

New Approaches to Cyber Security Education (NACE)



UNIVERSITY of HAWAII®
MAUI COLLEGE

Debasis Bhattacharya

debasisb@hawaii.edu

maui.hawaii.edu/cybersecurity

CISSE 2018

New Orleans, LA

AGENDA

- Background
- Cybersecurity Education – Traditional
- Cybersecurity Education – Across Disciplines
- Case Study
 - Faculty Workshop
 - NSA GenCyber, CyberPatriot
 - Student Research Projects
- Challenges/Benefits



BACKGROUND - COLLEGE

- University of Hawaii Maui College
 - Serves Maui County - islands of Maui, Molokai and Lanai
 - 150,000 or so resident population
 - 2 Million or so tourists per year!
 - 3000+ full-time commuter students
 - 20 or so Associate Degrees
 - 3 Baccalaureate Degrees
 - 66% or so women students
 - Average of students ~25 years



CYBERSECURITY EDUCATION - TRADITIONAL

- Certificates in Cybersecurity
 - Low Level - Intro, Network+, Security+
 - Higher Level - Ethical Hacking, Forensics
- Internships
 - Government, banks, utilities
- Baccalaureate Degree
 - Applied Business and Info Tech
- Cyber competitions and Workshops
 - NSA GenCyber, US AFA CyberPatriot



CYBERSECURITY EDUCATION - NEW APPROACHES

- Cybersecurity educations cuts across various segments
 - Community College program disciplines
 - Gender
 - Minorities
 - Background - high schools, professionals, returning veterans etc
 - Various Industries
 - Accounting, Hospitality, Law Enforcement, Utility, Tourism etc.
- One size education does not fit all types of students!



CYBERSECURITY EDUCATION - ACROSS STUDENT POPULATION

- Focus on students from a variety of backgrounds
 - Women and Minorities
 - Veterans and Working Professionals
 - High School Students
 - Remote students who rely totally on distance education
 - Economically disadvantaged
 - Low math/science proficiency
 - Non-technical and Non-traditional
 - Not interested in Cybersecurity as a career!



CYBERSECURITY EDUCATION - ACROSS DISCIPLINES

- Focus on 5 disciplines at Associate Degree level
 - Accounting
 - Criminal Justice
 - Electronics
 - Hospitality, Travel and Culinary
 - Business
- Supported by NSF
 - SFS Capacity Building Grant, Award# 1437514
 - ATE Grant, Award# 1700562



CAE-CDE 2018 CRITERIA

5. Cyber Defense is a Multidisciplinary Practice at the Institution

The institution must demonstrate that Cybersecurity is not treated as a separate discipline, but integrated into additional degree programs within the institution. Courses cannot be from the department mapped to the Knowledge Units. (7 pts mandatory/15 pts max)

DIVERSE CYBERSECURITY EDUCATION - OVERALL APPROACH

- Obtain administration and other institutional support
- Identify key faculty leaders in key disciplines
 - Engage faculty and students
- Engage employers who will hire students with cyber skills
 - Hotels, banks, tourism industry, law enforcement
- Identify one or two existing courses in each discipline
- Hold workshop with faculty from various disciplines
- Create modules and help faculty member teach it!

CASE STUDY - FACULTY WORKSHOP

- Target Audience and Disciplines
 - Faculty from Accounting, Business, Electronics, Hospitality, Culinary
- Date - May 16, 2018
 - All Day Faculty Workshop (summer overload)
 - \$350 stipend, supported by NSF SFS Award# 1437514
 - Finalize target courses for Fall 2018, discuss security modules/labs
- Topics
 - Ransomware, Bitcoins, Blockchains, Security Culture, Hacking Labs

RESEARCH PROJECT - CYBERSECURITY IN HEALTH CARE

- Student internship project - Spring 2018
 - Focus on small health care practitioners - doctors, dentists etc.
 - Conducted by undergraduate student - Cindy Osako
 - Survey to calibrate
 - cyber hygiene
 - Readiness for malware, phishing etc.
 - cybersec education
 - Deliverable - Infographic for office, coffee lounge etc.

CHALLENGES

- Faculty members need to be open and interested!
 - Cybersecurity does not appeal to all
- Faculty members need to see value
 - Inserting course modules within an existing syllabus and timeframe
- Students need need to see value!
- Embedding new courses takes time and work
- Ongoing training to ensure new faculty can learn InfoSec
- Administration needs to be behind all this effort!

BENEFITS!

- Cyber savvy workforce can come from various disciplines!
- Increase interest in cybersecurity from a diverse group
- Grow the overall awareness of cybersecurity defense
- Enhance ability of non IT faculty to teach cyber topics



UNIVERSITY of HAWAII®
MAUI COLLEGE

QUESTIONS? COMMENTS? FEEDBACK?!

Debasis Bhattacharya

debasisb@hawaii.edu

maui.hawaii.edu/cybersecurity

