Advanced Topics in Information Assurance & Security
Brigham Young University – Hawaii
Summer 2014 (Jul 14 – Aug 29)

Asst. Professor Joshua Smith
http://jsmith.cis.byuh.edu
j.smith@byuh.edu
808-675-3388
GCB 105

(1) Overview

This course provides an in-depth understanding of how to effectively protect computer networks, systems, and services. Students will learn the tools and penetration testing methodologies used by ethical hackers. In addition, the course provides a thorough discussion of what and who an ethical hacker is and how important they are in protecting corporate and government data from cyber attacks. Students will learn updated computer security resources that describe new vulnerabilities and innovative methods to protect networks. Also covered is a thorough update of federal and state computer crime laws, as well as changes in penalties for illegal computer hacking.

Specific topic coverage includes:

• Ethical Hacking Overview
• TCP/IP Concepts Review
• Network and Computer Attacks
• Footprinting & Social Engineering
• Port Scanning & Enumeration
• Programming for Sec. Professionals
• OS Vulnerabilities
• Embedded Operating Systems
• Hacking Web Servers
• Hacking Wireless Networks
• Cryptography
• Network Protection Systems

In an increasingly hyper-connected and “flat” world, old labor standards are insufficient – a College degree, by itself, is inadequate. To succeed you must possess, and effectively demonstrate, what Brother Smith calls the Four C’s:

1) Critical Thinking;
2) Communication & Collaboration;
3) Character; and,
4) Competence.

CREDITS: Three (3)
CLASS SCHEDULE: MWF 12:10 – 14:20 (GCB 101)
CATALOG DESCRIPTION: Advanced topics in information assurance: systems verification, information flow/protection, computer viruses/malware, intrusion detection models, multi-level security, forensics, network firewalls, cryptography, e-commerce support, and database security. Prerequisite: IT 481

REQUIRED TEXT:
(2) BYU–Hawaii Vision & Mission

Brigham Young University–Hawaii . . . exists to assist individuals in their quest for perfection and eternal life and in their efforts to influence the establishment of peace internationally. BYU–Hawaii Vision

To integrate both spiritual and secular learning, and to prepare students with character and integrity who can provide leadership in their families, their communities, their chosen fields, and in building the kingdom of God. BYU–Hawaii Mission

The Vision and Mission are the “why” and “what” – why BYU–Hawaii exists, and what it seeks to accomplish. But “how” – how will we, collectively, achieve those lofty standards?

(3) Framework for Student Learning

The Framework for Student Learning is a powerful tool designed to empower us to rise to President McKay’s Vision and realize our shared Mission to Learn, Lead, and Build.

As we Prepare, Engage, and Improve, we will maximize our learning, which occurs best when we are:

1) Motivated by faith, guided by the Holy Spirit, and centered on serving God;
2) Active in the learning process;
3) Self-directed and take responsibility for our learning;
4) Engaged in meaningful reflection and self-assessment;
5) Open to changing how we think, feel, and act; and,
6) Constantly improving our capacity to study and learn effectively.
(4) **Expectations, Policies, & Grading**

In-class time will rarely be used to regurgitate information from the text; you are expected to finish assigned readings **BEFORE** class and bring questions. This requires that you (and I!) **Prepare**. Class time will be focused on clarifications, discussions, answering questions, and hands-on exercises. This is where you (and I!) **Engage**. Assignments will provide opportunities to receive feedback and correction, thereby helping you to **Improve**; likewise, your feedback is welcomed, so that I too may **Improve**.

See the calendar of assignments and topics in Canvas, subject to change during the semester. No alternate final exam date or time is permitted and late assignments are not accepted, though bonus projects are available.

