national CyberWatch center

CSSIA
National Center for Systems Security and Information Assurance

First Annual

Community College Cyber Summit

Moraine Valley Community College

Palos Hills, Illinois

July 21-22, 2014

PRINCE GEORGE'S COMMUNITY COLLEGE

Moraine Valley Community College

July 21, 2014

Welcome to the first annual Community College Cyber Summit (3CS), the first and only annual conference devoted exclusively to the role of community colleges in cybersecurity education. We are delighted that our two colleges are collaborating to bring about this event.

National CyberWatch Center (CyberWatch), headquartered at Prince George's Community College, is the organizing force behind the creation of 3CS. The National Resource Center for Systems Security and Information Assurance (CSSIA), headquartered at Moraine Valley Community College, is both the host of this first Community College Cyber Summit and a close collaborator in preparing for and organizing the Summit. Both CyberWatch and CSSIA are funded in part by grants from the National Science Foundation.

Our two colleges understand the cybersecurity challenges facing the United States. We recognize the importance of partnerships among businesses, industry, government, and academe in addressing these challenges. And we especially appreciate the critical role that community colleges must play in preparing the next generation of cybersecurity professionals and retraining the existing workforce. Both Prince George's and Moraine Valley Community Colleges have been designated as National Centers of Academic Excellence in Information Assurance 2-Year Education (CAE2Y) by the National Security Agency/Department of Homeland Security. The CAE2Y designation certifies that our colleges offer robust cybersecurity academic and workforce development programs, that we infuse cybersecurity awareness and training across the curriculum, that we follow effective cybersecurity practices in our internal administrative procedures, and that we build partnerships with other institutions – schools, government, and industry.

The Community College Cyber Summit provides an opportunity for community colleges to share what we have learned, to advance our own knowledge in this field, to build relationships within the academic community and beyond, and to expand the playing field to additional colleges.

We wish you a most successful Summit!

Dr. Charlene Dukes
President
Prince George's Community College

Dr. Sylvia Jenkins
President
Moraine Valley Community College

First Annual

Community College Cyber Summit

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July 21, 2014

WELCOME, PLANK_OWNERS, AND THANK YOU!

The National CyberWatch Center (CyberWatch) and National Resource Center for Systems Security and Information Assurance (CSSIA) are pleased to welcome you to this, the first annual Community College Cyber Summit (3CS).

The other NSF-funded cybersecurity ATE centers are also co-producers of 3CS: CyberWatch West (CWW) at Whatcom Community College, Washington; Cyber Security Education Consortium (CSEC), Oklahoma; and Advanced Cyberforensics Education Consortium (ACE) at Daytona State College, Florida. A number of Federal Government partners have supported 3CS through materials, presentations, and money, including the National Science Foundation (NSF), the Department of Homeland Security (DHS), and the National Security Agency (NSA). And a number of business organizations have similarly contributed, including Jones and Bartlett Learning, EC-Council, NDG (Netware Development Group), and VMWare.

Nearly 50 of you are scheduled to give workshops or give individual presentations or serve on panels – in some cases you are doing all three. Others among you have helped with the logistics that are so necessary to assembling any conference.

And of course just by attending this conference in the middle of your summer vacation, you are demonstrating your commitment to improving the cybersecurity posture of the United States and helping to shape the vision of community colleges in cybersecurity education going forward. We hope that many of you volunteer to assist in crafting a new Blueprint for Expanding the Role of Community Colleges in Cybersecurity Education – a principle outcome of the Summit.

In the Navy, a ship's plank-owners are the sailors who were on-board for the vessel's maiden voyage. So welcome to All You 3CS Plank-Owners, and we look forward to many future voyages together!

Casey W. O'Brien
Executive Director and Principal Investigator
National CyberWatch Center

Erich Spengler
Principal Investigator
CSSIA

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Community College Cyber Summit Program

3CS Summit Schedule At a Glance		
Monday		
Time		**Description**
Begin	**End**	
7:30am	8:30am	Continental Breakfast – in Moraine Lobby and Moraine Plaza
7:55am	8:00am	Call to Order – Note: All General Sessions take place in Moraine Rooms 2 and 3 of the MVCC Conference Center
8:00am	8:05am	Opening and Welcome
8:05am	8:15am	Purpose and Vision for the Community College Cyber Summit
8:15am	9:00am	The Original Blueprint in 2002: How far have we come since then?
9:15am	12:15pm	Monday Morning Workshops – See Workshop Schedule for titles/locations
9:15am	10:00am	Concurrent Sessions I – See Concurrent Sessions Schedule for titles/locations
10:15am	11:00am	Concurrent Sessions II
11:15am	Noon	Concurrent Sessions III
12:15pm	1:30pm	Lunch and Sponsor/Producer Exhibits – in Moraine Lobby and Moraine Plaza
12:45pm	1:30pm	Lunch discussion: National Community College Messaging
1:30pm	4:30pm	Monday Afternoon Workshops
1:45pm	2:30pm	Concurrent Sessions IV
2:45pm	3:30pm	Brainstorming the blueprint: Topics, themes, organization, questions
3:45pm	4:30pm	Concurrent Sessions V
4:45pm	5:30pm	Industry Appreciation Reception
5:30pm	6:30pm	ATE Centers PIs Meeting [By Invitation Only]

Tuesday		
Time		**Description**
Begin	**End**	
7:30am	8:30am	Continental Breakfast
8:00am	8:05am	Announcements
8:05am	8:10am	Introduction of Keynote Speaker
8:10am	8:55am	Keynote Address: Chris Rodgers
9:00am	Noon	Tuesday Morning Workshops
9:00am	9:45am	Concurrent Sessions VI
10:00am	10:45am	Networking opportunity -- Collegial discussions of cybersecurity programs
11:00am	11:45am	Concurrent Sessions VII
Noon	1:30pm	Lunch and Sponsor/Producer Exhibits
12:45pm	1:30pm	Lunch discussion: Making Sense of National Standards/Frameworks
1:00pm	4:00pm	Tuesday Afternoon Workshops
1:45pm	2:30pm	Concurrent Sessions VIII
2:45pm	3:30pm	Concurrent Sessions IX
4:00pm	4:30pm	The Way Forward: Lead roles, writing assignments, and schedule for completion
4:30pm	4:45pm	Summit Wrap-up/Evaluations
5:00pm	5:30pm	3CS Steering Committee Meeting
Wednesday		
9:00am	4:00pm	Extended Workshop -- Security of Smart Grid Technology

Keynote Speaker

Chris Rodgers is a County Commissioner in Douglas County, Nebraska, and is the Immediate Past President of the National Association of Counties. As NACo President in 2012-2013, Rodgers brought national attention to two important issues: smart justice and cybersecurity. His Smart Justice Initiative continues to build knowledge and capacity for successful justice policies and practices among the nation's counties. His cybersecurity initiative established the foundation for NACo to promote cybersecurity awareness and education from federal partners directly to county government policy makers and IT professionals.

Rodgers has been a Douglas County Commissioner since first elected in 2004. His priories in Douglas County include improving the local public health system, strengthening community corrections programs, and reforming the juvenile justice system. He is a past chair of the Board of Commissioners, and serves as chair of its Child and Youth Services Committee. He is a member of the County Board of Health and the appointed representative for Douglas County on the Nebraska Juvenile Justice Coalition.

Rodgers is director of community and government relations for Creighton University and previously worked at the University of Nebraska at Omaha. He also served as an assistant to Omaha Mayor Mike Fahey and as an elected member of the Metropolitan Community College Board of Governors.

