



Department of Computer Science

Fall, 2016

Information Assurance (CS 443 / CS 643)

Instructor:

Phone:

Office:

Email:

Office hours:

Class website: WebCampus (<http://webcampus.unlv.edu>)

Graduate Assistant:

GA Office Hours:

GA Office Location:

Textbook

Principles of Computer Security, Fourth Edition, by Schou, Corey; Cothren, Chuck; White, Greg; Davis, Roger; Williams, Dwayne; Conklin, Wm. Arthur; Published by McGraw Hill Education, ISBN: 0071835970 / 9780071835978, 2016

Note

Principles of Computer Security Lab Manual, Fourth Edition, is NOT required.

Prerequisites

CS 302 Data Structures

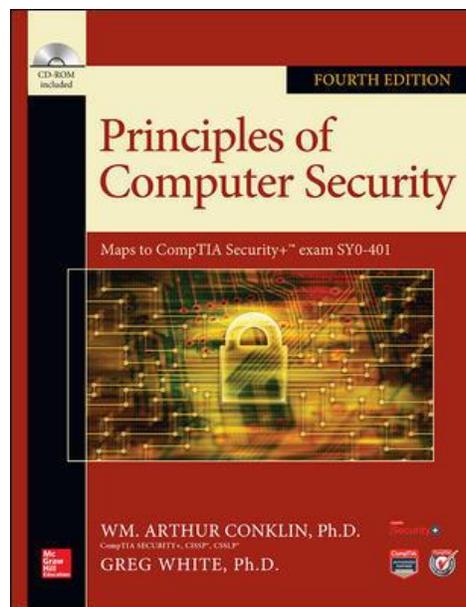
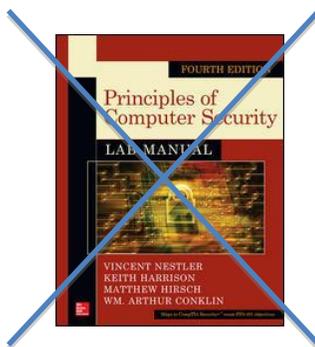
Course description

Introduction to the principles of information assurance. Security awareness, Survey of information security technologies, cryptography, management and administration techniques necessary to improve information security and respond to a security breach, survey of threats to information security, privacy in computing, legal and ethical issues relating to information security, and case studies (3 credit)

Student learning outcome

Upon successful completion of this course, students will be able to:

- Identify and discuss recent trends in computer security, including relevant historical events and crimes that have been committed.
- Describe fundamental computer security concepts and explain how security models are employed.
- Outline how to align prevention, detection, and response efforts with the operational security model.
- Describe the human element and the role that people play in security
- Summarize the types of cryptography and how each can be employed as part of a security solution.
- Explain how public key infrastructure (PKI) enables aspects of security.
- Identify standards and protocols involved in secure Internet transactions and e-business using a PKI.



- Describe the role of physical security components in protecting computers and networks, including any relevant environmental factors.
- Describe the role that networking and network components play in influencing the level of security associated with a system
- Recognize how network devices, network design, and protocols play essential roles in both performance and security.
- Explain the concepts on privilege management, authentication, and remote access protocols.
- Describe how to secure wireless networks and mobile systems.
- Outline basic facts about intrusion detection systems and network security.
- Describe methods of hardening systems and the application of baselines.
- Summarize the various types of attacks that impact computers and networks.
- Describe the security issues with e-mail, instant messaging, and other communication modes.
- Discuss the security concerns that surround Web components.
- Discuss the security issues related to software development.
- List the steps needed for disaster recovery, including considerations for business continuity.
- Outline the principles of and strategies for risk management.
- Identify the essential elements of change management.
- Describe how the incident response function can achieve the goals of minimizing loss.
- Explain the basic concepts of digital forensics.

