty members. Drafted critical ITM Departmental directives including *Standards for Appointment, Promotion, Tenure, and Renewal for Faculty in Information Technology and Management*. Conduct screening and initial interviews for hiring of department adjunct faculty members.

- Director of Undergraduate Advising, Department of Information Technology and Management, 2012-present
Created a system for undergraduate advising which includes publication of *ITM Undergraduate Advising Notes* about two to three weeks in advance of opening of registration for the next semester. The *Notes* inform students how to make advising appointments, when their adviser will be available, information unique to that semester, recommendations of core curriculum courses, and “featured” elective major elective courses in the department. Following advising sessions, give each advisee printed personalized advising notes for the next semester. Encourage co-terminal degree enrollment, resulting the highest level of co-terminal enrollment in the university: 50% of eligible students in ITM are in the Co-Terminal program. Provide students with an extensive online [list of Information Technology Career Options](#), compiled from multiple industry and government resources. Actively contributed and shared ideas as a member of the University Faculty Council Advising Committee.
- Associate Director, Center for Cyber Security and Forensics Education (C²SAFE), 2018-present
Co-Chaired the 2018 NSF-funded Women in Cybersecurity (WiCyS) Conference. Convened meetings of the Advisory Board to consider changes to Program Objectives. Actively participate in the National Initiative for Cybersecurity Education (NICE) Coordinating Council and Regional CAE group.
- Interim Associate Director, Center for Cyber Security and Forensics Education, 2014-2018
Drafted the Charter for the Center. Invited participants and assembled the Advisory Board. Completed all tasks required for designation of the ITM Department as National Center of Academic Excellence in Cyber Defense Education. Actively participated in the National Initiative for Cybersecurity Education (NICE) Collegiate Subgroup.
- Associate Director of Information Technology & Management Programs and Undergraduate Adviser, 2007-2012
- Curriculum Coordinator for Information Technology & Management Programs and Undergraduate Adviser, 2002-2007
- Curriculum Coordinator for Internet Education, Department of Computer Science and Applied Mathematics, 1995-1999, Part time
- Program Manager, graduate-level Certificate Program in Educational Technology, Department of Computer Science and Applied Mathematics, 1996-1998, Part Time
- Curriculum Coordinator and Sophomore Adviser, Department of Naval Science, 1992-1994

Contributions to Teaching

Created, wrote the curriculum for, and taught the following Illinois Institute of Technology courses:

CS 493/CS494, Senior Design Practicum (Department of Computer Science)

This was a two-semester Computer Science predecessor of the Interprofessional Projects (IPRO) courses, taken by all CS seniors. Students completed information system redesigns for United Way of Chicago and Habitat for Humanity, and designed a campus multimedia center.

CS 567 Computers in Education (Department of Computer Science)

CS 568 The Internet in Education (Department of Computer Science)

Certificate Program in Educational Technology (Department of Computer Science)

This came out of active involvement in a K-12 Internet program run by Argonne National Laboratory.

ECOM 516 Web Content Design and Site Management (Stuart Graduate School of Business)

ECOM 563 Web Page Design and Navigation (Stuart Graduate School of Business)

ECOM 564 Web Site Management (Stuart Graduate School of Business)

Internet Technology/Webmaster Certificate (IT Certificate Program, Rice Campus)

Six-hour full-semester course, fully accredited at the Technical Foundation level by the Association of Internet Professionals Certification Accreditation Council.

