CYB-673-OL Summer 2016
Security Certification Preparation

Dates: 05/17-08/05/2016	Time: Online	Location: http://blackboard.valpo.edu
Instructor: Sonja Streuber	Office Hours: MWF 12-1 pm on Google Hangouts	Contact: sonja.streuber@valpo.edu

Introduction

Welcome to CYB-673, Security Certification Preparation! This 1-credit course is designed to prepare students to sit a major professional Cybersecurity exam. An accelerated review course, this seminar assumes students have a basic understanding of networks and operating systems and focuses on the six domains of knowledge as included in the most recent CompTIA Security+ examination.

CompTIA Security+ has gained a lot of recognition in the past few years and is a required certification by many organizations. Many IT contracts specifically state that hired contractors must have at least the Security+ certification to work on the contract, so having this on your resume often opens many more doors of opportunity. But, while CompTIA recommends at least two years of experience in IT administration with a focus on security, the certification does not require the 5+ years of documented and verifiable full-time professional network management experience that are a prerequisite for the ISC[2] CISSP exam. This makes the CompTIA Security+ certification exam valuable and attainable for both, students and IT professionals.

Learning Objectives

At the end of the course, students will be able to:

1. Explain and apply major concepts in Network security
2. Discuss compliance and operational security
3. Identify and mitigate threats and vulnerabilities
4. Implement application, data, and host security
5. Perform access control and identity management
6. Explain major concepts in cryptography

Students also practice test-taking skills for both, multiple choice and performance-based questions.

Course Format and Attendance Requirement

Although only 1 credit, this course is **not** a self-paced MOOC. Your work schedule for each fortnight is:

- **Monday-Wednesday:** Read and watch the materials for the week.
- **Wednesday:** Answer the biweekly discussion question or complete the quiz by 11:59 pm CST.
- **Friday**: Respond to one or two peers in the weekly discussion forum. Complete the Lynda.com course for the knowledge area as scheduled. All due before Friday 11:59 pm CST.

Required Textbooks & Materials

- Gibson, Darril (2014), _CompTIA Security+: Get Certified Get Ahead: SY0-401 Study Guide_. **BUY THIS BOOK.**
- Security+ Exam Guide.
- Security+ Practice Tests.
- Professor Messer's playlist on YouTube.

Workload

This 1-credit course requires significant research and teamwork. You will be completing the following:

1. **Fortnightly Discussions (5*(5 points for post; 5 points for response) =50 points)**: Every other Friday, you will answer the discussion question for the week. Every Friday, you will respond to two of your peers.
2. **Practice Quizzes (5*20 points each=100 points)**: Every other Wednesday, you will complete a practice quiz in Security+ multiple choice format about the Knowledge Area under discussion.
3. **Knowledge Area Assignment (5*20 points each=100)**: Every other week contains one Lynda.com course about a specific knowledge area in the Security+ exam. Course completion certificates must be posted as .pdf files on Blackboard by 11:59 pm CST on Friday. **NO EMAIL SUBMISSIONS ACCEPTED.**

You can earn up to 250 points in this course. No extra credit assignments will be given.

Letter Grade Conversion:

>93%: A	90-93%: A-	87-90%: B+	83-87%: B	80-83%: B-	77-80%: C+
73-77%: C	70-73%: C-	<70%: F			

Assignment Submission, Late Work, and Academic Honesty

- **Assignment Submission:** All Assignments must be submitted on Blackboard. **No emailed Assignments will be accepted.**
- **Late Work:** Work is considered late if not posted to Blackboard by 11:59 pm CST of the day on which it is due. **Late work will lose 50% of the grade.**
- **Academic Honesty: All work you submit for this course must be your own**. You may NOT use anyone else's words (from blogs, webpages, purchased solutions, etc.) without giving a clear source citation. If you are unsure, consult http://www.plagiarism.org/ or the Writing Center. In addition, you must write and sign with your name the following statement on all course work:

  I have neither given nor received, nor have I tolerated others' use of unauthorized aid.

For more information about Valparaiso University's Academic Honor Code, case review cycles, and potential penalties, please refer to http://www.valpo.edu/student/honorcouncil/index.php

Any work found in noncompliance with the Valparaiso University Honor Code will receive 0 points and be referred to the Graduate School. This causes much paperwork. If you plan to take any future classes with me after this one, please don't ruin your reputation by cheating.

