

UTCS CyberSecurity

Educating Cyber Professionals

Dr. Bill Young
Department of Computer Sciences
University of Texas at Austin

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U.S. Not Ready for Cyberwar Hostile Attackers Could Launch, The Daily Beast, 2/21/13

The Chinese reportedly have been hacking into U.S. infrastructure, and Leon Panetta says future attacks could plunge the U.S. into chaos. We're not prepared. If the nightmare scenario becomes suddenly real ... If hackers shut down much of the electrical grid and the rest of the critical infrastructure goes with it ...



If we are plunged into chaos and suffer more physical destruction than 50 monster hurricanes and economic damage that dwarfs the Great Depression ... Then we will wonder why we failed to guard against what outgoing Defense Secretary Leon Panetta has termed a “cyber-Pearl Harbor.”

Cyberwarfare greater threat to US than terrorism, say security experts, Al Jazeera America, 1/7/14



Cyberwarfare is the greatest threat facing the United States — outstripping even terrorism — according to defense, military, and national security leaders in a Defense News poll.

45 percent of the 352 industry leaders polled said cyberwarfare is the gravest danger to the U.S., underlining the government's shift in priority—and resources—toward the burgeoning digital arena of warfare.

The U.S. at Risk?

Experts believe that U.S. is perhaps particularly vulnerable to cyberattack compared to many other countries.

- The U.S. is highly dependent on technology.
- Sophisticated attack tools are easy to come by.
- A lot of critical information is available on-line.
- Critical infrastructure may be accessible remotely.
- Other nations exercise more control over information and resources.



The U.S. Government Takes this Seriously

“The Pentagon has concluded that computer sabotage coming from another country can constitute an act of war, a finding that for the first time opens the door for the U.S. to respond using traditional military force.” (Wall Street Journal, 5/31/11)



“The Pentagon will expand its cyber security force from 900 personnel to a massive 4,900 troops and civilians over the next few years following numerous concerns over the dangerously vulnerable state of their defenses, according to US officials.” (rt.com, 1/18/13)

What UT is Doing

As part of the U.S. push to enhance cyber defenses, UT and other major universities are ramping up programs to train cyber professionals.



- UTCS houses the *Center for Information Assurance and Security*, with around 12 affiliated faculty members.
- UT Austin is designated (May 2013) by NSA and DHS as a *National Center of Academic Excellence in Information Assurance Research*.
- UTCS offers a certificate in Information Security, sanctioned by the U.S. government.
- UTCS (January, 2014) offers NSF *Scholarships for Service*, designed to equip students as security professionals and promote public service.

UTCS Security Certification

In an attempt to educate security professionals, the Committee on National Security Systems (CNSS), through U.S. universities and companies, offers security training and certification.

UT is authorized to confer CNSS 4011 certification: *Information Systems Security (INFOSEC) Professional*.

This establishes general competence in the areas of computer and network security.



Goals of the Certification

- Educate students in security-related disciplines
- Provide exposure to key responsibilities regarding security oversight or management of security systems
- Enable students to recognize threats and vulnerabilities of information systems and gain working knowledge of INFOSEC principles and practices
- Develop skill/ability to design, execute, evaluate INFOSEC security procedures and practices



Certification: Classes Required

Certification requires completing the following six courses.

- CS429: Computer Systems I
- CS439: Computer Systems II
- CS356: Computer Networks
- CS361: Intro to Computer Security
- CS361S: Network Security and Privacy
- CS361C: Information Assurance and Security*



* This requirement may change in the near term.

What's In It for the Student?

Security is one of the hottest and most intellectually stimulating specializations within computer science.



The student gains the following benefits:

- Understands this vital and challenging material
- Gains a competitive advantage in the workplace
- Becomes a more valuable employee
- Potentially earns higher starting salary
- Provides a national service

Currently, over 100 CS majors are pursuing the Certification.

Scholarships for Service

Our NSF grant supports students seeking a career in information assurance and security.

- Participants are undergraduates or five-year masters students.
- Receive two years of generous financial support (or three if in five-year masters).
- Complete InfoSec Certificate in Information Security.
- Receive extensive mentoring from the UTCS security faculty.
- Participate in security-related summer internships.
- Become part of a “cohort” of student security scholars.

In return, students commit to professional employment with a government agency in security-related service, of duration equal to the period of support.

Program Goals



- Prepare the student with the academic knowledge to be a successful cybersecurity professional.
 - Provide the student with career development skills to be a professional public servant.
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- Increase student involvement in cybersecurity research.
 - Place all program participants in summer internships.
 - Upon graduation, place participants in full-time positions in information assurance within government agencies.

Eligibility for the Program

Each participant in the program must:

- be a UT CS major (students may apply when CS Entry Level, but must be official CS majors to begin the program);
- have a minimum UT GPA of 3.2
- be a United States citizen;
- meet the criteria for employment with the U.S. Federal Government;
- be able to receive a U.S. Federal Government security clearance.



Required Activities

- Participate in an annual kick-off event;
- Be paired with a UTCS faculty member;
- Formulate personal goals for academic and career development and report progress monthly;
- Join a research team;
- Present research at a university forum;
- Attend research presentations in the UT CIAS lecture series;
- Participate in Security Day;
- Attend a site visit at a Texas agency;
- Attend on-campus and national career fairs;
- Mentor incoming students.



UTCS Committed to Cybersecurity

As one of the top 10 CS departments in the nation, UTCS is committed to enhancing the cybersecurity of the nation.

- Through world-class, cutting edge security research.
- By educating the next generation of cybersecurity professionals.
- By encouraging government service.

What starts here changes the world!