As an upper-division course about an advanced topic, it’s expected that students are self-motivated. Accordingly, students will select one of the three options outlined below as their assessment criteria:

<table>
<thead>
<tr>
<th><strong>Canvas Deliverables</strong></th>
<th><strong>TestOut</strong></th>
<th><strong>Certification Exam</strong> (choose one exam)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual Projects</td>
<td>Lab Simulations (60+)</td>
<td>Certified Ethical Hacker</td>
</tr>
<tr>
<td>In-class Quizzes</td>
<td>Section Exams (60+)</td>
<td>CompTIA Security+ (ISC)² SSCP</td>
</tr>
<tr>
<td>Group Forums</td>
<td>Final Exams</td>
<td>Forums</td>
</tr>
<tr>
<td>Final Exams</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bro. Smith agrees to **Prepare**, **Engage**, and **Improve**. What about you, will you also commit to **Prepare**, **Engage**, and **Improve**? *You* are primarily responsible! Poor use of the *Framework* will reduce individual and class learning. 😊
(5) University Policies

All University personnel are expected to comply with the University Policies as part of their agreement to attend BYU-Hawaii. Subsets of the Honor Code policies are included below and are available in more detail online.

(5.1) **Academic Honesty**

Plagiarism, fabrication or falsification, cheating, and other academic misconduct.

(5.2) **Dress and Grooming**

**Men.** A clean and neat appearance should be maintained. Shorts must cover the knee. Hair should be clean and neat, avoiding extreme styles or colors, and trimmed above the collar leaving the ear uncovered. Sideburns should not extend below the ear-lobe. If worn, moustaches should be neatly trimmed and may not extend beyond or below the corners of mouth. Men are expected to be clean-shaven and beards are not acceptable. (If you have an exception, notify the instructor.) Earrings and other body piercing are not acceptable. For safety, footwear must be worn in all public places.

**Women.** A modest, clean and neat appearance should be maintained. Clothing is inappropriate when it is sleeveless, strapless, backless, or revealing, has slits above the knee, or is form fitting. Dresses, skirts, and shorts must cover the knee. Hairstyles should be clean and neat, avoiding extremes in styles and color. Excessive ear piercing and all other body piercing are not appropriate. For safety, footwear must be worn in all public places.

(5.3) **Special Needs**

Brigham Young University Hawaii is committed to compliance with the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act of 1973. The university makes every effort to accommodate individuals with disabilities within the scope of existing laws.

(5.4) **Sexual Harassment**

Unlawful Sexual Harassment is contrary to the teachings of The Church of Jesus Christ of Latter-day Saints, the university’s Honor Code and applicable civil rights laws and regulations. BYUH’s Honor Code requires that university personnel and students abide by Title VII of the Civil Rights Act of 1964 and Title IX of the Educational Amendments of 1972 which prohibit sexual harassment.
(6) ABET & WASC Learning Outcomes

- An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution;
- An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
- An understanding of professional, ethical, legal, security and social issues and responsibilities.
- An ability to communicate effectively with a range of audiences.
- An ability to analyze the local and global impact of computing on individuals, organizations, and society.
- Recognition of the need for and an ability to engage in continuing professional development.
- An ability to use current techniques, skills, and tools necessary for computing practice.
- An ability to use and apply current technical concepts and practices in the core information technologies.
- An ability to identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems.
- An ability to effectively integrate IT-based solutions into the user environment.
- An understanding of best practices and standards and their application.
- An ability to assist in the creation of an effective project plan.
Advanced Topics in Information Assurance & Security  
Brigham Young University – Hawaii  
Summer 2014 (Jul 14 – Aug 29)

Asst. Professor Joshua Smith  
http://jsmith.cis.byuh.edu  
j.smith@byuh.edu  
808-675-3388  
GCB 105

CLASS SCHEDULE: MWF 12:10 – 14:20 (GCB 101)

Student Acknowledgement

I have reviewed the course syllabus and understand what is required, including:

- I must be an active learner, which occurs as I Prepare, Engage, and Improve. I will demonstrate that, in part, by regular updates to my activity log;
- Honor Code violations will be immediately reported and appropriate action will be taken, up to and including an automatic failing grade “F”;
- I am committed to work hard and do my very best and will promptly contact the professor, Brother Smith, if I have any questions or problems related to the course work or my group work; and,
- I will come with a positive attitude, prepared to work, learn, and have fun.

____________________________  ________________________
Printed Name  Signature

____________________________
Date