Diversity and Inclusion

Valparaiso University aspires to create and maintain a welcoming environment built on participation, mutual respect, freedom, faith, competency, positive regard, and inclusion. This course will not tolerate language or behavior that demeans members of our learning community based on age, ethnicity, race, color, religion, sexual orientation, gender identity, biological sex, disabilities (visible and invisible), socio-economic status, or national origin. The success of this class relies on all students' contribution to an anti-discriminatory environment where everyone feels safe, welcome, and encouraged to engage, to explore, and ultimately, "to embark on a rewarding personal and professional journey" (Pres. Heckler).

Title IX

Valparaiso University strives to provide an environment free of discrimination, harassment, and sexual misconduct (sexual harassment, sexual violence, dating violence, domestic violence, and stalking). If you have been the victim of sexual misconduct, we encourage you to report the incident. If you report the incident to a University faculty member or instructor, she or he must notify the University's Title IX Coordinator about the basic facts of the incident. Disclosures to University faculty or instructors of sexual misconduct incidents are not confidential under Title IX. Confidential support services available on campus include: Sexual Assault Awareness & Facilitative Education Office "SAAFE" (219-464-6789), Counseling Center (219-464-5002), University Pastors (219-464-5093), and Student Health Center (219-464-5060). For more information, visit http://www.valpo.edu/titleix/ .

Disability Support Services

As part of its mission for its students, Valparaiso University has developed a nondiscrimination policy which identifies its intention to provide a safe and tolerant environment for all, including those with disabilities. Please contact Zebediah Hall, Director of Disability Support Services, at 6496, if you believe you have a disability that might require a reasonable accommodation in order for you to perform as expected in this class. See also http://www.valpo.edu/disabilityss/

Academic Support

To get help, use the Academic Success Center (ASC) online directory (valpo.edu/academicsuccess) or contact the ASC (academic.success@valpo.edu) to help point you in the right direction for academic support resources for this course. Valpo's learning centers offer a variety of programs and services that provide group and individual learning assistance for many subject areas. These learning centers include:

- Graduate Tutoring Lab: Serves the academic needs of Graduate students – tutors offer suggestions on organization of papers, assist in research and citations, and help in understanding difficult assignments. Additional one on one tutoring is also available.
- Writing Center: Primarily serves the needs of undergraduate students, but is also available for Graduate students. Writing Consultants provide proofreading and editing assistance for papers and assignments.

Class Cancellations

Notifications of class cancellations will be made through Blackboard with as much advance notice as possible. It will be both posted on Blackboard and sent to your Valpo e-mail address. If you don't check your Valpo e-mail account regularly or have it set-up to be forwarded to your preferred e-mail account, you may not get the message. Please check Blackboard and your Valpo e-mail (or the e-mail address it forwards to) before coming to class.

Schedule

Week	Week Starting	Topic	Readings and Videos	Due by 11:59 pm CST
1	05/17	1. Network Security • Implement security configuration parameters on network devices and other technologies.	Gibson, Ch. 1,3 Professor Messer--Section 1 videos: Network Security	W: Discussion 1 F: Responses 1
2	05/23	• Given a scenario, use secure network administration principles. • Explain network design elements and components. • Given a scenario, implement common protocols and services. • Given a scenario, troubleshoot security issues related to wireless networking.	Gibson, Ch. 4,5 CompTIA Security+ Exam Prep (SY0-401): Network Security	W: Quiz 1 F: Knowledge Area Assignment 1—Post Lynda.com certificate
3	05/30	2. Compliance and Operational Security • Explain the importance of risk related concepts. • Summarize the security implications of integrating systems and data with third parties.	Gibson, Ch. 2,6,8 Professor Messer--Section 2 videos: Compliance and Operational Security	W: Discussion 2 F: Responses 2
4	06/06	• Given a scenario, implement appropriate risk mitigation strategies. • Given a scenario, implement basic forensic procedures. • Summarize common incident response procedures. • Explain the importance of security related awareness and training. • Compare and contrast physical security and environmental controls. • Summarize risk management best practices. • Given a scenario, select the appropriate control to meet the goals of security.	Gibson, Ch. 9,10,11 CompTIA Security+ Exam Prep (SY0-401): Compliance and Operational Security	W: Quiz 2 F: Knowledge Area Assignment 2—Post Lynda.com certificate

