



CyberWatch Overview



Sponsored by the National
Science Foundation



CyberWatch Mission and Goals

CyberWatch is an Advanced Technological Education Center funded by the National Science Foundation and located at Prince George's Community College

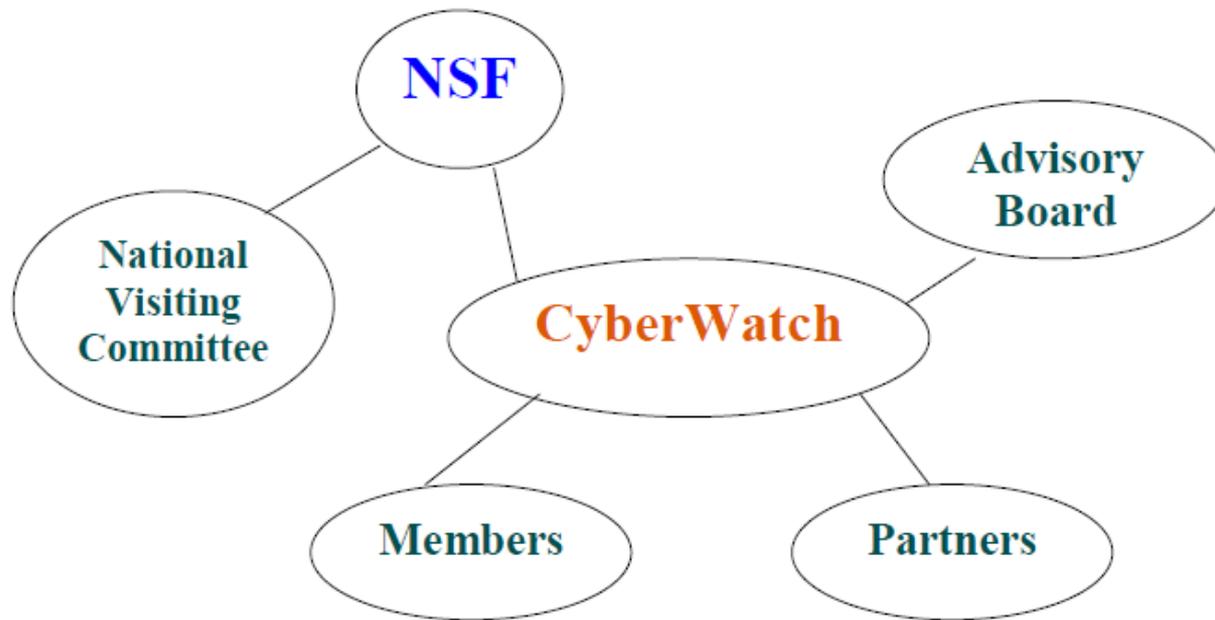
Mission: To improve the quality and quantity of the information assurance (IA) workforce

Goals:

- Curriculum Development (College Level)
- Faculty Development
- Student Development
- K-12 Pipeline
- Dissemination and Outreach