Topics to be covered

- Chapter 1 Introduction and Security Trends
- Chapter 2 General Security Concepts
- Chapter 3 Operational and Organizational Security
- Chapter 4 The Role of People in Security
- Chapter 5 Cryptography
- Chapter 6 Public Key Infrastructure
- Chapter 7 PKI Standards and Protocols
- Chapter 8 Physical Security
- Chapter 9 Network Fundamentals
- Chapter 10 Infrastructure Security
- Chapter 11 Authentication and Remote Access
- ~~Chapter 12 Wireless Security and Mobile Devices~~
- Chapter 13 Intrusion Detection Systems and Network Security
- Chapter 14 System Hardening and Baselines
- Chapter 15 Types of Attacks and Malicious Software
- ~~Chapter 16 E-Mail and Instant Messaging~~
- ~~Chapter 17 Web Components~~
- Chapter 18 Secure Software Development
- Chapter 19 Business Continuity and Disaster Recovery, and Organizational Policies
- Chapter 20 Risk Management
- ~~Chapter 21 Change Management~~
- Chapter 22 Incident Response
- ~~Chapter 23 Computer Forensics~~

Assignments

- 5 to 7 assignments
- All assignments should be submitted in hand at the class on the due date. No late assignments accepted. **(-5 points for email or WebCampus submission, except required.)**
- Use plain white or lined paper. Do not use grid paper. **(Extra 5 points for papers typed in Word)**

- Scores will be posted on the WebCampus

Research Project (CS643 Students Only)

- Research report & presentation on individual research
- The report must be formatted in IEEE conference style. Actual submission will get extra 5%.
- Presentations will be required near the end of the semester
- The presentation content will be included in the final exam

Quizzes (6)

- Planned: Sep. 14 (Wed), Sep. 28 (Wed), Oct. 12 (Wed), Nov. 7 (Mon), Nov. 21 (Mon), Dec. 5 (Mon)
- No make-up chance for missed quiz, but one worst quiz score (or missed quiz) will be dropped from the evaluation. Scores will be posted on the WebCampus

Exams (2)

- Closed books and notes. Multiple choice + short answers
- NO make-up exams, NO early exams
- Midterm: **Oct. 17, Monday**, 4:00pm – 4:15pm (Review on Oct. 12, Wednesday)
- Final: **Dec. 12, Monday**, 6:00pm – 8:00pm (Range: After the midterm) (Review on Dec. 7)

Evaluation

Area	Weight (CS443)	Weight (CS643)
Assignments	20%	15%
Presentation & report (CS 643 only)	N/A	20% (+ 5%)
Quiz and Class participation	10%	5%
Midterm Exam	35%	30%
Final Exam	35%	30%

Grading

- Curved (***Rough*** distribution of grades: A: 25%, B: 30%, C: 35%, D&F: 10%)
- CS443 and CS643 will be graded in different pools.

Tentative Schedule

	Week	Monday	Wednesday
1	29-Aug	Chapter 1, 2	Chapter 2, 3
2	5-Sep	Labor day recess- no class	Chapter 3, 4
3	12-Sep	Chapter 5	Chapter 5 (Quiz 1)
4	19-Sep	Chapter 6	Chapter 6
5	26-Sep	Chapter 7	Substitute class (Quiz 2)
6	3-Oct	Chapter 8	Chapter 8, 9
7	10-Oct	Chapter 9	Review for Midterm (Quiz 3)
8	17-Oct	Midterm Exam	Presidential debate - no class
9	24-Oct	Chapter 10	Chapter 10
10	31-Oct	Chapter 11	Chapter 11
11	7-Nov	Chapter 13 (Quiz 4)	Chapter 14
12	14-Nov	Chapter 15	Chapter 18
13	21-Nov	Chapter 18 (Quiz 5)	Chapter 19
14	28-Nov	Chapter 20, 23	CS643 Presentation
15	5-Dec	CS643 Presentation (Quiz 6)	Review for Final Exam
16	12-Dec	Final Exam	

Selected UNLV Policies:

Academic Misconduct—Academic integrity is a legitimate concern for every member of the campus community; all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy and are encouraged when faced with choices to always take the ethical path. Students enrolling in UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's function as an educational institution. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another, from the Internet or any source, without proper citation of the sources. See the *Student Academic Misconduct Policy* (approved December 9, 2005) located at: <https://www.unlv.edu/studentconduct/student-conduct>.