Born and raised in East St. Louis, Illinois, Rodgers graduated from Creighton University in 1992 with a BA in journalism, earned an MBA from Creighton in 1999, and received a Masters in Public Administration from the University of Nebraska at Omaha in 2003. He is married and has two young sons.

Plenary Sessions		
Time	**Presenter**	**Session Title**
Tues 8:10-8:55 am	**Chris Rodgers**	**Keynote Address: The community college role in advancing cybersecurity in county/local government**
Blueprint for Expanding the Role of Community Colleges in Cybersecurity Education		
Mon 8:15-9:00 am	Dr. Corby Hovis	The Original Blueprint in 2002: How far have we come since then?
Mon 2:45-3:30 pm	Dr. Vera Zdravkovich	Brainstorming the New Blueprint: Topics, themes, organization, questions
Tue 4-4:30 pm	Dr. Bob Spear	The Way Forward: Lead roles, writing assignments, and schedule for completion
Lunch Sessions		
Mon & Tues: 12:45-1:30pm	Casey O'Brien	Monday: National Community College Messaging Tuesday: Making Sense of National Standards/Frameworks

Workshops		
Workshops Schedule		
Times	**Presenter (Location)**	**Title**
Mon 9:15am – 12:15pm	Bowne (T101/102)	Violent Python
Mon 9:15am – 12:15pm	Craiger (Fogelson)	The art and science of cyberforensics
Mon 1:30-4:30pm	Klappenberger (T953)	KU mapping and submission for CAE/CAE2Y designation
Mon 1:30-4:30pm	Aladejebi (T101)	Analyzing malicious documents and memory forensics
Mon 1:30-4:30pm	Watson (Fogelson)	Cloud Computing 101: Bringing Security into the Cloud
Mon 1:30-4:30pm	Leary (T701)	[By Invitation Only] Collaborative Curriculum Committee workshop
Tues 9am – noon	Hamilton (T101)	Configuring an intrusion detection system for an industrial control system
Tues 9am – noon	Portillo (Fogelson)	Mapping the SSCP® certification to the NSA/DHS CAE IA KU's
Tues 9am – noon	Pruitt-Mentle (T102)	Enhancing K-12 STEM Education through Cybersecurity
Tues 1-4pm	Vaccaro (T101)	Network security scripting for cybersecurity programs
Tues 1-4pm	Sands (T102)	New uses of virtualization in and out of the classroom for cybersecurity programs
Tues 1-4pm through Wed 9am-4pm	Yardley (Fogelson)	Security of Smart Grid Technology [Extended Workshop]

Concurrent Sessions				
Concurrent Sessions – Schedule				
Session	**Time**	**Theme**	**Lead Presenter (Location)**	**Session Title**
I	Monday 9:15-10:00am	Classroom Innovation	Floyd (M202)	Blended learning: A learner-centered model for cybersecurity and forensic courses
		Program Innovation	Merritt (M204)	Symantec Cyber Career Connection: A New Pilot Program to Help Underserved Youth Enter Cybersecurity Jobs
		Program Innovation	Zdravkovich (T701)	CAE2Y – why? what is involved? support?
II	Monday 10:15 – 11:00am	Program Innovation	Jackson (T701)	follow-up on Vera Zdravkovich's presentation - help for CAE2Y candidate institutions
		Everything	(Moraine 2-3)	Networking opportunity -- Collegial discussions of cybersecurity programs
		Program Innovation	Kyle (M202)	Achieving Cybersecurity Excellence Through Evolution of the Nation's Cyber Workforce
		Program Innovation	Weeks (M204)	NDG - What is needed for core skills? A NETLAB+ round table discussion
III	Monday 11:15am = Noon	Research	Sener (M204)	Evaluation of ATE cybersecurity centers and projects: Lessons learned
		Classroom Innovation	O'Brien (M202)	Learning and playing: Integrating competition experiences into formal curriculum
		Program Innovation	Coppa (T701)	Engaging cyber students outside the classroom: Cyber camps, clubs and competitions
IV	Monday 1:45 - 2:30pm	Classroom Innovation	Kwak (T102)	Gamification for digital forensics: Serious games for teaching forensics processes and procedures
		Research	Burley (M204)	Brainstorming new research ideas in cybersecurity education
		Program Innovation	Powell (M202)	Ultimate course alignment: CAE2Y KUs + ACM & state standards + articulated with universities and K12

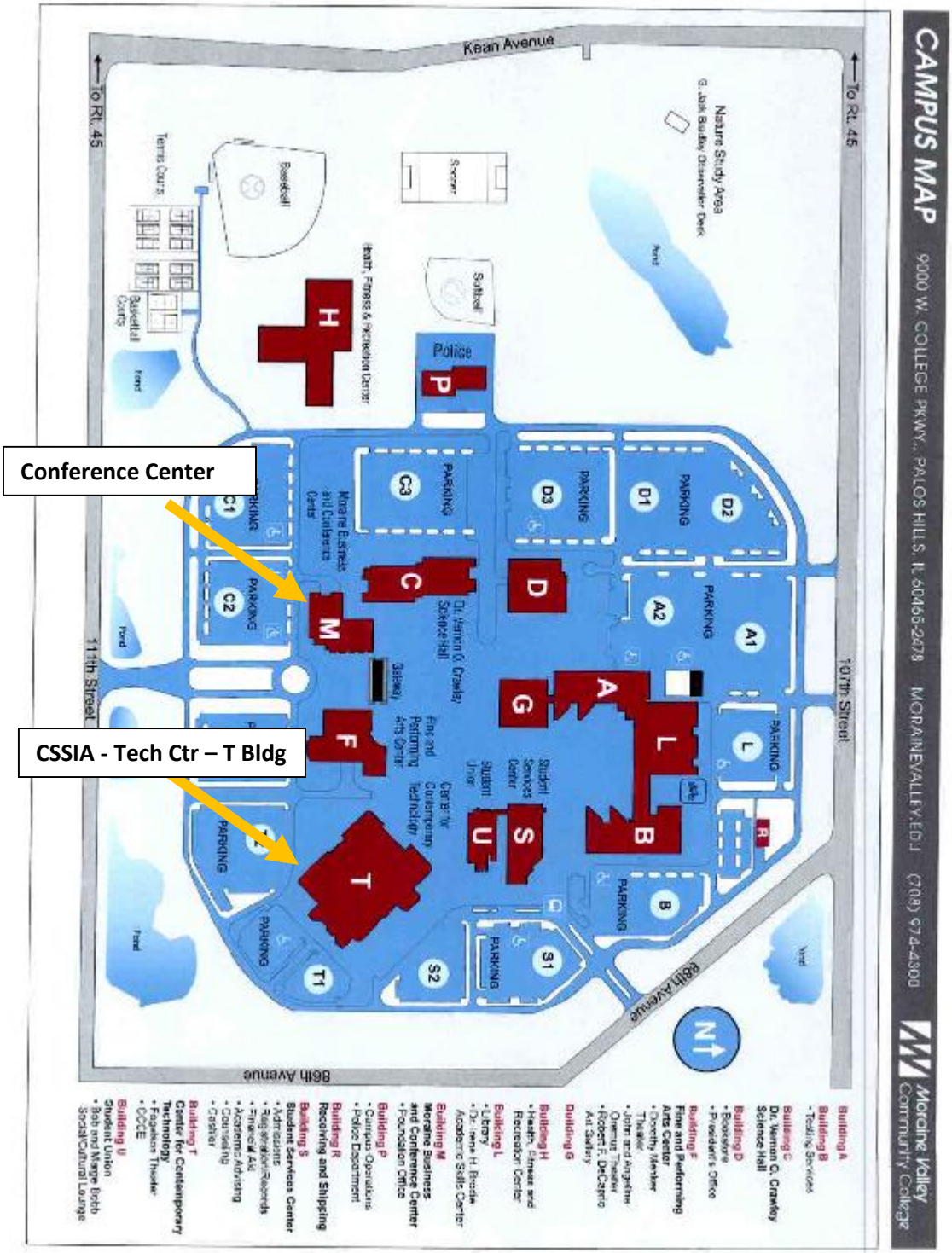
V	Monday 3:45 - 4:30pm	Research	Tobey (M202)	A practice-based pedagogy for cybersecurity education
		Program Innovation	Spivey (T102)	Cybersecurity education doesn't always take place in the classroom
		Program Innovation	Spear (M204)	Why cybersecurity now?
VI	Tuesday 9:00 - 9:45am	Classroom Innovation	Leary (M202)	CyberWatch in Second Life
		Program Innovation	Bragg (M204)	AB Degree Programs to Advance Technician Education and Employment
		Program Innovation	Szabo (T701)	Applied research (no step-by-step) methodology development
VII	Tuesday 11:00 - 11:45am	Research	Wilkens (M202)	Factors influencing the pursuit of IT certifications
		Program Innovation	Sande (T701)	Collaboration across vastly different boundaries in the two and four year space
		Program Innovation	Webb (M204)	ICS/SCADA cyber security: protecting the critical infrastructure
VIII	Tuesday 1:45 - 2:30pm	Classroom Innovation	Valentino (M202)	Constructing an effective online course in cybersecurity
		Research	Pruitt-Mentle (M204)	Key success factors of a replicable cybersecurity pathway model
		Program Innovation	Leary (T701)	Collaborative Curriculum grant: Mapping course objectives to the NICE Framework and to DHS KU's for CAE/CAE2Y designation
IX	Tuesday 2:45 - 3:30pm	Research	Tobey (M202)	Cyber defense competition design: A vignette-based method to improve cybersecurity talent management
		Everything	Hale (M204)	Birds of a Feather