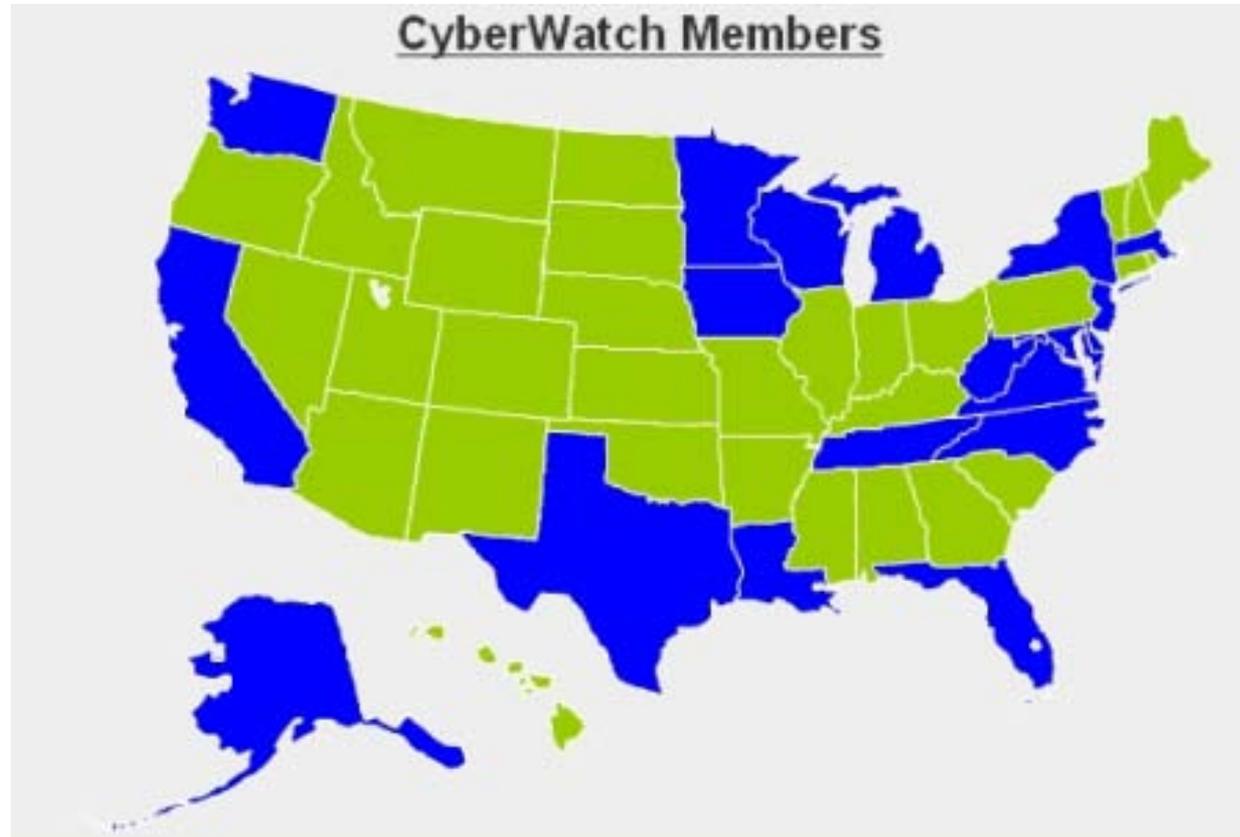


Organizational Structure





58 Members in 21 States + DC





Curriculum Development: IA Model AAS Degree

CyberWatch A.A.S. Information Assurance Degree - Windows Internet Explorer

http://cyberwatchcenter.org/index2.php?option=com_content&view=article&id=59&Itemid=139

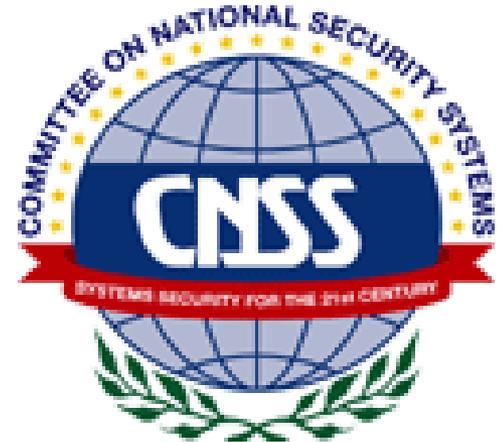
Credit Hours	FIRST YEAR		SECOND YEAR	
	Semester 1	Semester 2	Semester 3	Semester 4
:: Technical Courses :: 43 credits	:: CW 110 - Ethics and the Information Age :: 3 credits	:: CW 150 - Networking 1 :: 4 credits	:: CW 250 - Networking 3 :: 4 credits	:: CW 235 - Network Defense and Countermeasures :: 3 credits
:: English :: 6 credits	:: CW 120 - Introduction to Computers :: 3 credits	:: CW 151 - Networking 2 :: 4 credits	:: CW 251 - Networking 4 :: 4 credits	:: Biological/Physical Sciences :: 3-4 credits
:: Mathematics :: 3-4 credits	:: CW 130 - Microcomputer Operating Systems :: 3 credits	:: CW 160 - Security+ :: 3 credits	:: CW 225 - Hardening the Infrastructure :: 3 credits	:: Social/Behavioral Sciences :: 3 credits
:: Arts and Humanities :: 3 credits	:: English: Composition 1 :: 3 credits	:: English: Composition 2 :: 3 credits	:: Technical Elective #1 :: 3 credits	:: Technical Elective #2 :: 3 credits
:: Health/Fitness/Wellness :: 3 credits	:: Mathematics :: 3-4 credits	:: CW 230 - Microsoft Windows Server 2003 :: 3 credits	:: Health/Fitness/Wellness :: 3 credits	:: CW 270 - Capstone :: 3 credits
:: Social/Behavioral Sciences :: 3 credits				
:: Biological/Physical Sciences :: 3-4 credits				
64-66 credits	15-16 credits	17 credits	17 credits	15-16 credits

