IIT School of Applied Technology
ILLINOIS INSTITUTE OF TECHNOLOGY

ITMS 448 Cyber Security Technologies - Spring 2016 Syllabus

Instructor: Shawn Davis
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Rice Campus Office Hours: By appointment via email

Course Catalog Description:
Prepares students for a role as a network security administrator and analyst. Topics include viruses, worms, other attack mechanisms, vulnerabilities and countermeasures, network security protocols, encryption, identity and authentication, scanning, firewalls, security tools, and organizations addressing security. Prerequisite: ITMO 440/540 or Consent of Instructor. Credit: 2-2-3 Semester Hours.

Course Day/Time/Location:
Monday Evenings from 5:30 PM – 9:05 PM
IIT Main Campus, Perlstein Hall: Rm 218

Required Textbook:
There is no required textbook for this course. *To be successful in this class it is imperative to review the lecture slides following each week's lecture to ensure you understand the material.* The bulk of examination questions will be based on the lecture slides and lab work. Online reading may also be assigned.

Course Objective/Outcome:
Each successful student will gain an in-depth understanding of various important network and computer security concepts and practices. Students, through their course exams, labs, homework, and individual project will demonstrate the ability to apply information assurance and security concepts, specifically on the topics of malware analysis, attack vectors, mitigation/deterrents, cryptography, steganography, computer forensics, firewalls, IDS/IPS, internet security protocols, authentication, and wireless network security.

Lecture Notes:
Copies of the course lecture notes in the form of a PDF (of the PowerPoint presentation accompanying each lecture) will be provided for each student on Blackboard.

Attendance/Class Participation:
This course focuses heavily on in-class labs and class participation/discussion during lectures each week. Therefore, attendance and class participation is worth 10% of your course grade. If you will not be able to attend a class, you must notify me via email prior to class time in order for the absence to be excused. *Students are allowed two excused absences from lectures over the course of the semester without penalty.*

RADISH:
Each student will receive credentials to logon to virtual machines for our course on the RADISH network which is served out of Rice Campus. RADISH will primarily be used for completion of homework labs. If you have any issues with RADISH, please contact our lab manager Dawid at dbroada@hawk.iit.edu.

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Examinations:
The midterm and final examination will consist of multiple choice, fill-in-the-blank, short answer, matching, and short essay questions. Questions will be based on the course materials for each topic. Both exams are closed-book/closed-notes. Students need to be present for both exams as make-ups are not permitted (unless there is a documented emergency situation).

Individual Project:
Each student will be assigned a service to learn about as well as how to defend. I will provide additional detail during our first class session. Each student will then work on their project over the remainder of the semester and will turn in their work before class on April 11th and then deliver a short PowerPoint presentation and video in class on Apr 25th demonstrating what they accomplished.

Homework:
Homework may be assigned in the form of labs, questions/problems from the lecture, or other sources and will be posted to Blackboard. Students will submit completed homework to Blackboard. Most homework will be due prior to midnight on the second Sunday following the class in which it was assigned. For example, our first class is on 1/11/16 and the first homework assignment will therefore be due before midnight on 1/24/16. Roughly two weeks are given to complete most homework assignments in order to accommodate most extenuating circumstances that students may encounter.

I recommend students start and attempt to complete each assignment within the first week in which it is assigned. That way students with homework questions can contact me or can contact Dawid for any issues connecting to RADISH so that we will have time to assist you prior to the homework due date. Please do not wait until the last minute to contact us for assistance. *Students are allowed one late assignment during the semester and that assignment must be turned in within 48 hours of the original due date. No other late assignments will be accepted.*

All homework answers must be written completely in each student's own words. No direct quotes from any other source is allowed. Additionally, the majority of code written should be of your own creation. If you modify or adapt existing code found online, you must credit the original author by placing the URL of the existing code in a comment in your code.

Plagiarism/Unauthorized Collaboration:
All work submitted by students must be their own. Plagiarism examples: 1) Submitting an answer to a homework assignment by copying information from Wikipedia. 2) Submitting code from an online site as your own in a homework assignment. 3) Presenting work that is not your own for your presentation. Students are also not allowed to collaborate on homework assignments and turn in identical or very similar work product. Plagiarism or unauthorized collaboration will normally result in an automatic grade of zero for the assignment and an Academic Dishonesty Report filed.

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IIT Code of Academic Honesty:
Please review and be familiar with the Code of Academic Honesty which can be found at the below URL: http://www.iit.edu/student_affairs/handbook/information_and_regulations/code_of_academic_honesty.shtml

Computer Use Policies:
Please ensure that you have read and understand the IIT and ITM Network and Computer Use Policies found at http://www.itm.iit.edu/data/ITMComputerUsePolicies.pdf.

Americans with Disabilities Act (ADA) Policy Statement:
Reasonable accommodations will be made for students with documented disabilities. In order to receive accommodations, students must obtain a letter of accommodation from the Center for Disability Resources. The Center for Disability Resources (CDR) is located in 3424 S. State St., room 1C3-2 (on the first floor), telephone: 312.567.5744 or disabilities@iit.edu.

Grading: Grading criteria for ITMS 448 students will be as follows:

A	Outstanding work reflecting substantial effort	90-100%
B	Undergraduate/IT Students: Excellent work reflecting good effort	80-89.99%
B	Graduate Students: Satisfactory work fully meeting expectations	80-89.99%
C	Undergraduate/IT Students: Satisfactory work meeting minimum expectations	70-79.99%
C	Graduate Students: Substandard work not meeting expectations	65-79.99%
D	Undergraduate/IT Students: Substandard work not meeting expectations	60-69.99%
	Graduate Students: Graduate students may not be assigned a **D** grade	N/A
E	Undergraduate/IT Students: Unsatisfactory work	0-59.99%
E	Graduate Students: Unsatisfactory work	0-64.99%

The final grade for the course will be weighted as follows:

Homework	50%
Individual Project	5%
Attendance/Class Participation	10%
Midterm Exam	15%
Final Exam	20%

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Schedule of Topics:

Week	Date	Topic
1	Jan 11	Course Intro, RADISH, Security Overview
2	Jan 18	**Martin Luther King, Jr. Day - No Classes**
3	Jan 25	Malware Overview & Exploit Kits
4	Feb 1	Malware Analysis
5	Feb 8	Attack Vectors & Mitigation Techniques
6	Feb 15	Web Application Attack Vectors (OWASP Top 10) & Mitigation Techniques I
7	Feb 22	Web Application Attack Vectors (OWASP Top 10) & Mitigation Techniques II, Midterm Review
8	Feb 29	Midterm Exam
9	Mar 7	Cryptography & Secure Communications
10	Mar 14	**Spring Break Week - No Classes**
11	Mar 21	Steganography, Firewalls
12	Mar 28	IDS/IPS
13	Apr 4	User Authentication & Access Control
14	Apr 11	Computer Forensics (Project PowerPoints and Videos due)
15	Apr 18	Wireless Network Security & Attacks, Final Exam Review
16	Apr 25	Individual Project Presentations
17	May 2	Final Exam