Room Assignments

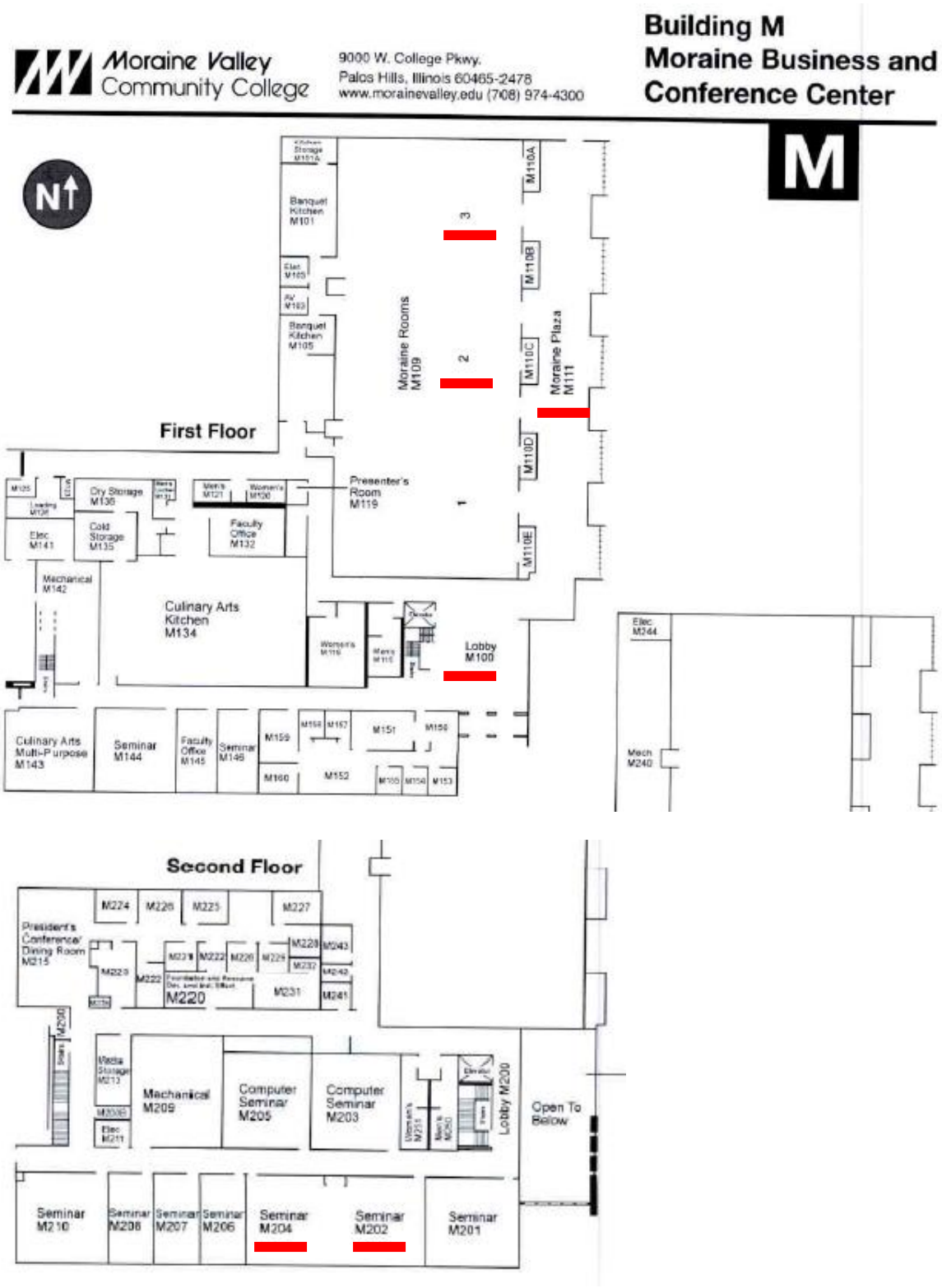
	Plenary	Workshops			
	Ballroom	Computer Lab - A	Computer Lab - B	Classroom - C	Computer Lab - D
Internet access	Presenter	All participants	All participants	Presenter Only	All participants
Location	Moraine 2-3	T101	T102	T953	Fogelson Theater
Capacity	220	24	24		85
Monday					
7:30-9:00am	Blueprint				
9:15-10am		Bowne (9:15am-12:15pm)			Craiger (9:15am-12:15pm)
10:15-11am	Collegial Networking				
11:15am-noon					
Noon-1:30pm	Lunch				
1:45-2:30pm		Aladejabi (1:30-4:30pm)	Kwak	Klappenberger (1:30-4:30pm)	Watson (1:30-4:30pm)
2:45-3:30pm	Blueprint				
3:45-4:30pm			Spivey		
4:45-5:30pm	Reception				
Tuesday					
7:30-9:00am	Rogers				
9-9:45am		Hamilton (9am-noon)	Pruitt-Mentle (9am-noon)		Portillo (9am-noon)
10-10:45am	Collegial Networking				
11-11:45am					
Noon-1:30pm	Lunch				
1:45-2:30pm		Vacarro (1-4pm)	Sands (1-4pm)		Yardley (1-4pm)
2:45-3:30pm					
4:00-5:30pm	Blueprint, Wrapup				
Wednesday					Extended Workshop
9am-4pm					Yardley (9am-4pm)

