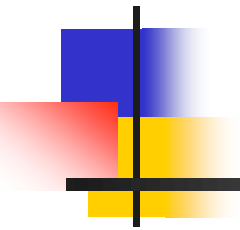

CSE 465
Information Assurance

Professor Stephen S. Yau

Spring, 2017

IA Courses

- *CSE465 Information Assurance
- CSE466 Computer Systems Security
- CSE467 Data and Information Security
- CSE468 Computer Network Security
- CSE469 Computer and Network Forensics
- CSE539 Applied Cryptography
- *CSE543 Information Assurance and Security
- CSE545 Software Security
- CSE548 Advanced Computer Network Security

* Only one of these two courses.

CSE 465 Course Description

- A ***core course*** of our IA Concentration Programs at undergraduate level.
- Objective:
  - Provide students with basic and comprehensive understanding of the problems of information assurance and the solutions to secure information on computers and networks.
  - Focus on IA technology as well as IA policy and management aspects

CSE 465 Major Topics

A. Basic Concepts and Techniques:

- IA overview: concepts, trends, and challenges
- Security principles and guidelines
- Security strategies
- Physical and personal security
- Privacy
- Cryptography and steganography
- Authentication protocols and access control mechanisms
- Malware
- Information assurance in service-based, cloud and IoT environments

CSE 465 Major Topics (cont.)

B. IA Policy, Management, Legal and Ethical Issues:

- IA policies
- Administrative security controls
- Contingency and disaster recovery planning
- IA certification & accreditation
- IA risk analysis and management
- Legal and ethical issues associated with IA

CSE 465 Evaluation

- Two exams (60%)
  - Mid-term (25%)
  - Final (35%)
- One lab (or homework) assignment (5%)
- One Group Course Project (35%)
  - Each student will be assigned to a group to conduct a group course project in some concepts of IA.
- Prerequisite

  CIS 300 or CSE 310 or IEE 305.

Course Information (cont.)

- **Instructor:** Professor Stephen S. Yau
  - E-mail: yau@asu.edu
  - Office: BYENG Room 488
  - Office hours: MW 4:30 p.m. to 5:30 p.m. (also by appointment)
- **Teaching Assistant**: Mr. Ramu Ponneganti
  - E-mail: rponnega@asu.edu
  - Office: BYENG 468AA
  - Office hours: MW 4:30 p.m. to 5:30 p.m. (also by appointment)

Course Website

- ASU Blackboard will be used for posting lecture notes, lab assignment, project description, grades as well as other relevant information, such as instructor's feedback.

Reading Materials

- M. E. Whitman and H. J. Mattord , Principles of Information Security, 5th edition, Thomson Course Technology, November 2014
- Current literature

National IA Program

- The **National Centers of Academic Excellence in Information Assurance Education (CAE IA/CD)** and the **National Centers of Academic Excellence in Information Assurance Research (CAE-R)** Programs are outreach programs designed and operated initially by the National Security Agency (NSA) in the spirit of Presidential Decision Directive 63, National Policy on Critical Infrastructure Protection, May 1998.
  - The program is now jointly sponsored by the NSA and the Department of Homeland Security (DHS) in support of the President's National Strategy to Secure Cyberspace, 2003.
  - The goal of the program is to reduce vulnerability in our national information infrastructure by promoting higher education in information assurance (IA), and producing a growing number of professionals with IA expertise in various disciplines.

- ASU has been certified as **both CAE IA/CD and CAE-R**

Information Assurance Center (cont.)

- The IA Center was designated by National Security Agency and Department of Homeland Security
  - As a ***National Center of Academic Excellence in Information Assurance Education (CAEIAE)*** since 2007 and re-designated as a ***National Center of Academic Excellence in Information Assurance Education/Cyber Defense (CAE IA/CD***) under the new criterion in 2015 with five focus areas
    - ***Data Management Systems Security***
    - ***Digital Forensics***
    - ***Network Security Engineering***
    - ***Secure Cloud Computing***
    - ***Secure Software Development***
  - As a ***CAE-Research*** since 2009, and re-designated under the new criterion since 2014

CAE IA/CD Program

- In order to be designated as a CAE IA/CD (Center of Academic Excellence in Information Assurance/Cyber Defense), each applicant must demonstrate its commitment to and capability for academic excellence in IA education.
  - Prerequisite: IA courseware must satisfy the ***CAE IA/CD 4Y Knowledge Unit criteria***.
  - Satisfy the following:
    - Partnerships in IA Education
    - IA Treated as a multidisciplinary science
    - University encourages the practice of IA
    - Academic program encourages research in IA
    - IA curriculum reaches beyond geographic borders
    - Faculty active in IA practice and research, and contribute to IA literature
    - State-of-the-art IA resources
    - Declared IA Concentrations
    - Declared Center for IA education or research
    - Full-time IA faculty

CAE-R Criteria

1. Engagement in serving on technical program committees of IA conferences, editing IA journals, hosting IA conferences and IA workshops, and collaborating with or assisting local government, business, and industry.
2. Producing students' thesis, dissertations, or projects, related to IA.
3. Strong peer-reviewed publications in IA by faculty and students
4. History of research funding related to IA

Benefits from CAE IA/CD or CAE-R Programs

- Formal recognition from the U.S. government, as well as opportunities for prestige and publicity, for their role in securing our nation's information systems.
- Students attending CAE IA/CD or CAE-R schools are eligible to apply for scholarships and grants through
  - The Department of Defense (DoD) Information Assurance Scholarship Program
  - The Federal Cyber Service Scholarship for Service Program (SFS) operated by National Science Foundation (NSF)

Major IA On-going Development

- Center for Digital Identity and Cyber Defense Research
- IA Symposium
  - October 21, 2016 at SkySong
- Outreach Programs
  - Industry
  - Community Colleges
- Entrepreneurship