This course will provide an introduction to computer security, with specific focus on the computing aspects. Topics covered will include: Basics of computer security including an overview of threat, attack, and adversary models; social engineering; essentials of cryptography; traditional computing security models; malicious software; secure programming; Operating system security in practice; trusted operating system design; public policy issues including legal, privacy, and ethical issues; network and database security overview. Recommended Preparation: CMSC421 or permission of the instructor.
1 Required Text


Supplemental (NOT Required) Texts


2 Course Prerequisite

- CMSC 341 (Data Structures)
- CMSC 421 (Principles of Operating Systems)
- **NOTE:** If you do not satisfy these prerequisites, you SHOULD DROP this course immediately.

3 Course Objectives

This course introduces computer security, with specific focus on the computing aspects. Topics covered will include: Basics of computer security including an overview of threat, attack, and adversary models; social engineering; essentials of cryptography; traditional computing security models; malicious software; secure programming; Operating system security in practice; trusted operating system design; public policy issues including legal, privacy, and ethical issues; network and database security overview. The objective of this course is to "...help you develop the same knowledge and experience with respect to the risks of secure computing." Security in Computing, Fourth Edition, Pfleeger 2008

4 Course Requirements

You are **required** to attend all the lectures. If you miss any of them, it is your responsibility to find out what went on during the classes and to collect any material that were handed out. The instructor is not obligated to provide this information outside the lecture time. **Class participation** is strongly encouraged to demonstrate the level of understanding of the material being discussed in the class.
5 Grading
The following allocation of points is tentative. These may change during the semester.

<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>30</td>
<td>Six assignments @ 5% each (Eiweekly assignments)</td>
</tr>
<tr>
<td>Mid-term Exam</td>
<td>20</td>
<td>Multiple choice, T/F, and essay</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20</td>
<td>Multiple choice, T/F, and essay</td>
</tr>
<tr>
<td>Project</td>
<td>20</td>
<td>Group of two-to-three students. Topics to be announced (TBA)</td>
</tr>
<tr>
<td>Quizzes</td>
<td>10</td>
<td>Two Quiz @ 5% each. First quiz before mid-term exam and second quiz is after the mid-term exam.</td>
</tr>
<tr>
<td>Extra Credit</td>
<td>xx%</td>
<td>Field Trip and minor research as offered</td>
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</tbody>
</table>

NOTE: Class participation is expected and may be counted as an intangible element of your final grade.

6 Syllabus and Notional Schedule
All chapters are with reference to the prescribed text, except otherwise mentioned. Not all sections in each chapter will be covered. Reading materials for midterm and final will list specific required sections. The listing reflects the order in which the chapters will be covered. Note that the Project and Test dates are tentative and likely to change based on material covered.
Major Topics:
Topics Approximate Number of Weeks (notional):
- Chapter 1: Introduction to Security in Computing (1 week)
- Chapter 2, 12: Introduction to Basics of Cryptography (2.5 weeks)
- Chapter 3: Program Security (3 weeks)
- Chapter 4: Protection in Operating Systems (1.5 weeks)
- Chapter 5: Designing Trusted Operating Systems (2 weeks)
- Chapter 6: Database Security (1 week)
- Chapter 7: Network Security (1 week)
- Chapter 8: Administration Security (1 week)
- Chapter 9: Cybersecurity (1 week)
- Chapter 10, 11: Legal, Privacy, Ethical Issues (1 week)

Required work: A written exam, some un-graded homework assignments, a research paper or project (individualized, talk to instructor) and associated presentation.

7 ADA Compliance

We recognize that some of you may require special attention from the instruction staff. Please inform the instructor of any special needs at your earliest convenience so that UMBC can make suitable arrangements.

8 Policies and Expectations

1. The individual assignments are subject to the UMBC Student Academic Conduct Policy. By enrolling in this course, each student assumes the responsibilities of an active participant in UMBC's scholarly community in which everyone's academic work and behavior are held to the highest standards of honesty. Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty, and they are wrong. Academic misconduct could result in disciplinary action that may include, but is not limited to, suspension or dismissal. To read the full Student Academic Conduct Policy, consult the UMBC Student Handbook, the Faculty Handbook, or the UMBC Policies section of the UMBC Directory [or for graduate courses, the Graduate School website]. For this course, the penalty for the first academic dishonesty offense is zero credit for all students involved, for the relevant component, IN ADDITION to a lower grade in the course (e.g., if you are in the B range at the end of the semester, you will receive a C). Repeat offenders will be assigned an F grade for the course. This is in top of any other disciplinary action as listed above.
2. Anyone who is absent from the class for three consecutive days without contacting the instructor will be requested to drop the course immediately. This policy will be strictly enforced.
3. Computers are likely to break down when you need them the most; start your work early and save your work frequently.
4. Keep a copy of all the graded components until the end of the semester when the final grades are announced.
5. Late assignments will NOT be accepted.
6. Make up tests and exams: If you will not be able to take the test and require a makeup, you have to let me know at least one week in advance. I will not entertain requests for makeup exams, unless there are serious reasons to do so.
7. 'I' grades will not be entertained unless extenuating circumstances are proved.
8. Good Luck and Have Fun!