	Concurrent Sessions			
	Roundtables - E	Panel/Classroom - F	Panel/Classroom - G	
Internet access	Presenter Only	Presenter Only	Presenter Only	
Location	M204	M202	T701	
Capacity				
Monday				
7:30-9:00am				
9:15-10am	Merritt	Floyd	Zdravkovich	
10:15-11am	Weeks	Kyle	Jackson	
11:15am-noon	Sener	O'Brien	Coppa	
Noon-1:30pm				
1:45-2:30pm	Burley	Powell	Leary (1:30-4:30pm)	
2:45-3:30pm				
3:45-4:30pm	Spear	Tobey		
4:45-5:30pm				
Tuesday				
7:30-9:00am				
9-9:45am	Bragg	Leary	Szabo	
10-10:45am				
11-11:45am	Webb	Wilkens	Sande	
Noon-1:30pm				
1:45-2:30pm	Pruitt-Mentle	Valentino	Leary	
2:45-3:30pm	Hale	Tobey		
4:00-5:30pm				
Wednesday				
9am-4pm				

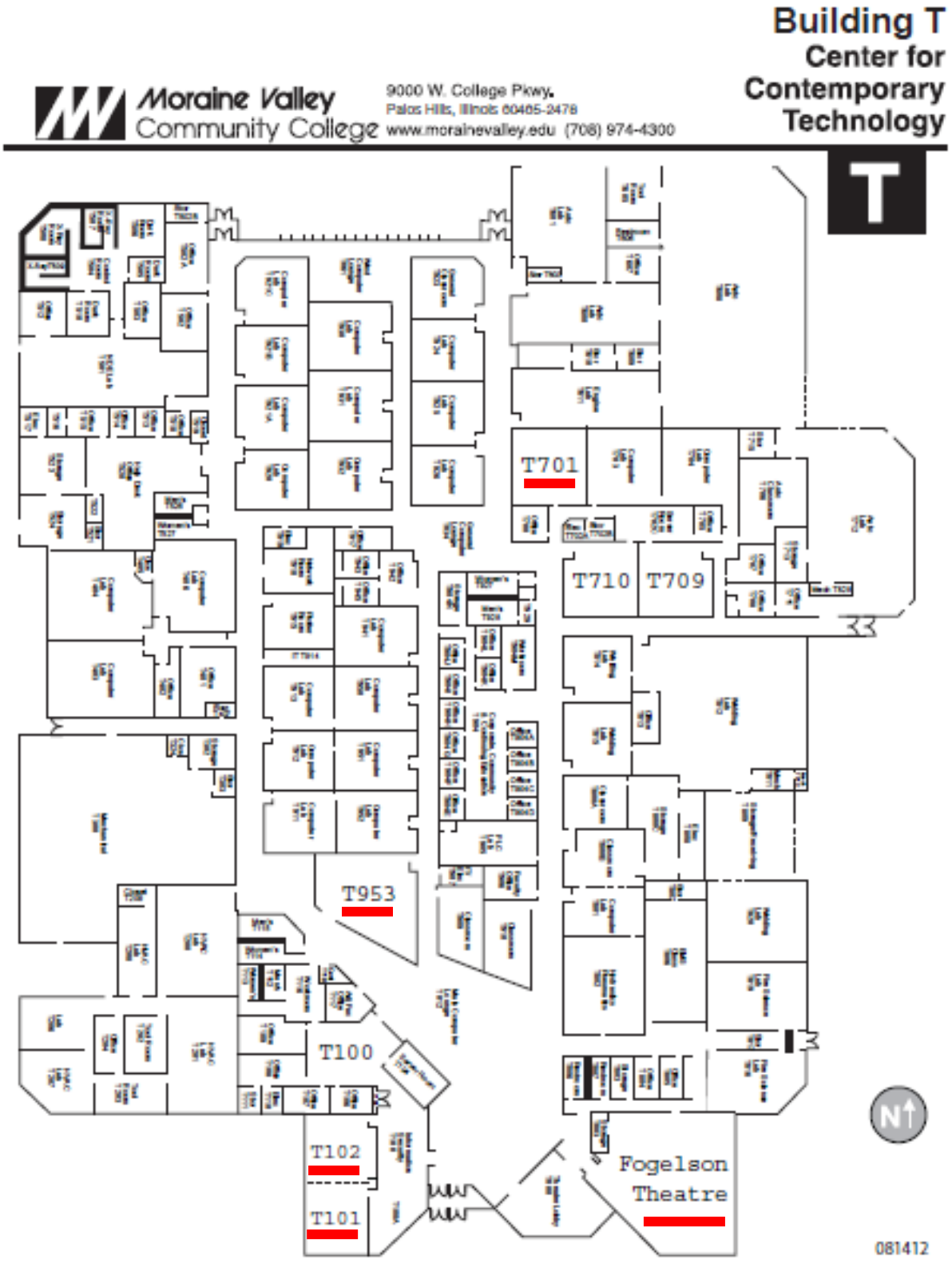
Moraine Valley Community College Campus Map



M Building Rooms



T Building Rooms



Workshops – Descriptions

Monday morning 9:15am – 12:15pm
Presenter:

Dr. Sam Bowne
Faculty, City College of San Francisco, California
ATE Center: Mid-Pacific Information and Communication Technologies (MPICT)

Workshop Title: Violent Python
Description: We use very simple scripting methods to make hacking tools, including: port scanning, login brute-forcing, port knocking, cracking password hashes, and sneaking malware past antivirus engines. This is a hands-on workshop, so participants should bring laptop computers with VMware Player or VMware Fusion on them. USB sticks will be provided with Kali Linux and Windows Server 2008 virtual machines to use. All the projects are freely available on my Web page (samsclass.info) for anyone to use.

Monday morning 9:15am – 12:15pm
Presenter:

Dr. Philip Craiger
Associate Professor, Daytona State College, Florida
ATE Center: Advanced Cyberforensics Education Consortium (ACE)

Workshop Title: The art and science of cyberforensics
Description: This is a hands-on workshop covering: evidence identification and handling, creating and verifying a forensic image, performing a forensic examination, report writing, training and education opportunities, certifications, and legal issues. We provide participants with materials, tools, and links to our free online self-paced train-the-trainer program that provides participants with faculty training and classroom materials for use in their own cyberforensics courses.

Monday afternoon 1:30pm – 4:30pm
Presenter:

Dr. Fred Klappenberger
Consultant, Prince George's Community College, Maryland
ATE Center: National CyberWatch Center

Workshop Title: KU mapping and submission for CAE/CAE2Y designation
Description: This PowerPoint presentation demonstrates a three phase Knowledge Unit mapping process. Topics include mandatory vs. optional KUs, overview of KUs, identification of necessary resources to begin mapping, mechanics of the mapping process, and the steps involved in entering the course materials into the NSA/DHS database and mapping them to KUs.

Monday afternoon 1:30pm – 4:30pm
Presenter:

Israel Aladejebi
Director, Cybersecurity, Virtualization and Forensics
Century College, Minnesota

Workshop Title: Analyzing malicious documents and memory forensics
Description: The rise of malicious documents (pdf, MS word) threaten computers and network users. Many enterprise security analysts struggle to fix or respond to this type of attack. Likewise, Memory forensics and the examination of volatile digital data has become a necessary step in any complete Windows forensic examination. The transformation of documents from static binary files with little potential for harm to macro and scripting enabled documents makes it easy for attackers to evade detection with little effort.