ITM 100 Introduction to Information Technology as a Profession

ITMT 330 Introduction to Information Systems and Information Technology as a Profession

ITM/ITMD 460 Fundamentals of Multimedia

ITM/ITMD 461 Internet Technologies and Web Design

ITM/ITMD 462/562 Web Site Application Development

ITM/ITMO 356 Introduction to Open Source Operating Systems (Based on CompTIA Linux+)

ITM/ITMO 454/554 Operating System Virtualization

ITM/ITMM 470/570 Fundamentals of Management for Technical Professionals

ITMM 485/585 Legal and Ethical Issues in Information Technology

ITM/ITMS 478/578 Information System Security Management

ITM 574 Strategic Information Technology Management

ITMO 556 Introduction to Open Source Software (Partially based on CompTIA Linux+)

ITM/ITMS 588 Incident Response, Disaster Recovery & Business Continuity

PA 538 *Information Systems Security/Cyber Crime* (with Jennifer Lin – Department of Social Science)

PA 588 *Incident Response, Disaster Recovery and Business Continuity* (Department of Social Science)

Created curriculum for and taught the following course segment at the University of Chicago:

Certificate in E-Business Strategy: Web Technology

Taught the following Illinois Institute of Technology courses:

CS 105 *Introduction to Computing* (Lab instructor, Department of Computer Science)

CS 460 *Fundamentals of Multimedia* (Department of Computer Science)

CS 485 *Computers and Society* (Department of Computer Science)

NS 201 *Naval Weapons Systems* (Department of Naval Science)

NS 202 *Seapower and Maritime Affairs* (Department of Naval Science)

Created departmental guidelines, templates, and rubrics for faculty and student support

ITM Learning Objective Guidelines

ITM Research Paper Guidelines and Policies

ITM Student Intellectual Property Guidelines

College of Computing ITM Syllabus & Presentation Templates

Information Technology and Management Research Paper Grading Criteria Rubric

ITM Student Resources page

Publications and Presentations

Presentation: “Got jobs? Don't let HR chase your cybersecurity candidates away!” ChiCyberCon 2023, Chicago, Illinois, March 31, 2023

Proceedings: Editor, 2022. *SIGITE '22: Proceedings of the 23rd Annual Conference on Information Technology Education*. Association for Computing Machinery, New York, NY, USA.

<https://dl.acm.org/doi/proceedings/10.1145/3537674> September 21, 2022

Invited Presentation: “The Cybersecurity Hiring Challenge” CDM Media CIO/CISO Chicago Summit, Chicago, Illinois, May 24, 2022

Presentation: “Navigating the thickets of outcome-based education for Cybersecurity” ChiCyberCon 2021, Chicago, Illinois (virtual), April 16, 2021

Article (non-peer-reviewed): “Communicating Technology to Non-Technical Audiences” *Linkedin.com*, <https://www.linkedin.com/pulse/communicating-technology-non-technical-audience-ray-trygstad/> November 3, 2020.

Presentation: “Comprehending the Crushing Cost of Complexity”, LABMAN Conference, Illinois Institute of Technology, Chicago, Illinois, June 13, 2019

Poster Presentation: Dunn, Michael & J. Caruso, Robert & T. Craven, Patrick & Frost, Lorraine & Trygstad, Ray. (2018). “Proposed Cybersecurity Merit Badge for the Boy Scouts of America.” 22nd Annual Colloquium for Information Systems Security Education (CISSE). New Orleans, LA, June 2018

Poster Presentation: Michael H. Dunn, Robert J. Caruso, Laurence D. Merkle, and Ray Trygstad. (2018). “Proposed Cybersecurity Merit Badge for the Boy Scouts of America.” (Abstract Only). In Proceedings of the 49th ACM Technical Symposium on Computer Science Education (SIGCSE '18). ACM, New York, NY, USA, 1085-1085. DOI: <https://doi.org/10.1145/3159450.3162280>

Speech: “Cybersecurity in the Home and Office” IIT Gunsaulus Society Alumni Luncheon, Chicago, Illinois, April 11, 2018

Contributing Reviewer: ACM, IEEE-CS, AIS SIGSEC, IFIP WG 11.8 *Cybersecurity Curricula 2017: Curriculum Guidelines for Post-Secondary Degree Programs in Cybersecurity* December 31, 2017

Contributing Reviewer: Association for Computing Machinery (ACM) / IEEE Computer Society (IEEE-CS) *Information Technology Curricula 2017: Final Report* December 10, 2017

Presentation: “Breaking Out the Cyber Security Workforce Framework”, ForenSecure 2017, IIT Rice Campus Wheaton, Illinois, April 28, 2017