Internet 100%



Curriculum Development (cont.)

- ▶ Model Degree and Certificate Programs
- ▶ Model courses and course modules
- ▶ Articulations
- ▶ Mapping to CNSS standards
- ▶ Support for the new CAE2Y Program
- ▶ Online courses; QM rubric
- ▶ Virtual Lab 2.0





Virtual Labs

- ▶ Virtual Lab –
Montgomery College
- ▶ Digital Forensics Lab
– University of Maryland
- ▶ CyberWatch
Underground – Bowie
State University





Digital Media Forensics Lab

A screenshot of a Windows Internet Explorer browser window displaying the website for the Digital Media Forensics Lab at the University of Maryland, College Park. The browser's address bar shows the URL 'http://dfi.umd.edu/case-studies/'. The website has a black background with white text. The main heading is 'DIGITAL MEDIA FORENSICS LAB' in large, bold, white letters. Below it, the text reads 'University of Maryland, College Park'. On the left side, there is a 'NAVIGATION' menu with links for 'Home', 'Case Studies', 'Virtual Lab', 'Press', 'Links', 'About Us', and 'Login'. Below the navigation menu is a section for 'OUR PARTNERS' which includes the CyberWatch logo and the University of Maryland logo. The main content area on the right features a section titled 'AGRIPPA' with a paragraph of text and an MD5 hash value. The browser's taskbar at the bottom shows several open applications and the system clock indicating 12:55 PM on 12/25/07.

DFI @ UMD - Case Studies - Windows Internet Explorer

http://dfi.umd.edu/case-studies/

DIGITAL MEDIA FORENSICS LAB

University of Maryland, College Park

NAVIGATION

- Home
- Case Studies**
- Virtual Lab
- Press
- Links
- About Us
- Login

OUR PARTNERS

Listed below are case studies. Each comes with it's own explanation, a link to the the image file, and an MD5 sum associated w
been analyzed and are presented with the supporting information. Some are presented as interesting images which have not yet

AGRIPPA

For background on Agrippa, please see [this link](#). (From that page:) "Agrippa (a book of the dead) appeared in 1992 as a collabor
Dennis Ashbaugh, author William Gibson, and publisher Kevin Begos, Jr." It was both literary and performance art, designed to b
computer, after which it would encrypt itself never to run again.

This past summer, Matt Kirschenbaum at the Maryland Institute for Technology in the Humanities (MITH) approached the DFL for
an obsolete floppy disk format (Apple's 800k floppy). With the help of some very old laptops and linux, we were able to image the
examining the image that this copy had been run and was therefore encrypted. There are still some interesting tidbits in the imag
look.