Monday afternoon 1:30pm – 4:30pm
Presenter:

Rick Watson
Faculty, VMWare IT Academy

Workshop Title: Cloud Computing 101: Bringing Security into the Cloud
Description: Every cyber security professional knows cloud computing is the new IT paradigm, but most don't understand it well. You must understand the cloud before you can secure it. This workshop examines concepts such as public cloud, private cloud, hybrid cloud, and community cloud. We sort through the alphabet soup of PaaS, SaaS, IaaS, DaaS, and explain the basic cloud concepts of multi-tenancy, snapshots, fenced networks, linked clones, and more. This workshop provides a great introduction to the virtualization concepts covered in Dr. Sand's Tuesday afternoon workshop. Attendees can perform cloud computing hands on labs during and after this workshop.

Monday afternoon 1:30pm – 4:30pm
Presenter:

Dr. Margaret Leary
Professor, Cybersecurity
Co-PI, National CyberWatch Center
Northern Virginia Community College, Virginia

Workshop Title: Collaborative Curriculum grant committee workshop.
Description: The committee will continue creating the common curriculum. [This workshop is by invitation only.]

Tuesday morning 9am - Noon
Presenter:

Robert Hamilton
Information Security Specialist
Oklahoma Department of Career Tech
ATE Center: Cyber Security Education Consortium (CSEC)

Workshop Title: Configuring an intrusion detection system for an industrial control system
Description: Learn how to configure a Security Onion Intrusion Detection System (IDS) to monitor an Industrial Control System (ICS) using common ICS protocols.

Tuesday morning 9am - Noon
Presenter:

Jo Portillo
Manager, (ISC)² Global Academic Program (GAP)
Clearwater, Florida

Workshop Title: Mapping the SSCP® certification to the NSA/DHS CAE IA KU's
Description: This presentation demonstrates how the (ISC)² SSCP® industry certification and Common Body of Knowledge (CBK) maps to the CAE IA Knowledge Unit's. Learn how to link into (ISC)² certifications and educational material to collaboratively meet the academic needs of the next generation of cyber security professionals. The SSCP® credential demonstrates competency in the following CBK domains: Access Controls, Cryptography, Malicious Code and Activity, Monitoring and Analysis, Networks and Communications, Risk, Response and Recovery, and Security Operations and Administration.

Tuesday morning 9am - Noon
Presenter:

Dr. Davina Pruitt-Mentle
Executive Director, Educational Technology Policy, Research and Outreach
Co-PI for K-12 Division, National CyberWatch Center
ATE Center: National CyberWatch Center

Workshop Title: Enhancing K-12 STEM Education through Cybersecurity
Description: Incorporating cybersecurity activities into core content, delivering after-school/summer programs, and developing presentations for a K-12 audience may seem daunting tasks. But you can do this! This hands-on session provides skills and strategies for meaningfully integrating cybersecurity topics and activities into the subject area with Common Core State Standards, prepares attendees to use CyberSTEM content and shares popular hands-on activities that can be used for a presentation or at a career booth.

Tuesday afternoon 1:00pm – 4:00pm
Presenter:

Kevin Vaccaro
Local Area Networks Faculty
Moraine Valley Community College, Illinois
ATE Center: National Center for Systems Security and Information Assurance (CSSIA)

Workshop Title: Network security scripting for cybersecurity programs
Description: This workshop provides a model course that meets the new NSA KU requirments to include programming and scripting in our curriculum. The workshop provides an introduction to scripting languages and examples of PERL, PYTHON and Ruby; how to create scripts that automate processes, perform batch operations and extract information; and how to identify script vulnerabilities. Topics include NASL Scripting, Nessus Scipting, writing SNORT alerts, building SQL injections and development of PERL scripting using WireShark to monitor script actions.

Tuesday afternoon 1:00pm – 4:00pm
Presenter:

Dr. John Sands
Co-PI, CSSIA, Moraine Valley Community College, Illinois
ATE Center: National Center for Systems Security and Information Assurance (CSSIA)

Workshop Title: New uses of virtualization in and out of the classroom for cybersecurity programs
Description: Our faculty have utilized a state of the art virtualization data center (VDC) that incorporates NETLAB+ and several other technologies for a wide variety of courses including: CCNA Discovery and Exploration, CCNA Security, CCNP, Certified Ethical Hacking, CISSP Review, IT Essentials (A+), Security Awareness, Security+, VMware (VCP), VoIP and Wireless Security. Virtualization learning technology enables our students around the clock to practice industry skills without impacting the classroom equipment and environment.

Tuesday afternoon (1:00pm – 4:00pm) through Wednesday (9:00am – 4:00pm) - Special Extended Workshop
Presenter:

Tim Yardley
Assistant Director, Testbed Services
Information Trust Institute, University of Illinois

Workshop Title: Security of Smart Grid Technology
Description: This day-and-a-half workshop provides an orientation to the resiliency of power grid systems as Smart Grid technologies are adopted. Smart Grid introduces extensive communications, networking, and control components at all levels of grid operation, from generation to consumer, intended to enable more efficient and reliable grid operation, integration of renewables, new markets, and customer choice. This technological revolution introduces complexities and challenges that must be understood to craft an effective national strategy to achieve the intended benefits of Smart Grid. The short course is suitable for participants with or without an engineering background.

Tuesday July 22, 1-4pm
• Introduction to Electric Power Grid Equipment
• Introduction to Communications and Networking for Utility Computing and Control
• Basics of Cybersecurity

Wednesday July 23, 9am-noon
• Power Grid Cyber Infrastructure Basics
• Trustworthy Wide-Area Monitoring and Situational Awareness
• Trustworthy Technologies for Advanced Metering Infrastructure

Wednesday July 23, 1-4pm
• Maturity Model and Trust Metrics/Assessment
• Smart Grid Systems and Privacy
• Q&A, and Summary

Concurrent Sessions – Descriptions

THEME: CLASSROOM INNOVATION

Monday 9:15 – 10:00 am
Lead presenter:
Dr. Kevin Floyd
Program Chair and Associate Professor
Middle Georgia State College, Georgia
Other presenters:
Mr. Johnathan Yerby
Lecturer, Information Technology
Middle Georgia State College
Affiliated NSF ATE center/project: Advanced Cyberforensics Education Consortium

Session title: Blended learning: A learner-centered model for cybersecurity and forensic courses

Session description: Blended learning combines face-to-face instruction with online activities, assignments, and projects. Advantages include convenience, flexibility, improved learning, improved student interaction, increased retention, reduced costs, and reduced seat time. This panel presentation introduces a learner-centered model for blended learning in cybersecurity and forensics courses, emphasizing the importance of the design that focuses on student learning.

Target audience: Instructors, Curriculum Designers

Monday 11:15am - Noon
Lead presenter:
Casey O'Brien, Director / Principal Investigator
National CyberWatch Center
Prince George's Community College, Maryland
Other presenters:
Dr. Portia Pusey
Director of Instructional Media
National CyberWatch Center

James Jones
Executive Director
Mid-Pacific Information and Communication Technologies (MPICT) Center
Affiliated NSF ATE center/project: National CyberWatch Center and MPICT

Session title: Learning and playing: Integrating competition experiences into formal curriculum

Session description: This panel presentation describes how the National Cyber League, capture-the-flag competition, was integrated into the teaching practice of faculty at one hundred twenty 2- and 4 year institutions in the fall of 2013.