Invited Presentation: “Comprehending the Crushing Cost of Complexity”, CDM Media CIO Midmarket Summit, Chicago Illinois, October 25, 2016

Presentation: “Cyber-Geography: NSA National Center of Academic Excellence in Cyber Defense Course Mapping for 2-year programs” ForenSecure 2016, IIT Rice Campus Wheaton, Illinois, April 15, 2016

Presentation: “Law Enforcement Override of Unmanned Autonomous Logistics Vehicles (Pulling over a Robotruck)”, ForenSecure 2015, IIT Rice Campus Wheaton, Illinois, April 17, 2015

Presentation: “Enterprise Policies for Mobile Device Security”, ForenSecure 2013, IIT Rice Campus Wheaton, Illinois, April 18, 2013

Presentation: “Virtualization and Cloud as Disaster Recovery Solutions”, ForenSecure 2012, IIT Rice Campus Wheaton, Illinois, April 19, 2012

Presentation: “Security and Trust in the Cloud”, NetSecure 2011, IIT Rice Campus Wheaton, Illinois, March 25, 2011

Contributions to Administration and University Service**Illinois Institute of Technology**

University Accreditation Committee, 2011-present
 Co-Chair, Quality Improvement Initiative Subcommittee, 2012-2021
 University Faculty Council 2016-2018
 Undergraduate Studies Committee representative, 2016-2018
 University Faculty Council Committees, 1992-present
 Ad Hoc Teaching Faculty Committee, 2020-present
 Advising Committee, 2018-present
 Co-Terminal Degree Committee, 2016-present
 Undergraduate Studies Committee, 1992-1994, 2010-present
 Chair, 2016-2018
 Vice Chair, 2014-2016
 Secretary, 2023-2024
 Introduction to the Professions Subcommittee, 2013-2016
 Co-Terminal Degree Subcommittee, 2011-2012
 ABET Accreditation Coordinator, Bachelor of Information Technology & Management, 2014-present
 National Center of Academic Excellence in Cyber Defense Education Coordinator, Department of Information Technology and Management, 2014-2020
 Faculty Adviser, Beta Chapter, Gamma Nu Eta - the National Information Technology Honor Society, 2011-2015, 2019-2021
 Faculty Adviser, IIT ACM Chapter, 1996-1999
 Faculty Adviser, IIT Officers Christian Fellowship Chapter 1993-1999
 Co-Chair, World Wide Web Policy Committee, 1996-1998
 Co-Chair, World Wide Web Working Group, 1995-1996

Professional Activities

Association for Computing Machinery Special Interest Group on Information Technology Education (ACM SIGITE), 2012-present
 Chair, 2021-2024
 Vice Chair, 2018-2021
 Executive Committee member, 2015-2018
 Chair, 23rd ACM Conference on Information Technology Education, SIGITE 2022, September 2022
 ABET Computing Accreditation Commission (CAC) and CSAB, Commissioner, 2021-present
 Team Chair, 2021-present
 CAC/CSAB Criteria Committee, 2021-present
 Chair, CAC Graduate Computing Criteria Subcommittee, 2022-2023
 Wrote the first draft of the *General Criteria for Master's Level Programs in Computing*
 CAC Criteria Trainer, 2021-present
 CSAB Selection Committee Member for Program Evaluators in IT and IS, 2020-present
 Program Evaluator for Cybersecurity Programs, 2018-2021
 Program Evaluator for Information Technology Programs, 2014-2021
 International Society for Ethics and Information Technology (INSEIT) 2022-present
 Candidate for Board Member 2022
 Co-Chair, CEPE (Computer Ethics—Philosophical Enquiry) Conference, May 2023
 Co-Chair, Women in Cyber Security Conference (WiCyS; NSF-funded National Conference), 2018
 National Initiative for Cybersecurity Education (NICE) Coordinating Council, 2021-Present
 National Initiative for Cybersecurity Education (NICE) Collegiate Subgroup, 2017-2021
 Cybersecurity Advisory Board, City Colleges of Chicago 2019-present
 Contributor, Proposal for the Cybersecurity Merit Badge, Boy Scouts of America, 2016-present
 Computer Networking and Systems Advisory Board, Oakton Community College, 2018-present
 Computer Information Systems Advisory Board, City Colleges of Chicago 2016-present
 Computer Information Systems Advisory Board, Triton College, 2015-present
 Dean's Panel Moderator, Illinois Technology Foundation Educator Series, 2015
 National Chair, Gamma Nu Eta, the Information Management Honor Society 2012-2013
 First National Chair for Gamma Nu Eta
 Hosted National Conference at Illinois Institute of Technology, 2013
 Advisory Committee, Chicago Premier CIO Forum, 2010, 2015
 Computer Information Systems Advisory Board, College of DuPage, 2008-present
 Computer and Internetworking Technologies Advisory Board, College of DuPage, 2008-present