[Agrippa image file](#)

MD5 = ab678db631246ec2d758ab2f51b1a6f6

Faculty Development



- ▶ Workshops/Institutes /Conferences, e.g.:
 - Certified Ethical Hacking
 - Secure Programming
 - CISSP Training
- ▶ [Second Life Island](#) for faculty training
- ▶ Faculty Graduate Program



CyberWatch Second Life Island





Student Development

- ▶ Internships, Scholarships, Career Placements

- ▶ Student Competitions:
 - [Mid-Atlantic Regional Collegiate Cyber Defense Competition \(CCDC\)](#)
 - [Digital Forensics Challenge](#)
 - [Security Awareness Poster/Video Contest](#)
 - New competition for CCs
 - US CyberChallenge

6TH CYBERWATCH MID-ATLANTIC COLLEGIATE CYBER DEFENSE COMPETITION

COLLEGIATE CYBER DEFENSE COMPETITION

CYBERWATCH MID-ATLANTIC REGIONAL **CCDC**

March 10 - 12 - 2011
Smart Grid Technologies



Recent News

Sep.7 Cyber Competition Pits Hackers Against Computer Networks at Hopkins APL/CyberWatch Competition

Jun.23 Wanted: Young Cyberexperts to Defend Internet

Jun.3 CCDC and the Tale of the Insider Threat

TEAM REGISTRATION



The CyberWatch Mid-Atlantic CCDC is open to all two- and four-year undergraduate and graduate students in Delaware, Maryland, North Carolina, Pennsylvania, Virginia, and Washington, D.C. Team registrations start October 10, 2010 and are due by December 10, 2010 (by 5 PM EST).

AGENDA

The Mid-Atlantic CCDC runs for three full days. Check out the activities here.

Past Organizers, Sponsors and Contributors







Digital Forensics Challenge

The screenshot shows the DC3 Challenge 2010 website. The browser window title is "DC3 Challenge 2010 | Home - Windows Internet Explorer". The address bar shows "http://www.dc3.mil/challenge2010/index.php". The website has a dark red and black theme with a background of binary code. At the top, it features the DC3 logo and the text "DIGITAL FORENSICS CHALLENGE". Below the logo is a navigation menu with links: Home | News | Press | Challenge | About | Contact | Apply Now. The main content area is divided into several sections:

- News:** A section titled "Updates to 2010 Challenge Rules v1.4" dated 08-31-2010. The text states: "With the increasing number of individual Challenge submissions by teams, we have updated the [rules for the 2010 Challenge](#). This now allows teams to upload either individual Challenge submissions over time or to continue submitting all of their challenges as one submission packet like previous years. After September 15th, any uploads will be considered final and no revisions allowed." There is a "More Info ->" link below the text.
- APPLY NOW:** A prominent red button with white text.
- Sponsors:** Logos for the U.S. Cyber Center, SANS, EC-Council, Johns Hopkins Carey Business School, and IMPACT.
- U.S. Cyber Challenge Multimedia:** A list of links to multimedia content:
 - 2010 DoD Cyber Crime Conference Opening Video (DC3.mil)
 - Netwars: Hotshot hackers compete (CNN.com)
 - Armed with Science - Episode #47: DC3 Digital Forensics Challenge (PentagonChannel.mil)
 - Governments Battle to Stay Ahead of Threats on Internet, 'The Great Leveler' (PBS)
- Important Dates:** A list of key dates:
 - 2009-12-15: Registration Opens
 - 2010-11-01: Registration Closes
 - 2010-11-02: Solutions Due
 - 2010-12-01: Winners Announced

At the bottom of the page, there is a footer that reads: "The DC3 Digital Forensics Challenge is a proud sponsor of the U.S. Cyber Challenge, Cyber Security Challenge UK and Challenge.gov". The Windows taskbar at the bottom shows the Start button and several open applications, including "Document...", "TOPICS F...", "NICE TRA...", "C:\Docume...", "Untitled - ...", "Welcome...", "CyberWat...", "CyberWat...", "PowerPoint...", and "DC3 Challe...". The system tray shows the time as 10:39 AM.