Target audience: Faculty

Monday 1:45-2:30 pm
Lead presenter:
Dr. Myungjae Kwak
Middle Georgia State College, Georgia
Other presenters:
Mr. Johnathan Yerby
Instructor of Information Technology
Middle Georgia State College, Geirgia

Dr. Kevin Floyd
Program Chair
Middle Georgia State College, Georgia

Ms. Sarah Hollifield
Student
Middle Georgia State College, Georgia
Affiliated NSF ATE center/project: Advanced Cyberforensics Education Consortium (ACE)

Session title: Gamification for digital forensics: Serious games for teaching forensics processes and procedures

Session description: This panel session shows how to use related software tools to create serious games to teach digital forensics processes and procedures. Presenters discuss game design and development, gamification of learning, digital forensics processes and procedures, and demonstration of the game development and prototyping process.

Target audience: faculty, students

Tuesday 9:00-9:45 am
Presenter:
Dr. Margaret Leary
Professor, Cybersecurity
Northern Virginia Community College, Virginia
Affiliated NSF ATE center/project: National CyberWatch Center

Session title: CyberWatch in Second Life

Session description: CyberWatch created an island in the Second Life virtual world several years ago. Our Second Life Island is now used for faculty workshops, brown bag lunches, and courses – all unconstrained by location. This session presents the design, operation, and teaching/learning opportunities of virtual reality.

Target audience: Faculty and administrators of cybersecurity programs

Tuesday 1:45-2:30 pm
Presenter:
Justin Valentino
Local Area Networks Faculty
Moraine Valley Community College, Illinois
Affiliated NSF ATE center/project: National Center for Systems Security and Information Assurance (CSSIA)

Session title: Constructing an effective online course in cybersecurity

Session description: Fully online courses require a higher level of student assessment and engagement. This session presents a model online course taught in both synchronous and asynchronous modalities. The course consists of virtual labs, group activities, online assessments and a variety of course content elements. The author shares challenges, successes and best practices. Session topics include course layout and formats, assessment, content elements, communication tools and tips and marketing online classes.

Target audience: Instructors considering or currently teaching online technical courses

THEME: PROGRAM INNOVATION

Monday 9:15 – 10:00 am and continuing after 10am
Lead Presenter:
Dr. Vera Zdravkovich
Senior Advisor, National CyberWatch Center
Prince George's Community College, Maryland
Other presenters:
Dr. John Sands, CSSIA, Moraine Valley Community College, Illinois
Dr. Fred Klappenberger, National CyberWatch Center, Maryland
Denisha Jackson, National Security Agency, Maryland
Affiliated NSF ATE center/project: National CyberWatch Center; CSSIA

Session title: CAE2Y – why? what is involved? support?

Session description: Why should one apply for CAE2Y? Or, why should one invest in the effort to re-designate? What are the advantages of becoming a CAE2Y institution? What doors can possibly open as a result? What is involved in the CAE2Y application? What kind of support is available? These and other related questions are answered by the panel members.

Note: After the presentation, Denisha Jackson, Director of the CAE2Y Program for NSA, will stay to answer any individual questions about applying for the CAE2Y designation.

Target audience: Community college faculty and administrators

Monday 9:15 – 10:00 am
Presenter:
Marian Merritt
Director, Cyber Education and Online Safety Programs
Symantec Corporation

Session title: Symantec Cyber Career Connection: A New Pilot Program to Help Underserved Youth Enter Cybersecurity Jobs

Session description: This session provides an overview of a new workforce development program created to help underserved young adults gain the education, certifications, skills and training necessary to enter into cybersecurity roles. Three pilot locations in various US cities are planned in partnership with nonprofits and a community college.

Target audience: Cybersecurity program administrators and faculty

Monday 10:15 - 11:00 am
Lead presenter:
Rich Weeks
Network Development Group (NDG), Inc., North Carolina
Other presenter:
Randall Warning
Network Development Group (NDG), Inc., North Carolina

Session title: NDG - What is needed for core skills? A NETLAB+ round table discussion

Session description: Network Development Group, NDG, partners with vendor programs and grant consortium programs to provide lab libraries and courses to help academic institutions teach Information Communication Technology skills important for cybersecurity jobs. For example, NDG is releasing an introduction to Linux course this fall. NDG is interested in hearing your feedback: What courses, lab libraries and lab resources are needed to help your students succeed? Rich Weeks will provide a brief overview of courses and lab libraries planned for the fall. NDG will ask for your input on setting future priorities for lab libraries and courses.

Target audience: Cybersecurity faculty and academic program administrators

Monday 10:15 – 11:00 am
Presenter:
Noel Kyle
Cybersecurity Education & Awareness Branch (CE&A) Support
Department of Homeland Security

Session title: Achieving Cybersecurity Excellence Through Evolution of the Nation's Cyber Workforce

Session description: The National Cybersecurity Workforce Framework ("Workforce Framework") defines cybersecurity work, Specialty Areas, knowledge, skills, and abilities (KSAs), and categorizes job functions. It provides the necessary structure for organizations across sectors (e.g., academia, private industry) to develop the cybersecurity workforce. Educational institutions are designing their coursework and degree programs to align with the Workforce Framework. Students can use it to identify the cybersecurity skills they would like to develop and better prepare for their dream career. Come learn about the Workforce Framework and how it can help you and your organization!

Target audience: Cybersecurity faculty

Monday 11:15 am - Noon
Lead presenter:
Emily Coppa
Project Coordinator, Advanced Cyberforensics Education Consortium (ACE)
Daytona State College, Florida
Other presenters:
Kevin S. Floyd Ed.D.
Program Chair & Associate Professior
School of Information Technology
Middle Georgia State College, Georgia

Johnathan Yerby
Lecturer of Information Technology
Middle Georgia State College, Georgia

Patrick Vilkinofsky
Senior Technical Specialist, Advanced Cyberforensics Education Consortium (ACE), Florida
Affiliated NSF ATE center/project: Advanced Cyberforensics Education Consortium (ACE)

Session title: Engaging cyber students outside the classroom: Cyber camps, clubs and competitions

Session description: This session discusses various methods for students to explore cybersecurity outside of their studies. We explore the different types of student activities and how they can be used to motivate and engage students while pushing them forward towards further education and careers in cybersecurity. Presenters discuss the logistics behind creating cyber camps, clubs and competition teams. We discuss the motivation for creating these activities and lessons we've learned along the way.

Target audience: Computer science faculty, program managers, student services representatives

Monday 1:45-2:30 pm
Presenter:
Dr. Roger Powell
Associate Professor and Department Chairman
San Bernardino Valley College, California
Affiliated NSF ATE center/project: CyberWatch West (CWW)

Session title: Ultimate course alignment: CAE2Y KUs + ACM & state standards + articulated with universities and K12

Session description: See how one California Community College, starting from scratch, crafted a cyber security curriculum that covered all the bases. This sequence of courses covers the CAE2Y KUs, aligns with ACM and CAE standards, and articulates with a four-year University and a K12 school. The curriculum prepares students for multiple Industry certifications. The session provides detailed content, by course, showing all alignments and references to textbooks.

