CIT 482/582–Computer Security
Fall 2014 (TR 4:50-6:05 in GH 335)

INSTRUCTOR INFORMATION

Name	James Walden		Office Hours
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SUMMARY

Description	Theory and algorithms of computer security, including security policies, access control, secure programming, identity and authentication, information flow, and information assurance techniques.
Prerequisites	CSC 362: Computer Systems.
Textbooks	Daswani et. al., *Foundations of Security: What Every Programmer Needs to Know*, Apress, 2007, Ross Anderson, *Security Engineering, Second Edition*, Wiley, 2008 (available for free online).

STUDENT LEARNING OUTCOMES

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

1. Identify common threats to information security.

2. Understand authentication mechanisms.

3. Understand access control models.

4. Apply secure design design principles.

5. Construct small secure programs.

6. Understand how to use cryptography appropriately.

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.

Security Assignments (35%)   Assignments help you understand the wide variety of practical aspects of security. Some assignments will require programming, while others will be analytical in nature or involve network security tools using virtual machines. Assignments will be accepted up to one week after the assignment was originally due. Late assignments will incur a 20% grade penalty.

Research Paper (15%)   A 10-page research paper on a security topic of current interest will be due during the last week of classes. A draft of the paper will be due earlier. Topics must be approved by the instructor. Papers must have a title page and a list of references with at least 10 sources (see the Resources web page for details on finding sources). Neither the title page nor the references count towards the paper length.

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.

Undergraduate Students

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

Graduate Students

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	F	0-70
B-	80-83		

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 guaran-

tee a good or bad class grade; they reflect the current level of performance and can be altered by the quality of subsequent work.

CREDIT HOUR POLICY

In accordance with federal policy, NKU defines a credit hour as the amount of work represented in the achievement of student learning outcomes (verified by evidence of student achievement) that reasonably approximates one hour (50 minutes) of classroom instruction and a minimum of two hours of out-of-class student work. For every course credit hour, a typical student should expect to spend at least three hours per week of concentrated attention on course-related work including, but not limited to, class meeting time, reading, reviewing, organizing notes, studying and completing assignments. At least an equivalent amount of time is expected for other academic activities such as online courses, laboratory work, internships, practica, studio work and other academic work leading to the award of credit hours.

Estimates of the time required for a typical student to complete course expectations are:

In-Class (2 days x 75 min x 15 weeks)	37.5 hours
Class Preparation (2 hours x 15 weeks)	30 hours
Assignments	50 hours
Research Paper	20 hours
TOTAL	137.5 hours

COURSE TOPICS AND CALENDAR

This course will cover the following topics.

1. Security Fundamentals
2. Threats and Attacks
3. Vulnerabilities
4. Usability and Psychology
5. Access Control Matrix
6. Basic Cryptography
7. Authentication and Passwords
8. Security Protocols
9. Secure Design Principles
10. Secure Programming
11. Buffer Overflows
12. Web Application Security
13. Network Security
14. Security Policies
15. Ethical and Legal Issues

See the course web site, `http://faculty.cs.nku.edu/~waldenj/classes/2014/fall/csc482/`, for a detailed course calendar with readings, 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/`.

COMMUNICATION POLICY

Students should check the class web site for announcements and new course materials in the 24 hours before each class period. Students should also check their NKU e-mail accounts for important course and university announcements, such as snow days and other schedule changes.

Students are encouraged to ask questions in person or via telephone during faculty office hours or via e-mail at any time. E-mail messages should be from your NKU e-mail account and must include:

- A subject line beginning with the class number and including a summary of your question, e.g. "CIT 480: OpenVAS is not running on my Kali VM".

- A detailed description of the problem. Specify precisely on which assignment, machine, user account, and software the problem occurred and provide a list of steps needed to reproduce the problem.

- The message should close with your full name.

The instructor will answer e-mail following the above guidelines within one business day.

STUDENTS WITH DISABILITIES

Students with disabilities who require accomodations (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 accomodations.

HONOR CODE

The Student Honor Code is a commitment by students of Northern Kentucky University, through their matriculation or continued enrollment at the University, to adhere to the highest degree of ethical integrity in academic conduct. It is a commitment individually and collectively that the students of Northern Kentucky University will not lie, cheat, or plagiarize to gain an academic advantage over fellow students or avoid academic requirements.

The purpose of the Honor Code is to establish standards of academic conduct for students at Northern Kentucky University and to provide a procedure that offers basic assurances of fundamental fairness to any person accused of violations of these rules. Each Northern Kentucky University student is bound by the provisions of the Honor Code and is presumed to be familiar with all of its provisions. Students also should aspire to conduct themselves in a manner that is consistent with the highest degree of ethical integrity in all matters, whether covered in the Honor Code or not. The success of this commitment begins in the diligence with which students uphold the letter and the spirit of the Honor Code. Students may view the complete honor code at `http://deanofstudents.nku.edu/policies/student-rights.html#policies`.

STUDENT EVALUATIONS

Northern Kentucky University takes Instructor and Course Evaluations very seriously as an important means of gathering information for the enhancement of learning opportunities for its students. It is an important responsibility of NKU students as citizens of the University to participate in the instructor and course evaluation process. During the two weeks prior to the end of each semester's classes, you will be asked to reflect upon what you have learned in this course, the extent to which you have invested the necessary effort to maximize your learning, and the role your instructor has played in the learning process. It is very important that you complete the online evaluations with thoughtfully written comments.

Student evaluations of courses and instructors are regarded as strictly confidential. They are not available to the instructor until after final grades are submitted, and extensive precautions are taken to prevent your comments from being identified as coming from you. Students who complete an evaluation for a particular course (or opt out of doing so in the evaluation) will be rewarded for their participation by having access to their course grade as soon as that grade is submitted by the instructor. On the other hand, any student who does not complete the course evaluation (or opt out of doing so in the evaluation) should expect to incur a two week delay in access to his or her course grade beyond the university's official date for grade availability. To complete online evaluations go to `http://eval.nku.edu/`. Click on "student login" and use the same username and password as used on campus.

In addition, you should be aware that:

- Evaluations can affect changes in courses. Evaluations without comments are less valuable and less credible than those filled out thoughtfully. Comments that are expressed well are more effective than those that are not.

- Positive feedback is just as important as criticism. Moreover, negative evaluations without any explanation and specifics are not especially useful.

- Once grades are submitted, all evaluations are read not only by the instructor, but also by the instructors department chairperson.

- Evaluations not only provide feedback to your instructor, but also provide information to the department chair for use in performance evaluations. This information affects reappointments, promotions, salaries, and teaching assignments.