CS 3705 - Protocol Analysis
Weber State University - Computer Science

Instructor: Andrew Drake
Classroom: SLCC Business Building, Room 320, 5:30 - 7:20
Contact Info: andrewdrake@weber.edu 801-395-3477, D03 310K
Office Hours: T/R - 1:15 - 3:00, W - 4:00 - 5:30

Course Description:
This course provides an in depth look at the fundamentals of what protocols do and how they work, how addresses and routing are used to move data through the network, and how information is exchanged over the Internet. In depth analysis of network traffic packets will include normal traffic as well as protocol attack patterns.

Required Text:
ISBN: 978-1893933994

Learning Outcomes:
● Students will demonstrate knowledge of network protocols and how they can be misused.
● Students will be able to use wireshark to actively capture, filter, and analyze network traffic.
● Students will be able to troubleshoot malicious and routine traffic abnormalities.
● Students will demonstrate how to use historical network traffic for forensic analysis.
● Students will be able to report and explain the ethical and legal challenges associated with information security work.

Teaching Methods:
Class will be taught using a combination of lecture and labs to present and reinforce the material. Quizzes administered through the Canvas online portal and in class will be used throughout the semester. Homework will also be submitted through the Canvas online portal. We will mostly be working with prepared network captures. It is imperative that students not capture data on networks they do not own.

Labs, Quizzes, and Assignments:
We will make heavy use of labs to highlight learning objectives. All homework will be completable without active network captures. The labs will be submitted through the Canvas online portal. Quizzes will be given in class on topics related to the book and assigned readings. They will be multiple choice, true/false, and fill in the blank format.
Students will be asked to prepare a study sheet on a protocol for the “Better Know a Protocol” segment of class. These prepared sheets will be used to create a booklet of notes that can be used on the final exam. Once a student has prepared a study sheet and presented it in class it will be posted in the Canvas discussions to be improved on by the class. Due dates for this assignment will be staggered throughout the semester. Assignments will be given in the first week. Please use resources that fall under creative commons licensing.

A five page research paper with at least five cited sources is due at the end of the semester. The topic of the paper will be network analysis in detecting, stopping, and preventing cyber attacks. Topics can range from attack vectors of well known bugs to techniques used to gather information and prevent network attacks.

**Grade Scale:**

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Quizzes: 15%  
Final: 15%  
Labs: 40%  
Report: 10%  
Protocol: 10%

**Late Work:**
Most work will require meeting with the instructor to complete if missed. Please inform the instructor of any absences as soon as possible, e-mail is preferred. It is at the instructor's discretion to allow late work.

**ADA:**
Any student requiring accommodations or services due to a disability must contact Services for Students with Disabilities (SSD) in room 181 of the Student Services Center. SSD can also arrange to provide course materials (including the syllabus) in alternative formats if necessary.

**Academic Honesty:**
Any attempt to gain unfair advantage during exams, or submitting another student’s work as your own, is considered cheating. If caught cheating in this class, you will fail the class and the university will pursue the matter.

**Campus Closure:**
In the event of the campus being closed, please check the Canvas portal for course instruction.