Target audience: Community college faculty who wish to have a streamlined curriculum that covers multiple standards

Monday 3:45-4:30 pm
Lead presenter:
Margaret Spivey
Director of Technology and Computer Studies
Hagerstown Community College, Maryland
Other presenters:
Stephen Shank, Professor
Hagerstown Community College, Maryland

Anthony Hanners, Cyber Recruiter
Hagerstown Community College, Maryland

Affiliated NSF ATE center/project: Pathways to Cybersecurity and Information Assurance Careers

Session title: Cybersecurity education doesn't always take place in the classroom

Session description: This panel presentation demonstrates how Hagerstown Community College incorporated three

major components, secondary, postsecondary and business/industry to develop a framework for an information assurance/cybersecurity curriculum and career pathway. By utilizing talent at our local DISA office and government contractors, we enhanced our credit and non-credit educational opportunities. Summer programs assisted faculty and students at many levels in achieving cybersecurity skills.

Target audience: Community college leaders and faculty

Monday 3:45-4:30 pm
Presenter:

Dr. Bob Spear
3CS Chair
Senior Advisor, National CyberWatch Center
Prince George's Community College, Maryland

Session title: Why cybersecurity now?

Session description: Your web-based tools, products, webpages, staff, and students are all open to cyberattack. What are you doing to keep safe? Does your ATE curriculum include any cybersecurity modules? Does your college teach cybersecurity? The five cybersecurity-related ATE centers can help. We have assisted all of the CAE2Y (Centers of Academic Excellence in Information Assurance 2-Year Education) schools obtain that designation from NSA/DHS, and we have helped dozens of other community colleges initiate or strengthen their cybersecurity programs. Come find out why and how.

Target audience: Academic administrators and faculty

Tuesday 9:00-9:45 am
Presenter:

Debra D. Bragg, PhD
Gutgsell Endowed Professor and Director,
Office of Community College Research and Leadership
Dept. of Education Policy, Organization and Leadership
University of Illinois at Urbana-Champaign

Session title: AB Degree Programs to Advance Technician Education and Employment

Session description: This session reports on an ATE-targeted research project that focuses on Applied Baccalaureate (AB) Degree programs to prepare bachelor's level technicians and technologies in STEM fields. The presentation will include results of the initial national survey of ATE projects and centers to identify AB degree programs planned and implemented across the country, and findings from six case studies of AB degree programs, including the study of programs of study affiliated with CyberWatch. The session will include Q&A about current and future developments pertaining to AB degrees in the United States.

Target audience: Academic administrators and faculty

Tuesday 9:00-9:45 am
Presenter:

Zoltan Szabo
Lead Faculty Digital Forensics / Information Assurance
Richland College of Dallas County Community College District (DCCCD), Texas

Session title: Applied research (no step-by-step) methodology development

Session description: Students' success and the quality of the cybersecurity workforce is based on adaptability and the level of problem solving methodology. In this field, problem solving is based on deep technical knowledge that is developed by challenges introduced throughout the curriculum. Methodologies developed during cognitive activities help long term success. This session will demonstrate the use of problem solving methodology for student assessment and reference model development.

Target audience: Instructors, curriculum developers, decision makers

Tuesday 11:00-11:45 am
Presenter:
Corrinne Sande
Director and Principal Investigator
CyberWatch West
Whatcom Community College, Washington
Affiliated NSF ATE center/project: CyberWatch West

Session title: Collaboration across vastly different boundaries in the two and four year space

Session description: Collaboration across multi-state systems and boundaries: CyberWatch West spans a geographical distance of approximately 1300 miles and includes member colleges from both two and four year institutions. These institutions are located in states with vastly differing higher education systems. This presentation will cover how we are able to work within and between these systems to advance cybersecurity education on the west coast.

Target audience: Program directors and faculty

Tuesday 11:00-11:45 am
Presenter:
Clinton Webb
ICS/SCADA Security Instructor
Central Technology Center, Oklahoma
Affiliated NSF ATE center/project: Cyber Security Education Consortium (CSEC)

Session title: ICS/SCADA cyber security: Protecting the critical infrastructure

Session description: The ICS/SCADA cyber security presentation is designed to give an overall look at the historical and current implementations of ICS/SCADA systems in critical infrastructure, and how cyber security principles can be applied to them. The presentation also covers what the current threats are to ICS/SCADA systems, covering real-world attacks on these systems. Finally, the presentation reviews the cyber security principles that can help in securing these systems.

Target audience: Anyone looking to implement a cybersecurity curriculum for critical infrastructure systems

Tuesday 1:45-2:30 pm
Presenter:
Dr. Margaret Leary
Professor, Cybersecurity
Northern Virginia Community College, Virginia

Affiliated NSF ATE center/project: National CyberWatch Center

Session title: Collaborative Curriculum grant: Mapping course objectives to the NICE Framework and to DHS KU's for CAE/CAE2Y designation

Session description: This session presents preliminary findings from National CyberWatch Center's Collaborative Curriculum grant. A national taskforce of 2-year and 4-year faculty have been mapping course objectives to the NICE Framework. Findings from a preliminary analysis of the data are presented, along with future efforts to build collaborative content using crowd-sourcing. Participants leave with a mapping of CompTIA's Security+ course objectives for the SYS-401 exam to the DHS Knowledge Units for CAE/CAE2Y designation.

Target audience: Faculty and administrators of cybersecurity programs

THEME: RESEARCH IN COMMUNITY COLLEGE CYBERSECURITY EDUCATION

Monday 11:15 am - Noon
Presenter:
John Sener
Sener Knowledge LLC, Maryland
Affiliated NSF ATE centers: National CyberWatch Center; CyberWatch West

Session title: Evaluation of ATE cybersecurity centers and projects: Lessons learned

Session description: This interactive, participatory session discusses how to use evaluation to help your cybersecurity education center or project document its accomplishments and gain maximum value from the evaluation process.

Target audience: Faculty and administrators involved in managing and evaluating ATE centers

Monday 1:45-2:30 pm
Facilitator:
Dr. Diana Burley
Co-PI for Cybersecurity Education Research, National CyberWatch Center
Associate Professor, George Washington University

Session title: Brainstorming new research ideas in community college cybersecurity education

Session description: Each faculty volunteer looking for research partners, participants, subjects, or sponsors presents his research proposal in a brief (2-3 minute) presentation. Afterward, each researcher hosts a roundtable discussion of those interested in pursuing that idea.

Target audience: Faculty interested in research opportunities or ideas

Monday 3:45-4:30 pm
Lead presenter:
Dr. David Tobey, Sr.
Visiting Assistant Professor
Judd Leighton School of Business and Economics
Indiana University South Bend, Indiana

Other presenters:

Casey O'Brien
Director & Principal Investigator
National CyberWatch Center

Dr. Portia Pusey
Director of Instructional Media
National CyberWatch Center

Affiliated NSF ATE center/project: National CyberWatch Center

Session title: A practice-based pedagogy for cybersecurity education

Session description: This panel presentation describes a holistic development method grounded in expertise research which shows practice is central for transferring knowledge into skill. A vignette is presented that demonstrates variations in levels of volatility, uncertainty, complexity and ambiguity to foster the creation of ability that is critical to the formation of adaptive expertise.

Target audience: Faculty and industry

Tuesday 11:00-11:45 am

Presenter:

Dr. Eric Wilkens
Faculty
Minnesota State Community and Technical College, Minnesota

Session title: Factors influencing the pursuit of IT certifications

Session description: In today's competitive job market, students can differentiate themselves from other recent college graduates by earning a vendor-specific or a vendor-neutral IT certification. Employers are again asking for potential employees to have earned an IT certification to reduce training costs and have an external verification of skills. This presentation reports the findings of a study that determined the factors influencing the pursuit of IT certification on Minnesota community and technical college students.