Copyright—The University requires all members of the University Community to familiarize themselves **with** and to follow copyright and fair use requirements. **You are individually and solely responsible for violations of copyright and fair use laws. The university will neither protect nor defend you nor assume any responsibility for employee or student violations of fair use laws.** Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional information can be found at: <http://www.unlv.edu/provost/copyright>.

Disability Resource Center (DRC)—The UNLV Disability Resource Center (SSC-A 143, <http://drc.unlv.edu>, 702-895-0866) provides resources for students with disabilities. If you feel that you have a disability, please make an appointment with a Disabilities Specialist at the DRC to discuss what options may be available to you. If you are registered with the UNLV Disability Resource Center, bring your Academic Accommodation Plan from the DRC to the instructor during office hours so that you may work together to develop strategies for implementing the accommodations to meet both your needs and the requirements of the course. Any information you provide is private and will be treated as such. To maintain the confidentiality of your request, please do not approach the instructor in front of others to discuss your accommodation needs.

Religious Holidays Policy—Any student missing class quizzes, examinations, or any other class or lab work because of observance of religious holidays shall be given an opportunity during that semester to make up missed work. The make-up will apply to the religious holiday absence only. It shall be the responsibility of the student to notify the instructor **within the first 14 calendar days of the course for fall and spring courses (excepting modular courses), or within the first 7 calendar days of the course for summer and modular courses**, of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit: <http://catalog.unlv.edu/content.php?catoid=6&navoid=531>.

Transparency in Learning and Teaching—The University encourages application of the transparency method of constructing assignments for student success. Please see these two links for further information: <https://www.unlv.edu/provost/teachingandlearning>, <https://www.unlv.edu/provost/transparency>

Incomplete Grades—The grade of I—Incomplete—can be granted when a student has satisfactorily completed three-fourths of course work for that semester/session but for reason(s) beyond the student's control, and acceptable to the instructor, cannot complete the last part of the course, and the instructor believes that the student can finish the course without repeating it. The incomplete work must be made up before the end of the following regular semester for undergraduate courses. Graduate students receiving "I" grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the time indicated, a grade of F will be recorded and the GPA will be adjusted accordingly. Students who are fulfilling an Incomplete do not register for the course but make individual arrangements with the instructor who assigned the I grade.

Tutoring and Coaching—The Academic Success Center (ASC) provides tutoring, academic success coaching and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, visit <http://www.unlv.edu/asc> or call 702-895-3177. The ASC building is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of the SSC (ASC Coaching Spot). Drop-in tutoring is located on the second floor of the Lied Library and College of Engineering TEB second floor.

UNLV Writing Center—One-on-one or small group assistance with writing is available free of charge to UNLV students at the Writing Center, located in CDC-3-301. Although walk-in consultations are sometimes available, students with appointments will receive priority assistance. Appointments may be made in person or by calling 702-895-3908. The student's Rebel ID Card, a copy of the assignment (if possible), and two copies of any writing to be reviewed are requested for the consultation. More information can be found at: <http://writingcenter.unlv.edu/>.

Rebelmail—By policy, faculty and staff should e-mail students' Rebelmail accounts only. Rebelmail is UNLV's official e-mail system for students. It is one of the primary ways students receive official university communication such as information about deadlines, major campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the university. Students' e-mail prefixes are listed on class rosters. The suffix is always @unlv.nevada.edu. **Emailing within WebCampus is acceptable.**

Final Examinations—The University requires that final exams given at the end of a course occur at the time and on the day specified in the final exam schedule. See the schedule at: <http://www.unlv.edu/registrar/calendars>.

UNLV Library Resources—Students may consult <https://www.library.unlv.edu/consultation> with a librarian on research needs. For this class, the subject librarian is Sue Wainscott. See: https://www.library.unlv.edu/contact/librarians_by_subject for more information. UNLV Libraries provides resources to support students' access to information. Discovery, access, and use of information are vital skills for academic work and for successful post-college life. Access library resources and ask questions at <https://www.library.unlv.edu>.