Panelist and Speakers Bureau member, Technology Executives Club, 2008-2015
 Chair, CIS Honors Program Advisory Board, Richard J. Daley College 2004-2006
 Founding Member, Council of the World Wide Web Virtual Library, 1999-2005 (founded by Sir Tim Berners-Lee)
 Association of Internet Professionals Certification Accreditation Council, 1999-2003
 Subject Matter Expert, CompTIA iNet+ Certification, 1998-2000
 Naval Academy Information Affiliate, United States Naval Academy, 1994-1996
 Webmaster, United States Naval Academy, 1994-1996 (First webmaster for USNA)

Non-academic Relevant Professional Career Experience

Illinois Institute of Technology

Director of Information Technology, IIT School of Applied Technology, IIT Center for Professional Development, and IIT Rice Campus; responsible for managing staff and assets including all computer laboratories, faculty and staff computer assets, UNIX/Linux/Windows/ VMware/XenServer servers, networks, and multiple Web sites. 1999-2016

Manager of Client Services, Computing and Network Services (the first university central computing organization); managed staff and assets including university Web site, all computer laboratories, Novell networks, and Helpdesk services. 1997-1999

Manager, Instructional Multimedia Center; constructed the Instructional Multimedia Center, conducted faculty training seminars, provided support for university faculty use of multimedia presentation tools and World Wide Web in an instructional environment. 1995-1997

United States Navy

Operations Officer for a 10 aircraft Anti-Submarine Warfare helicopter squadron. Managed over \$130 million worth of aircraft assets with 99.5% utilization of available resources. Acted as Commanding Officer in his absence. 1991-1992

Safety Officer for two Anti-Submarine Warfare helicopter squadrons. Both units experienced zero aviation or ground mishaps during my tenure in this role. Successfully implemented NAVOSH (Navy version of OSHA) from the ground up in both squadrons. 1987-1988 & 1990-1991

Information System Security Officer, Security Manager, and Information Systems Manager; responsible for acquisition, management and security of computer assets, and direction of physical and document security programs for Helicopter Antisubmarine Squadron (Light) 31. Achieved the first unit Information Security Accreditation and Certification in Naval Air Forces, U.S. Pacific Fleet. 1988-1990

Aviation Detachment Officer-in-Charge of a single aircraft unit operating entirely detached from the parent unit including two periods supporting hydrographic survey operations in Indonesia, and a circumnavigation of South America conducting anti-submarine warfare and anti-surface warfare joint operations with local navies. 1986-1991

Student Control Officer (equivalent role to Dean of Students/Academic Dean) for Navy Advanced Undergraduate Helicopter Pilot Training; instructed advanced helicopter students both in the cockpit and in the classroom. Coordinated all postgraduate assignments; arranged and conducted all graduations; managed student grading standards. 1983-1985

Current membership in scholarly and professional organizations

(See Professional Activities above for offices held)

Association for Computing Machinery (ACM) + SIGITE, SIGUCCS, and SIGSAC

International Society for Ethics and Information Technology (INSEIT)

ISACA

Information Systems Security Association (ISSA)