Target audience: Faculty

Tuesday 1:45-2:30 pm

Presenter:

Dr. Davina Pruitt-Mentle
Executive Director, Educational Technology Policy, Research and Outreach (ETPRO)
Co-PI for K-12 Division, National CyberWatch Center

Affiliated NSF ATE center/project: National CyberWatch Center

Session title: Key success factors of replicable cybersecurity pathway model

Session description: This presentation highlights key success factors of a comprehensive Cybersecurity Pathway model that engages and excites students about STEM careers with a particular emphasis on cybersecurity opportunities. The model includes components offered for elementary, middle and high school levels, both in and outside class, and as extension programs or through supplementary lessons infused into core content. Students can gain knowledge/skills/credentials and postsecondary credits with partnering higher education institutions. Includes current research results as the model is replicated in different regions of the U.S.

Target audience: Faculty, educators, outreach service representatives, curriculum developers

Tuesday 2:45-3:30 pm
Lead presenter:
Dr. David Tobey, Sr.
Visiting Assistant Professor
Judd Leighton School of Business and Economics
Indiana University South Bend, Indiana
Other presenters:
Dr. Portia Pusey
Director of Instructional Media
National CyberWatch Center
Affiliated NSF ATE center/project: National CyberWatch Center

Session title: Cyber defense competition design: A vignette-based method to improve cybersecurity talent management

Session description: This presentation describes the preliminary findings of a four-year study of mission critical cybersecurity competency assessment and development with implications for the design of cyber defense competitions.

Target audience: Faculty and industry

THEME: EVERYTHING!

Tuesday 2:45-3:30 pm
Facilitator:
Sheryl Hale
Co-PI of CSEC
Research Specialist, Oklahoma Department of Career and Technical Education

Session title: Birds of a Feather

Session description: Come join like-minded colleagues to discuss matters of common interest. Roundtables are designated for these topics: Curriculum – Forensics; Curriculum – Networking; Other Curriculum; Student Competitions; Other Extracurricular Activities; CAE/CAE2Y; Articulations; Career Pathways; and Any Topic Not Aforementioned!

Community College Cyber Summit Background

The first annual Community College Cyber Summit (3CS) is organized and produced by the 5 cybersecurity-related Advanced Technological Education (ATE) centers funded by the National Science Foundation (NSF). 3CS meets the perceived need for a national academic conference that focuses exclusively on cybersecurity education at the community college level. Faculty, administrators, and other stakeholders in community college cybersecurity education are invited and encouraged to attend.

Theme:

CELEBRATING SUCCESS: Community Colleges in Cybersecurity Education.

3CS's Association with HI-TEC and with the Colloquium

2014: 3CS will take place this year (and in all even-numbered years) in conjunction with the High Impact Technology Exchange Conference (HI-TEC). The association with HI-TEC allows us to focus on the role of cybersecurity in all technology fields, exemplified by the schools and programs of ATE Centers and Projects. The cybersecurity-related ATE centers will offer HI-TEC sessions intended to bring more of the ATE institutions into the cyber education arena.

2015: Next year (and in all odd-numbered years), 3CS will join the Colloquium for Information Systems Security Education (the Colloquium). The cybersecurity-related ATE centers will offer Colloquium sessions that emphasize the role of community colleges, including K-12 education, articulation from high-schools to community colleges to universities, and participation with universities in cybersecurity education research.

The Colloquium meets in June, and features a community college track. HI-TEC meets in July, and this year will feature a cybersecurity track. What makes the Community College Cyber Summit different? Why should someone attend? Why is this not just another typical academic conference? Here is why: In both even- and odd-numbered years, 3CS will focus on topics not typically addressed either at HI-TEC or at the Colloquium, including:

- advanced technical workshops for experienced community college faculty
- new techniques and strategies both within and outside the classroom that community college faculty and administrators can adopt to strengthen their existing cybersecurity education courses and programs
- new research on community college cybersecurity education
- vendor exhibits that emphasize cybersecurity education at the community college level

Outcome: A New Blueprint for Community College Cybersecurity Education

A principal outcome of the Community College Cyber Summit (3CS) will be the creation of a new blueprint for the rapid expansion and enhancement of cybersecurity education programs at community colleges throughout the United States. This blueprint will be distributed to all community colleges, key Federal agencies, Congressional committees, state boards of education, associations, and businesses. The blueprint will document how far community colleges have already come in cybersecurity education, as well as the path forward and the positive role each group of stakeholders can play to insure success.

Blueprint Discussions/My Notes

Three plenary sessions at 3CS are devoted to creating this new Blueprint for expanding the role of community colleges in cybersecurity education:

- The Original Blueprint in 2002: How far have we come since then?
- Brainstorming Session: Topics, themes, organization, questions
- The Way Forward / Creating the Blueprint: Lead roles, writing assignments, and schedule for completion

Blueprint Session 1: The Original Blueprint

The National Science Foundation and the American Association of Community Colleges jointly sponsored a conference in 2002 that addressed the role of community colleges in cybersecurity education. The final report from that conference, entitled Protecting Information: The Role of Community Colleges in Cybersecurity Education (http://elc.fhda.edu/project_documents/Cyberreport.pdf) included recommendations in five categories. To what extent have these five recommendations been achieved or implemented?

1. The Role of Certifications and Skill Standards

(My Notes) _____

_____

2. Establishing and Maintaining Cybersecurity Programs at Community Colleges

(My Notes) _____

_____

3. Topics, Courses, Curricula and Programs

(My Notes) _____

_____

4. Preparation for Cybersecurity Positions

(My Notes) _____

_____

5. Advancing the Role of Community Colleges in Cybersecurity Education

(My Notes) _____

_____

Blueprint Session 2: Brainstorming

TOPICS

- **Elements of Community College Cybersecurity Programs**
  - **a. Curriculum**

(My Notes) _____

_____

b. Competitions

(My Notes) _____

_____

c. Faculty Development

(My Notes) _____

_____

d. Student Development

(My Notes) _____

_____

e. K-12 Outreach

(My Notes) _____

_____

f. Research

(My Notes) _____

_____

g. Workforce Development

(My Notes) _____

_____

h. Infusing Cyber-skills across the curriculum

(My Notes) _____

_____

i. Safe computing practices within the institution

(My Notes) _____

_____

- **NICE Workforce Framework 2.0 and other national workforce schemes**

(My Notes) _____

_____

- **Industry certifications**

(My Notes) _____

_____

- **Other topics**
  - **a. _____**
  - **b. _____**
  - **c. _____**
  - **d. _____**
  - **e. _____**
  - **f. _____**

THEMES

(My Notes) _____

_____

ORGANIZATION

(My Notes) _____

_____

QUESTIONS

(My Notes) _____

_____

Blueprint Session 3: The Way Forward

(My Notes) _____

_____

My topic(s) _____

_____

Due dates

- First draft: Sept 1, 2014 or _____
- Comments on Second draft: October 1, 2014 or _____
- Comments on Entire Blueprint: November 1, 2014 or _____
- Target publication of Blueprint: December 1, 2014

Community College Cyber Summit

My Notes

Community College Cyber Summit

My Notes

My Notes

My Notes

Save the Date!

June 2015

Community College Cyber Summit

Las Vegas, Nevada

In Conjunction with CISSE

Hosted by the College of Southern Nevada