This course provides an introduction to computer security in general, but specifically focuses on network security. The course will enhance student knowledge about operating systems, networks, and system administration issues related to security. Specific topics covered in class include hacking, incident response, firewalls, encryption, VPNs, intrusion detection, and auditing.

The course offers theoretical and practical components within the classroom and project assignments. Lectures provide an overview on each topic, while class labs enable students to apply the lecture material. For project work, students will work in pairs to perform an audit, and develop a procedure or training module for a real world application.

**Instructor:** Susan J Lincke, PhD CISA  
**Email:** lincke@cs.uwp.edu  
**Web Page:** www.cs.uwp.edu/Classes/Cs478

**Office Hours:** Tues. Thurs. 5-6 PM  
Wed. 1-4 PM or by appt.  
**Office Phone:** (262) 595-2129  
**Office Location:** MOLN 255

**Class Hours:** Tues. Thurs. 12:25-1:47  
**Class Location:** MOLN D125 / MOLN 318

**Text:** *Computer Security: Principles and Practice, 2nd Ed.*, W. Stallings, L Brown

**Prerequisites:** A CS or MIS course in operating systems, data communications, or UNIX system administration.

**Course Outline:**

1. Introduction to Security: Malicious Software (Chapter 6)  
2. Network Protocols (Appendix F TCP/IP)  
3. Cracking 1: Gaining Access (Chapter 7 DOS Attacks)  
4. Cracking 2: Microsoft & Authentication (Chapter 3 to 3.4 - Authentication)  
5. Audit (Chapter 18 Security Auditing)  
7. Encryption (Chapter 2 Cryptographic Tools)  
8. Network Security & Routers (Chapter 9 Firewalls & IPS)  
9. Firewalls (Chapter 9 Firewalls & IPS)  
10. Intrusion Detection (Chapter 8)  
11. Virtual Private Networks & Application Encryption (Chapter 22 Internet Security Protocols and Standards)  
13. Security Regulation (Chapter 18)
Assignments: There will be one main assignment associated with community-based projects:
1. Audit or security product evaluation: Audit Plan and Audit Report
2. Graduates must perform an additional research project on a topic of their choice
   See my web page for information describing assignment requirements.

Quizzes: Weekly D2L on-line quizzes test knowledge of concepts and vocabulary.

Class Labs: Many lecture topics will include a lab component.
   Attendance is required so that students can participate in the lab. Students may miss one lab with no impact on their grade. If a student must miss additional classes, the student can make up lost credit by scheduling a make-up lab with the instructor, and submitting the missed exercise within two weeks of the missed class.

Grading: Undergraduate Graduate
Audit Plan: 10% Audit Plan 10%
Audit Report: 20% Audit Report 15%
Presentation: 5% Presentation 5%
Quizzes: 10% Quizzes 10%
Class Labs: 10% Class Labs 5%
2 Exams: 20 & 25% 2 Exams 20 & 25% each
   Security Paper Eval: 10%

Grading Scale: A= 90% B=80% C=70% D=60% F<60%
   Plus grades are assigned for grades within 2% of the next higher grade.
   Minus grades are assigned for grades within 2% of the next lower grade.
   Academic Honesty: Academic dishonesty includes plagiarism from web sites, texts, or other students, on project assignments or exams. Plagiarism is defined to be the copying of text, without specifying references, or without putting quoted material in quotation marks. (This applies to figures as well.) Showing other people your homework/tests also counts as cheating (except during a group project). Any indication of cheating will result in an immediate zero on the assignment or exam for all parties involved. In addition, the student’s advisor/department will be notified. You may answer questions on labs or project homework asked by other students.

Lateness: All assignments are due at the beginning of class on the due date. Assignments turned in late will automatically have one full grade deducted. No assignments will be accepted one week or later after the due date.

Due Dates: Listed on web page

Project Assignments:
   Project assignments performing a product evaluation or audit for the university or an organization of your choosing. This opportunity will enable students to work with real world problems in evaluating the performance of a security control or tool.
The Audit Plan or Security Product Test Plan is due one week before the midterm. The final versions of the Audit Report are due the last class. A product demo or audit presentation will also be due the last week of school (as per any confidentiality agreement as outlined by a security partner).

**Assignment: Audit or Security Product Evaluation:** This paper will evaluate a specific type of security product. For a smaller product, it may compare different commercial/freeware implementations of that product. The audit or security product will be selected by either a community partner you are paired with or that you choose to work with.

The first document to be prepared will be an Audit Plan, or Security Product Test Plan that will evaluate how a security product performs. Both test plan types should be formatted as an audit plan, and shall detail all specific tests that will be performed. It should also be very clear how each test is to be executed, including the parameters and configuration of the test machine and security software. It must address all concerns raised by the community partner (if one is available).

The second document to be prepared will be an Audit Report or Security Product Analysis paper with the findings from your testing. This report should be in Audit Report format. It should be readable by someone unfamiliar with the audit/product and address all concerns raised by the community partner and the test plan. A Product Analysis may compare the price and features of different similar products, and then offer a recommendation, if the partner requests this.

Both documents will be graded on 1) professional writing style, 2) complete content, and 3) clarity, with each area being worth 1/3 of the document grade. Each paper should be 5 (or more) pages, concisely written, single space. The format of the paper will be provided on my web page.

The Audit Report Presentation or Security Product Demo will be presented the last week of the semester (before finals). This presentation/demo should take 15 minutes per pair of students.

**Graduate Assignment: Literature Review Paper:** Graduate students will do a literature review on 4-5 security-related papers on a particular security topic. Students will provide a summary for each security paper, discuss how the combination of papers contributes to the field of security, consider whether certain issues should have been addressed that were not, and describe how this knowledge can be applied. The paper should be 4-5 pages long. The outline for the paper is on my web site.
Other Course Regulations:

**Weapons:** Weapons are prohibited in UW-Parkside buildings and all outdoor events. Anyone found in violation will be subject to immediate removal in addition to academic and/or legal sanctions.

**Homework Assignment Submission Policy and Guidelines:**
All assignments will be submitted as hard copy. Hard copies should be left on my table at the start of the class. Assignments submitted after the first 10 minutes of class will be counted a day late. This policy is meant to discourage people from skipping class to finish a project.

**Exam Make-Ups:** Prior notice must be given to me when an exam must be missed. No make-up exams will be granted unless satisfactory documentation is produced to show an extenuating circumstance.

**Food and Drink in Class:** Beverages are allowed in a regular classroom, but food is not. Neither food nor beverages are allowed in a campus computer lab.

**Accommodation for Religious Observances:** UW-Parkside policy requires that reasonable accommodation for a student’s religious beliefs. Please notify your instructor within the first two weeks of classes about any scheduled class date that conflicts with a religious observance.

**Students with a Disability:** Any student with a documented disability who needs academic adjustments or accommodations is requested to speak with me during the first two weeks of class. Please bring your letter of verification from the Disability Services Office (WLLC D175 at 595-2372). All discussions will remain confidential.