The Internet Society (ISOC) + Cybersecurity SIG

Internet Corporation for Assigned Names and Numbers (ICANN)

Professional Member, Gamma Nu Eta (ΓNH) - the Information Technology Honor Society

Honors, Awards, and Certifications

Appointed to the new rank of Teaching Professor at Illinois Institute of Technology, 2023

2020 ITM ABET Self-Study selected and presented as a model self-study, 2023 ABET Symposium

Dean's Service Award, Illinois Tech College of Computing, 2021

Principal Investigator, DoD Cyber Scholarship, 2021-2022

Dean's Educational Excellence Award, IIT School of Applied Technology, 2018

Principal Investigator, subgrant of Women in Cybersecurity Conference grant, National Science Foundation, 2017-2018

Principal Investigator, Cybersecurity National Action Plan (CNAP) Investment in Expansion of CAE-C Education Programs Grant, National Security Agency, 2017-2018

Excellence in Teaching Award, IIT School of Applied Technology, 2012

Professional Member, Gamma Nu Eta - the National Information Technology Honor Society, 2011
Navy Commendation Medal, 1992
Navy Achievement Medal, 1990 and 1991
Boy Scout of America District Award of Merit, Gulf Coast Council (Florida), Blackwater District, 1984

Certifications

Naval Aviator / Anti-Submarine Warfare Helicopter Pilot / Advanced Helicopter Flight Instructor
U.S. Navy Officer Subspecialist, Information Systems Management - unproven
CompTIA iNet+ (CompTIA Subject Matter Expert)

Civic and Community Activities

Naperville Men's Glee Club, Naperville, Illinois, Second Tenor 1994-present
Poster/Program/Publication Designer and Editor, 1994-Present
Webmaster, 1994-2008
Wesley United Methodist Church, Naperville, Illinois, 1993-Present
Audio-Visual Lead, 2007-Present
President, United Methodist Men, 2000-Present
Lay Speaker/Lay Servant, 1995-Present
Member, Church Council, 1995-Present
Chair, Staff-Parish Relations Committee, 2004-2008
Boy Scouts of America, 1964-2023
Three Fires Council, Illinois
Scout Troop 100 / Venture Crew 100 Chartered Organization Representative 1997-2009, 2022-2023
Gulf Coast Council, Florida
Unit Commissioner, 1982-1984
Awarded District Award of Merit, Blackwater District, 1984
Organized and chaired Blackwater District Diamond Anniversary Camporee
Organized and conducted Chartered Organization Representative training
Completed Woodbadge Training Course, SE 367 (did not complete ticket due to military orders)
San Diego County Council, California
Cub Scout/Boy Scout/Explorer 1964-1973
Junior Assistant Scoutmaster, Troop 709, 1972-1973
Senior Patrol Leader, Troop 764, 1971-1972
United Way/Crusade of Mercy of Chicago Information Technology Committee, Chicago, Illinois, 1996-1999
Naperville Area Chamber of Commerce, Naperville, Illinois 1995-1998
Member, Technology Leadership Committee and 1996 Technology Expo Planning Committee
Christ United Methodist Church, Norfolk, Virginia, 1991-1992
Children's Choir Director and Sunday School Teacher
Cameron Highlanders Pipe Band, San Diego, California 1988-1990
"B" Band member
Wesley Memorial United Methodist Church, Pea Ridge, Florida, 1983-1984
Charter Member and first Choir Director
First United Methodist Church of Milton, Milton, Florida, 1982-1983
Choir Second Tenor and Bell Choir member
Faith Lutheran Church, Vista, California 1964-1981
Children's Choir Director 1980-1981
Sunday School Teacher, Shepherd of the Valley Lutheran Church, Oceanside, CA (mission), 1972-1973
Folk Choir Baritone 1969-1973
Naval Air Training Command Choir, 1977-1979
Second Tenor and Barbershop Quartet Lead Singer
Civil Air Patrol Cadet Squadron 47, Vista and Carlsbad, California, 1968-1973
Cadet Commander, 1971-1973