CSC302 Computer Security II

INSTRUCTOR

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Office Hours: TuTh: 3:30-5:00pm; We: 3:00-5:00pm; or by appointment.

PREREQUISITES

CSC301 Computer Security I

TEXTBOOK


RECOMMENDED BOOK (NOT REQUIRED)


COURSE DESCRIPTION

This course will provide an introduction to critical and diverse topics in computer security, such as security requirements, attack models, cryptography, authentication, system security, etc.

Students will also learn practical knowledge through a hands-on lab experience. Students will work on teams to administrate and meanwhile to compromise computers administrated by the instructor and the other teams. Each team will also need to detect and trace all unauthorized access for the computers that it manages and monitors.

LEARNING OUTCOME GOALS

The students will be able to:

- Understand important topics of computer security, such as security concepts, principles, components, architectures, ethical and legal issues.
- Design, implement and evaluate a secure network system.
- Apply mathematical foundations, algorithm principles, and computer science theory in topics such as cryptographic operations and security architecture.
- Work effectively both independently and in teams through hand-on lab activities and team projects.
- Understand and use the newest security tools.
- Find technical information from the web and other sources when they do assignments and project.
ABET ACCREDITATION PROGRAMMATIC STUDENT LEARNING OUTCOMES

http://www.cs.wcupa.edu/curriculum/objectives.html

(d) An ability to function effectively in teams to accomplish a common goal.

(e) An understanding of professional, ethical, legal, security, and social issues and responsibilities.

(i) An ability to use current techniques, skills, and tools necessary for computing practices.

(j) An ability to apply mathematical foundations, algorithmic principles, and Computer Science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.

COURSE OUTLINE (STC)

PART I: Introduction
   1. Introduction to computer security (terminology, security services, attack models, security architectures, the orange book)

PART II: Cryptography
   2. Public key cryptography and its applications
   3. Secret key cryptography and its applications
   4. Hash algorithms and its applications

PART III: Identification and Authentication
   5. Overview of authentication systems
   6. User authentication
   7. Managing and protecting passwords

PART IV: Security in systems
   8. Unix/Linux security
   9. Windows security

PART V: Authentication in Distributed System
   10. Introduction to Kerberos
   11. PKI(Public Key Infrastructure)

PART VI: Other topics
   12. Intrusion detection
   13. Introduction to Database security
   14. Introduction to Software security

GRADING POLICY

1. One Linux quiz (10%), midterm 20%, final exam 20%.
2. Term project 30%.
3. One programming assignment (6%)
4. Written assignments 8% (2 of them, 4% each).
5. Small out-of-class practices and in-class exercises 6% (6 of them, 1% each).
POLICIES ON LATE ASSIGNMENTS

Homework and project deadlines will be enforced. Late homework will be accepted with a 5% reduction in grade for each class period they are late by, and 10% reduction for each week. However, once a homework assignment is discussed in class or the solution is posted, submissions will no longer be accepted. All assignments must be turned in before the start of class on the due date.

POLICIES ON ABSENCES AND MAKEUP WORK

1. Students are allowed to take excused absence. However, evidence, such as university excuse letter or doctor's note, must be shown. The instructor will NOT discuss the content of missed classes with students who take unexcused absence.
2. Students are responsible for discussing makeup exams if they miss exams due to excused absence. The instructor will choose a mutually agreed date and time for the makeup exam. The makeup exam must be taken before the exam keys are distributed or the exams are discussed in class.
3. Late submission of homework assignments due to excused absences is not subject to the policies on late assignments.

CLASSROOM ENVIRONMENT AND GRADING

Classes are a relaxed, but serious work environment. Cell phones / texting, iPods, etc. in class, disruptive classroom behavior, inappropriate conversations, leaving/entering class without permission, unexplained and or repeated lateness, equipment / furniture abuse, and other items that may be noted as unacceptable by your instructor will be deductions from your grade.

