

DF 138.05
Introduction to Digital Forensics and Information Assurance

Instructor: Rekha Bhowmik
Office: AB1 216-B
Phone: 936-294-4333
E-mail: rbb002@shsu.edu

Course Purpose/Objectives:

This course introduces the fundamentals of digital forensics technology from a networking perspective. Emphasis is placed on identifying threats to, and vulnerabilities of, networked computer systems and how to minimize them. You will begin by learning networking basics, including the OSI model, how switches and hubs work and why we need them. We will then examine how addressing works including MAC and IP addressing. We will then examine some basic networking protocols and perform packet analysis on network traffic we generate in the lab. We will then explore ways of intercepting data communication. You will learn the basics of cryptography and implement at least one solution on a networked system that employs secure communication between parties.

Prerequisites:

Basic computer skills.

Text/Materials:

Required text:

ISBN - 0201616475 **Cryptography Decrypted** Mel, Baker, Burnett Addison-Wesley Professional

IMPORTANT - The textbook is not optional. You are responsible for assignments and readings from the text as they are assigned. If the book is not available at the university bookstore, you are responsible for acquiring from another source.

Attendance:

Attendance is required. We will complete in class assignments on a regular basis. If you are not in class when an in class assignment is done, then you will not receive credit for that assignment. Exceptions to this rule are on a case by case basis and must include a scheduled meeting with me. The same applies to absences.

Assignments:

Homework

I will assign homework as necessary throughout the semester. Homework is an opportunity to demonstrate your knowledge. All homework must be neat and must have name class and assignment name on the first page.

Labs

Labs are a part of your grade. Becoming proficient enough to complete the labs will require time outside of class in the lab. The lab is generally available during working hours.

Some labs will be completed in groups. All group members must participate in the completion of group labs.

You are encouraged to spend time outside of class in the lab working on your projects and experimenting with the lab hardware and software.

Late work will not be accepted without reason for the late work.

Group Work: All assignments and in-class work are individual unless specifically stated otherwise by me. I will periodically allow work to be completed in groups, but I will specifically indicate which ones.

Grading:

The different types of grades are: Tests, quizzes, labs, and homework.

Tests (2)	30%
Quizzes/ Classwork	10%
Labs/ Homework	45%
Final exam	15%

Your final grade is computed as a percentage. The minimum percentage to earn an A is 90%, a B is 80%, a C is 70%, and a D is 60. Programs and lab assignments must be unique creations of individual students and free of syntax errors to be worth many points.

Location and time of class meeting: This class meets TH from 11- 12:20 in AB1-206

Office Hours: M W F: 11:00 - 1:00
TH : 10:00 - 11:00, 3:00 - 4:00

Email:

Email communication is the best way to communicate with me outside of my office hours during the semester. Your email must include your name, and specifics of your question.

Exams:

There will be 2 exams plus a final with points awarded according to the above schedule. Cheating on exams or homework WILL NOT be tolerated. A grade of “F” for the course and appropriate disciplinary action will be awarded to any student caught cheating.

Academic Honesty:

All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in t the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including but not limited to cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials.

Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the University. Cellular phones and pagers must be turned off before class begins. Students are prohibited from eating in class, using tobacco products, making offensive remarks, reading newspapers, sleeping, talking at inappropriate times, wearing inappropriate clothing, or engaging in any form of distraction. Inappropriate behavior in the classroom shall result in a directive to leave the class. Students who are especially disruptive also may be reported to the Dean of Students for disciplinary action in accordance with University policy.

Any situation which requires examination of possible academic dishonesty will be dealt with according to the policies and procedures set forth in Academic Policy Statement 810213.

Americans with Disabilities Act:

It is the Policy of Sam Houston State University that no otherwise qualified disabled individual shall, solely by reason of his/her handicap, be excluded from the participation in, be denied the benefits of, or be subjected to

discrimination under any academic or Student Life program or activity. Disabled students may request assistance with academically related problems stemming from individual disabilities by contacting the Director of the Counseling Center in the Lee Drain Annex or by calling (936) 294-1720

Religious Holidays:

University policy allows for students to observe religious holy days without penalty. If you intend to miss class as a result of the observance of a religious holy day or as a result of the necessary traveling time required for religious observance, such an absence will not be penalized so long as you have notified the instructor in writing of the dates and times of class sessions that are missed. The deadline for notification is the 12th class day. Students absent from class as a result of religious observance are required to submit any due assignments immediately on their return to the classroom. Make-up tests and quizzes will also be provided on return to the class.

Tentative Schedule

Week	Topic	Chapters
1 (Jan 17)	Binary Number System	
2 (Jan 22, 24)	Binary Number System	
3 (Jan 29, 31)	Network Defense Fundamentals	
4 (Feb 5, 7)	Network Defense Fundamentals	
5 (Feb 12, 14)	TCP/IP, Address Resolution Protocol	
6 (Feb 19)	Intrusion Detection	
(Feb 21)	Test1	
7 (Feb 26, 28)	Cryptography, Substitution and Caesar's Cipher, Transportation Ciphers	Chapters 1, 2, 3
8 (Mar 4, 6)	Secret Key Assurance	Chapter 7
9 (Mar 18, 20)	Making Public Key	Chapter 11
10 (Mar 25, 27)	Making Public Key	Chapter 11
11 (Apr 1, 3)	Creating Digital Signatures using the Private Key	Chapter 16
12 (Apr 8)	Test 2	
(Apr 10)	Computer Forensics Tools	
13 (Apr 15, 17)	Computer Forensics Analysis	
14 (Apr 22, 24)	Recovering Image Files	
15 (Apr 29, May 1)	Information Assurance	
16 (May 6, May 8)	Information Assurance	
17 (May 10-May 15)	Final	