Security Awareness Contest

The screenshot shows a web browser window with the URL <http://www.educause.edu/SecurityVideoContest2011>. The page title is "Information Security Awareness Poster & Video Contest 2011".

Cybersecurity Initiative

- Annual Security Video Contest
- Security Video Contest 2011**
- Security Video Contest 2009
- Security Video Contest 2007
- Security Video Contest 2006

Information Security Awareness Poster & Video Contest 2011

NOTICE **Deadline for submission: March 11, 2011.**

Please help us promote this contest to your institution's faculty and students. Select the "Help Us Promote" tab below for web banner ads, flyers, how-to documents, and other materials.

Questions or comments? [Contact us.](#)

Win cash, gain experience, and earn recognition with a poster or one short video!

The EDUCAUSE & Internet2 Higher Education Information Security Council ([HEISC](#)) is conducting its fourth contest in search of posters and short information security awareness videos developed by college students, for college students. The contest is sponsored by [CyberWatch](#), the National Cyber Security Alliance ([NCSA](#)), and [Chapman University](#). Winners will receive cash prizes. The posters and videos will be featured on the [EDUCAUSE website](#) and may be used in campus security awareness campaigns. Winners will be notified in late April 2011.

Contest sponsored by:

Entry Requirements | [Suggested Topics](#) | [Judging](#) | [Prizes](#) | [Submit Your Entry](#) | [Help Us Promote](#) | [Blog](#) | [Contact Us](#)

Posters and videos must explain information security problems and specific actions college and university students can take to safeguard their computers, mobile devices, or personal information. Two categories of videos are being sought: videos of two minutes or less for use in training or instruction, and 30-second public service announcements (PSAs). Posters should be submitted separately.



Security Awareness Contest





Towards the National Cybersecurity Center

- ▶ CAE2Y program support, mentoring
- ▶ CyberWatch membership expansion
- ▶ CSSIA transition
- ▶ NIST–NICE role
- ▶ New ATE Centers and Projects: CyberWatch West, SECURE IT, CCX, new project proposals in New York, Louisiana, & Texas



<http://cyberwatchcenter.org>

A screenshot of the CyberWatch website displayed in a Mozilla Firefox browser window. The browser's address bar shows the URL 'http://cyberwatchcenter.org/'. The website has a blue header with the CyberWatch logo and a navigation menu with links for 'ABOUT CYBERWATCH', 'CONTACT US', 'MY CYBERWATCH', and 'SEARCH'. Below the header, there are several sections: 'Website Statistics' with links to 'Instructions for Author Access to Google Analytics' and 'View Website Stats from Google Analytics'; 'Main Menu' with links for 'Home', 'Centers of Academic Excellence for Community Colleges (CAEZY)', 'College Curriculum', 'K-12 Program', 'Faculty', and 'Students'; 'Info Assurance News' with links for 'Instructions for Authors', 'Announcements', 'Submit Announcement', 'News Articles', 'Submit News Article', 'Newsfeeds', 'Scheduled Events', and 'Newsletters (Archive)'; and 'Polls' with the question 'Our greatest security threat is' and a radio button for 'military attack'. A central banner features a graphic with the text 'ZOMBIE COMPUTERS!' and 'SOMEONE'S USING YOUR COMPUTER...AND IT'S NOT'. The Windows taskbar at the bottom shows several open applications and the system clock at 10:44 AM.