5	06/13	3. Threats and Vulnerabilities • Explain types of malware. • Summarize various types of attacks. • Summarize social engineering attacks and the associated effectiveness with each attack.	Gibson, Ch. 2,4,5 Professor Messer--Section 3 videos: Threats and Vulnerabilities	W: Discussion 3 F: Responses 3
6	06/20	• Explain types of wireless attacks. • Explain types of application attacks. • Analyze a scenario and select the appropriate type of mitigation and deterrent techniques. • Given a scenario, use appropriate tools and techniques to discover security threats and vulnerabilities. • Explain the proper use of penetration testing versus vulnerability scanning.	Gibson, Ch. 6,7,8 CompTIA Security+ Exam Prep (SY0-401): Threats and Vulnerabilities	W: Quiz 3 F: Knowledge Area Assignment 3—Post Lynda.com certificate
7	06/27	4. Application, Data and Host Security • Explain the importance of application security controls and techniques. • Summarize mobile security concepts and technologies. • Given a scenario, select the appropriate solution to establish host security. • Implement the appropriate controls to ensure data security. • Compare and contrast alternative methods to mitigate security risks in static environments.	Gibson, Ch. 5,6 Professor Messer--Section 4 videos: Application, Data, and Host Security	W: Discussion 4 F: Responses 4
8	07/03		Gibson, Ch. 7,11 CompTIA Security+ Exam Prep (SY0-401): Application, Data, and Host Security	W: Quiz 4 F: Knowledge Area Assignment 4—Post Lynda.com certificate
9	07/11	5. Access Control and Identity Management • Compare and contrast the function and purpose of authentication services. • Given a scenario, select the appropriate authentication,	Gibson, Ch. 1,2 Professor Messer--Section 5 videos: Access Control and Identity Management	W: Discussion 5 F: Responses 5

10	07/18	authorization or access control. • Install and configure security controls when performing account management, based on best practices	Gibson, Ch. 3,5 CompTIA Security+ Exam Prep (SY0-401): Access Control and Identity Management	W: Quiz 5 F: Knowledge Area Assignment 5—Post Lynda.com certificate
11	07/25	6. Cryptography • Given a scenario, utilize general cryptography concepts. • Given a scenario, use appropriate cryptographic methods	Gibson, Ch. 1,3 Professor Messer-- Section 6 videos: Cryptography	W: Discussion 6 F: Responses 6
12	08/01	• Given a scenario, use appropriate PKI, certificate management and associated components	Gibson, Ch. 4,10 Essentials of Cryptography and Network Security	W: Quiz 6 F: Knowledge Area Assignment 6—Post Lynda.com certificate

Student Learning Objectives—Graduate School
1. Students will understand and practice methods of inquiry and strategies of interpretation within the student's field of study.
2. Students will master the knowledge and skills pertinent to the student's field of study.
3. Students will effectively articulate the ideas, concepts, and methods through written and oral presentation.
4. Students will understand the connection between their knowledge and skills on the one hand and their professional identity, responsibilities, and demands on the other.
5. Students will integrate knowledge and methods of their study with cognates and other disciplines.
6. Students will study, reflect upon, and practice ethical behavior and cultural sensitivity as they relate to professional and personal responsibility.

Student Learning Objectives—Information Technology Program
1. To understand and practice methods of inquiry and strategies of interpretation within the student's field of study.
     1A. Students will master several programming environments.
     1B. Students will learn to identify and isolate problems.
2. To master the knowledge and skills pertinent to the student's field of study.
     2A. Students will acquire an extensive technology related vocabulary.
     2B. Students will become comfortable using a wide range of technology environments.
3. To effectively articulate the ideas, concepts, and methods through written and oral presentation.
     3A. Students will be taught how to make formal, oral presentations and be required to give 6 such presentations during their program.
     3B. Students will write numerous, thorough papers requiring extensive research. They will be required to use the   services on the writing center.
4. To understand the connection between their knowledge and skills on one hand and their professional identity, responsibilities, and demands on the other.
     4A. Students will understand the implications of legal and professional regulations as they relate to information technology.
     4B. Students will study how technology can be made available to people that are traditionally less advantaged.
5. To integrate knowledge and methods of their study with cognates and other disciplines.
     5A. Students will learn techniques of modeling data from other disciplines.
     5B. Students will study human factors in IT.
6. To practice ethical and cultural sensitivity as it relates to professional and personal responsibility.
     6A. Students will examine a wide range of ethical issues related to technology and the potential effects on people and the environment.
     6B. Students will explore the relationship between IT and ethnic and cultural diversity.