IMPORTANT DATES

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
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<tbody>
<tr>
<td>First Day of Classes</td>
<td>August 29</td>
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<tr>
<td>Last day to drop/add</td>
<td>September 6</td>
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<td>Course Withdrawal Period Begins</td>
<td>September 7</td>
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<tr>
<td>End of Course Withdrawal period. Term Withdrawals only after this date.</td>
<td>October 28</td>
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<tr>
<td>End of term withdrawal period.</td>
<td>December 5</td>
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<tr>
<td>Last Day of Classes</td>
<td>December 12</td>
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<tr>
<td>Final Examination (Team Project Presentation)</td>
<td>1-3pm, Thursday, December 15, 2016 (STC)</td>
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<td>No Classes (labor day, fall break, thanksgiving)</td>
<td>Sep. 5, Oct. 10-11; Nov. 23-25.</td>
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ACADEMIC INTEGRITY

COMPUTER SCIENCE ACADEMIC DISHONESTY POLICY

The Computer Science Department has adopted the following policies in regard to academic dishonesty in Computer Science classes:

1. A student found to be academically dishonest in an assignment will receive zero for that assignment if it is his/her first offense in that class, but an F for the course if it is for his/her second offense in that class.
2. A student found to be academically dishonest in a test will receive the grade of F in that class.
3. For the purposes of this document on academic dishonesty, every form or method of evaluation in a class will be considered as being of one of two types: an assignment or a test. Assignments include homework assignments, and short quizzes. Tests include final exams and major exams. An instructor has, subject to these guidelines, the discretion to determine the type of any other form of evaluation, such as a project, in his/her class.

4. A student who has received the grade of F in a course because of academic dishonesty and who wants or is required to repeat that course may re-take that course only as a regularly scheduled course that is open to the student community in general. In exceptional circumstances, this condition may be revoked, but only by an explicit action to that effect by the full Computer Science Committee, and only then on a case by case basis.

5. The term academic dishonesty is used throughout in the sense provided by the rules and regulations of West Chester University.

   The following is taken from The Ram's Eye View of 1997-1998:

   Academic dishonesty as it applies to students includes but is not limited to academic cheating; plagiarism; the sale, purchase, or exchange of term papers or research papers; falsification of information which includes any form of providing false or misleading information, written, electronic, or oral; or of altering or falsifying official institutional records. Plagiarism is defined as copying another's work or portion thereof and/or using ideas and concepts of another and presenting them as one's own without giving proper credit to the source.

**STUDENTS WITH DISABILITIES**

   Please see [http://www.wcupa.edu/_admin/social.equity/ADA.htm](http://www.wcupa.edu/_admin/social.equity/ADA.htm) for AMERICANS WITH DISABILITIES ACT POLICY

   According to the statement, "...A student who wants to request an accommodation and/or receive specialized services should contact the Director of the OSSD Office. The policies and procedures used by the OSSD Office are contained in the West Chester University Handbook on Disabilities, which is available in the OSSD Office, located at 105 Lawrence Center, V/TDD 610-436-3217."

**REPORTING INCIDENTS OF SEXUAL VIOLENCE**

   West Chester University and its faculty are committed to assuring a safe and productive educational environment for all students. In order to meet this commitment and to comply with Title IX of the Education Amendments of 1972 and guidance from the Office for Civil Rights, the University requires faculty members to report incidents of sexual violence shared by students to the University's Title IX Coordinator, Ms. Lynn Klingensmith. The only exceptions to the faculty member's reporting obligation are when incidents of sexual violence are communicated by a student during a classroom discussion, in a writing assignment for a class, or as part of a University-approved research project. Faculty members are obligated to report sexual violence or any other abuse of a student who was, or is, a child (a person under 18 years of age) when the abuse allegedly occurred to the person designated in the University protection of minors policy. Information regarding the reporting of sexual violence and the resources that are available to victims of sexual violence is set forth at the webpage for the Office of Social Equity at [http://www.wcupa.edu/_admin/social.equity/](http://www.wcupa.edu/_admin/social.equity/).
EMERGENCY PHONE NUMBER

All students are encouraged to sign up for the University’s free WCU ALERT service, which delivers official WCU emergency text messages directly to your cell phone. For more information, visit www.wcupa.edu/wcualert. To report an emergency, call the Department of Public Safety at 610-436-3311.

ELECTRONIC MAIL POLICY

It is expected that faculty, staff, and students activate and maintain regular access to University provided e-mail accounts. Official university communications, including those from your instructor, will be sent through your university e-mail account. You are responsible for accessing that mail to be sure to obtain official University communications. Failure to access will not exempt individuals from the responsibilities associated with this course.