CyberWatch K-12 Division



Davina Pruitt-Mentle, PhD



Sponsored by the National
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K-12 Programs

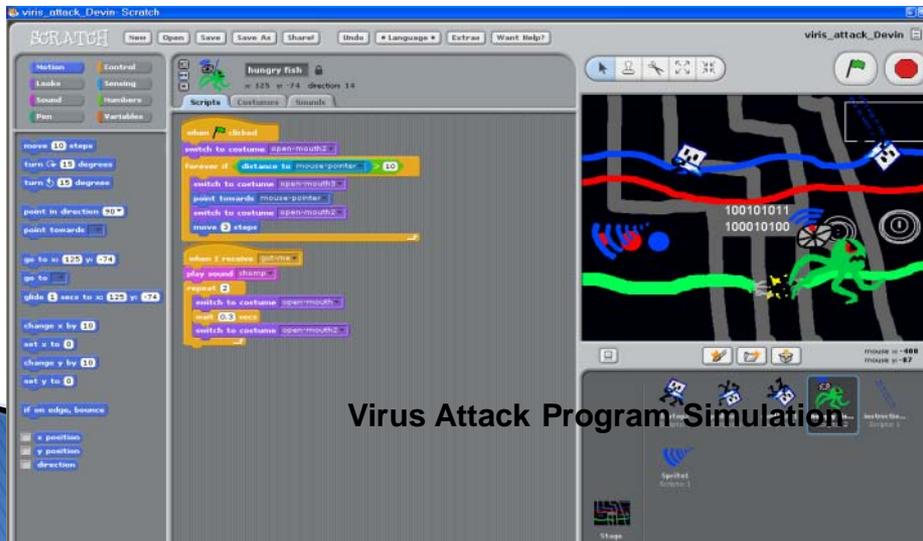


- ▶ **K-12 Division Goals include increasing:**
 - The IA workforce pipeline
 - Community awareness of IA workforce
 - Community awareness of C3-Cyberethics, Safety and Security, and
 - Security of K-12 IT systems



K-12 Program

- Informal after school programs
 - Mindtools (4-5)
 - JR. CyberwarriorProgram (6-8)
- Summer Cyberwarrior high school programs



Virus Attack Program Simulation

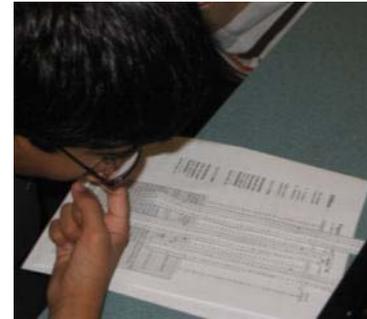
Formal Lesson Plans
High School Clubs
4H
Girl Scouts



CW K12 Modules

5 Content Modules

- *Computational Logic/Programming—Scripting*
 - *Cryptography*
 - *Digital Ethics, Safety and Security*
 - *System Vulnerabilities*
 - *Digital Forensics*
- Grade bands 4–5, 6–8 and 9–12
 - Tied to national and state standards and partnering school system math, science & technology curriculum, students engage in hands-on STEM activities and improve digital literacy skills while learning and applying concepts through gaming, modeling and simulation development.
 - Speakers and field trips
 - The central focus is the field of IA, but supported by the too often neglected topics of citizen awareness of Cyberethics, safety and security.





K-12 Program

Annual Careers in IA/IS Guidance Counselors Workshop



Cool Careers in Cybersecurity for Girls

Educational Technology Policy, Research, and Outreach
8th Annual Cyberethics, Cybersecurity, and Cybersecurity Conference
 October 1-2, 2009
 UMD Campus Directions and Parking

Home Agendas Workshop Sponsors Hotel & Travel FAO's Press Awards Register

Sponsorship and Exhibitor Opportunities

- Connect with state and local school system decision makers
- Be recognized in the online and print conference program
- Share your organization's unique C3® initiatives

2009 C3® Conference a Success. Thanks for Attending.

Certificate of Participation Online Conference Evaluation Due Dec 7, 2009 Content Evaluation Due Dec 7, 2009

2010 C3® Conference Information

Call for 2010 Presenters - Due May 10, 2010
 Call for Nominations: C3 Award of Excellence (Public) - Due June 4, 2010
 2010 Grant Applications (Public) - Due December 7, 2009

- C3® Framework
- C3® Matrix

2009 Speakers

- Lyn Allen, Web Wise Kids
- Jay Baresbach, Maryland State Department of Education
- Mala Bauer, CyberSmart! Education
- Frank Gallagher, Cable in the Classroom
- Ronnie S. Greenberg, Project Safe Childhood Coordinator
- Tochi Hallers, Common Sense Media

October 1-2, 2009 • University of Maryland Campus

The core mission of the C3® Conference is to inform the educational community about the ethical, legal, safety, and security implications of technology use and illustrate how educators and parents can apply these concepts to their own setting. Tutorial sessions include practical applications that can be immediately applied to your home or classroom setting.

