

CIT 380–Securing Computer Systems

Spring 2014

MW 16:45-18:00 in GH 160

Instructor Information

Name	: James Walden	Office Hours
E-Mail	: waldenj@nku.edu	M 15:00-16:45
Office	: GH 526	W 13:00-14:00
Phone	: (859) 572-5571	W 21:00-22:00
		also by appt
Web Site	: http://faculty.cs.nku.edu/~waldenj	

Summary

Description : An introduction to the concepts and technologies of computer security, with a focus on the practical aspects of securing computers, including common security threats and computer crime, authentication, cryptography, malware, operating systems security, and network security.

Prerequisites : CIT 371: System Administration

Textbooks : Michael T. Goodrich and Roberto Tamassia, *Introduction to Computer Security*, Pearson, 2011, ISBN: 978-0-321-51294-9.

Student Learning Outcomes

By the end of the course, a successful student should be able to

1. Explain common security threats and attacks, including malware.
2. Identify security vulnerabilities in computer systems.
3. Apply authentication and cryptography to secure computer systems.
4. Use open source tools to improve system security.
5. Understand the fundamentals of network security.
6. Describe the processes of auditing and incident response.
7. Understand ethical and legal considerations of working in information security.

Grading

Your grade in this course will be based on the following classes of assessments, each of which counts for the specified percentage of your semester grade.

- Class Preparation (20%)** For each class meeting, you will be assigned questions to answer based on the readings for that class period. To receive credit for class participation, you must bring a printed sheet with answers to these questions with you to class and turn them in before the end of the class period. No late or electronic answers will be accepted. The preparation questions will be graded on a pass/fail basis. Your answers will be evaluated on how well you demonstrated preparation for class, not on getting a particular correct answer. In addition to being worth 20% of your semester grade, these questions will help you prepare for the midterm and final exams, so take notes on the instructor's discussion of these questions in class.
- Security Labs (20%)** Labs help you understand the practical aspects of security. While you will be given time in class to begin working on labs, labs will typically require time outside of class to complete and are due at the next class period. Labs will be accepted up to one week after the lab was originally due. Late labs will incur a 20% grade penalty.
- Security Project (10%)** The project is a security assessment of a set of network devices configured by the instructor. The project will be completed entirely outside of class over the course of a couple of weeks and will require you to apply the skills learned in labs throughout the semester. Security tools and references listed on the Sites page of the course web site will be helpful in completing the project. It will be due at the end of the semester. No late projects will be accepted.
- Midterm Exam (25%)** The midterm examination will cover all material up until the class period during which it is given. It will consist of a set of short answer and essay questions, most of which will be similar to the questions assigned as class preparation exercises. You will have an entire 75-minute class period to complete the exam. The date is on the class schedule web page.
- Final Exam (25%)** A comprehensive examination covering all of the material in the course given during finals week in a two hour period. The format will be the same as that of the midterm exam. The date is on the class schedule web page.

Your letter grade will be based on your percentage score from the sum of the assessment areas above as shown in the table below.

Grade	Percent	Grade	Percent
A	93-100	C+	77-80
A-	90-93	C	73-77
B+	87-90	C-	70-73
B	83-87	D+	67-70
B-	80-83	D	60-67
		F	0-60

In accordance with university policy, mid-term grades will be available online through MyNKU and are issued to all undergraduate students. These grades are not part of your permanent record and will be replaced when final grades are submitted. Remember: mid-term grades do not guarantee a good or bad class grade; they reflect the current level of performance and can be altered by the quality of subsequent work.

Students with Disabilities

Students with disabilities who require accommodations (Academic adjustments, auxiliary aids or services) for this course must register with the Disability Services Office. Please contact the Disability Service Office immediately in the University Center, Suite 320 or visit the website at <http://disability.nku.edu/> for more information. Verification of your disability is required in the Disability Services Office for you to receive reasonable academic accommodations.

Academic Dishonesty

The work that you submit in this course is subject to Northern Kentucky University's Student Honor Code (see <http://www.nku.edu/audience/current-students/honor.html>.) Issues involving academic dishonesty are taken very seriously by this instructor and are dealt with according to College and Department policy. Academic dishonesty includes but is not limited to:

1. Submission of material which is not the student's own work.
2. Improper access to evaluation material or records.
3. Conduct which interferes with the work or evaluation of other students.

Some specific examples of dishonesty include:

1. Copying from another person, book, magazine, or other electronic or printed media.
2. Obtaining another person's exam answer or answers.

3. Assisting another student in submitting work that is not the student's own.

It is unacceptable to share program code, configuration files, or assignment solutions. It is acceptable and often a good idea to talk about program algorithms and assignment solution strategies, but it is not acceptable to use the same code or code segments, or to share actual solutions to homework problems. Any act of academic dishonesty will result in a grade of zero (0) for that item for the first occurrence. An automatic F in the course will result for the second offense. This policy holds for assignments and programs, as well as for tests. In order to be fair, penalties will be applied to all parties involved regardless of culpability or fault.

Course Topics and Calendar

This course will cover the following topics and chapters of the textbook:

1. Security Fundamentals (chapter 1)
2. Authentication and Passwords (chapter 2)
3. Access Control (chapter 2)
4. Operating Systems Concepts (chapter 3)
5. Operating Systems Security (chapter 3)
6. Software Security (chapter 3)
7. Malware (chapter 4)
8. Network Security (chapter 5)
9. Firewalls (chapter 6)
10. Intrusion Detection Systems (chapter 6)
11. Wireless Security (chapter 6)
12. Web Application Security (chapter 7)
13. Cryptography (chapter 8)

See the course web site, <http://faculty.cs.nku.edu/~waldenj/classes/2014/spring/cit380/> for a detailed course calendar with readings, labs, assignments, and notes.

Resources and References

Information security resources specific to this course can be found via the Sites link, while information security resources for the university and local area can be found at the Center for Information Security page, <http://cis.nku.edu/>.