Participants will hear from state and local educators, law enforcement, internet safety/security curriculum providers and researchers, and policy makers on a broad range of topics to include: current and pending legislation, educational initiatives available, the latest "hot topics" to include cyberbullying, identity theft and sexting, internet safety provider updates, online reputation management, newly released online interactive simulations and games that promote responsible online behavior.

Cybersecurity
The Forgotten Element



Digital Footprints:
Online Identity Management
 2009 Fall STEM Coordinators Meeting

Davina Pruitt-Mentle, Ph.D.
 Director
 Ed Tech Policy, Research and Outreach

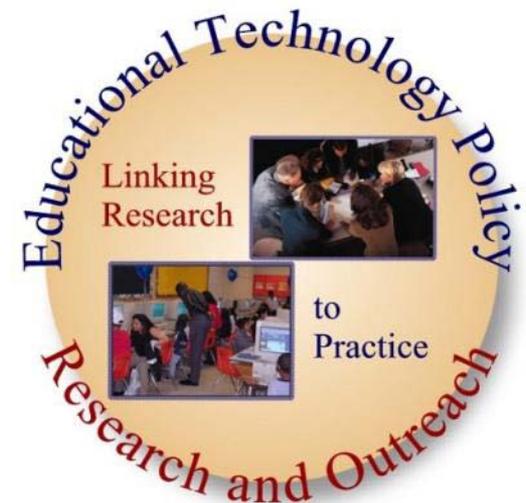
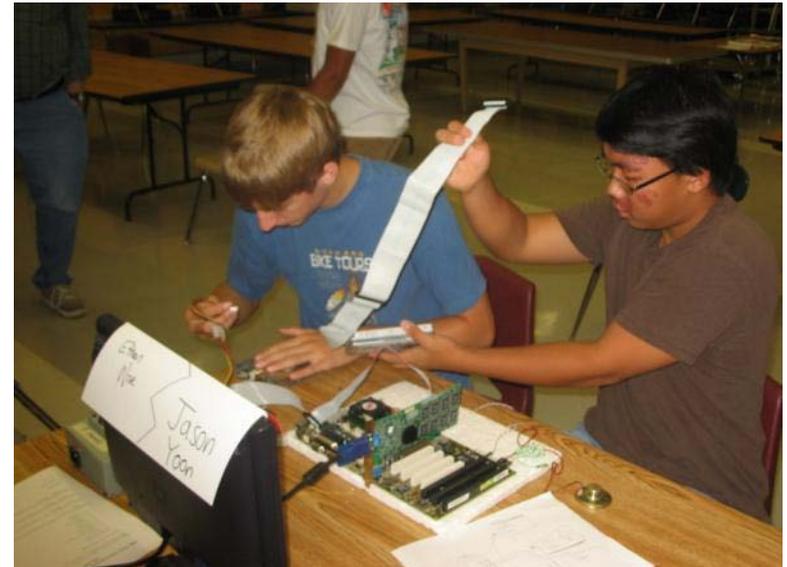
Annual C3 Conference

PD Opportunities and Speaking Topics



K-12 Pipeline

- ▶ **Cyberethics, Cybersafety and Cybersecurity (C3) Conference**
- ▶ **Cool Careers in Cybersecurity for Girls Conference**
- ▶ **Careers in IS/IA and Digital Forensics for Guidance Counselors Workshop**
- ▶ **After School Elementary and Middle School**
- ▶ **High School Summer Programs**
- ▶ **CW K12 Content**
- ▶ **Clubs**





What's Missing

High School → 2 Year → 4 Year



High School Information Assurance Track

- ▶ CW 110 Computer Ethics (can also make use of Simulation Case studies via NSF grant)
- ▶ CW 130 Understanding Operating Systems
- ▶ **CW 160 Computer Security, Security+**
- ▶ CW 150/151 Networking—w/ some existing track course (Cisco 1 & 2)

- ▶ Other ideas
- ▶ CW 230 Windows
- ▶ **CW 235 Network Defense and Countermeasures**

Foundation needed for:

CompTIA's Security +

Cisco CCNA Preparation certificate

Apply credits IA A.A.S. degree

CISSP Prep Exam

WIRESHARK Certified network Analyst

CCENT Cert



SECURE IT:

Strategies to Encourage Careers in Cybersecurity and IT

Elementary MINDTOOLS	Formal: Individual Classroom Activities	JR. FIRST Lego League FIRST Lego League (FLL) <u>eCYBERMISSION</u>
	Formal: Extension Units	
	Informal: After School Program	
Middle JR CYBERWARRIORS	Formal: Individual Classroom Activities	FIRST Lego League (FLL) <u>eCYBERMISSION</u> Am Comp Sc League
	Formal: Extension Units	
	Informal: After School Program	
High CYBERWARRIOR	Informal: After School Cyber Clubs & Summer Program	FIRST Tech Challenge FIRST Robotics Am Comp Sc League Image Cup High School CCC Patriots <u>US CyberChallenge</u> Forensics Cup DHS PSA NACLO ILO STS ISEF
	CTE : IA Track	
Other Activities		Parent Awareness
Cool Careers in CyberSecurity for Girls Event		Community Awareness
<u>C3: CyberEthics, Safety & Security Conference</u>		Teacher Training
Careers in IS/IA and Digital Forensics for Guidance		K12 C3 Awareness Contest
Counselors Workshop		Cybersecurity Olympiad
		C3 Awareness grants

2 Year Program

↓

4 Year Program +



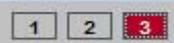
Expanding Knowledge in Cyber awareness and Careers in Cybersecurity

OUR PROGRAMS [→](#)

Summer High School CyberWarrior Courses in Full Swing

WHAT'S NEW

- **9th Annual C3 : Cyberethics, Cybersafety and Cybersecurity Conference.** October 7-8th , 2010
- **CW launches Phase II of SECURE IT Program**
- **Cybersecurity workshop for Girls Summit - National Electronics Museum**
- **Careers in IA/IS Digital Investigation for Guidance Counselors - September 30th**



PROGRAMS

We have a wide range of programs, content and activities for formal and informal settings. The central focus is IA content, but it is supported by the too often neglected topics of citizen awareness of ethics, safety and



WORKFORCE AWARENESS

C3 conference Annual GC Workshop Professional Development Speaker Sessions/Topics [More](#) [→](#)



C3 AWARENESS

C3 conference Professional Development Speaker Sessions/Topics [More](#) [→](#)



K12 IT SYSTEMS

Workshops are conducted at partner institutions on a variety of topics determined by our annual needs assessment survey. [More](#) [→](#)



New Efforts in 2011

- ▶ **HS Networking Security Competition**
- ▶ **Mid-Atlantic CCDC High School Activities: March 10-12, 2011**
 - High school shadowing and activities for HS students
- ▶ **MD US Cyber Challenge:**
MD July 11-15 and July 18-22
 - MD HS students AND teachers
 - 4 full days of instruction followed by capture the flag exercise
- ▶ **2011 Summer Cybersecurity Pathways PD**
 - For teachers teaching CTE track
 - VMware & CCNA
- ▶ **C3 Schools Initiative (Cyber Schools)**
- ▶ **CyberMaryland**
- ▶ **C3 Student/Educator Newsletter**
- ▶ **Journal of Cyberethics, Safety and Security Education**



Thank You!

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