CS 491/591 Introduction to Computer Security     Fall 2021

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Course homepage: http://www.cs.pdx.edu/~cvwright/courses/introsec/

Course Description

Provides a broad overview of computer security. Provides a solid theoretical foundation, as well as real-world
elements, for understanding computer security. Fundamental theoretical results, foundational models, and
salient examples will be covered. Security in computer operating systems, networks, and data will be covered,
with emphasis on operating system and program security.

Special Coronavirus Statement for Fall 2021

I want to acknowledge that we are still operating in unusual circumstances as we return to campus this
term. Please let me know if you need to miss class due to the virus, or if you need extra time to complete
an assignment.

Also, please note that face coverings are currently required in all PSU facilities, and that non-
compliance with this policy may lead to removal from the class and a referral to the Office of the Dean of
Student Life to consider charges under PSU’s Code of Conduct.

Prerequisites        CS 333 Operating Systems; CS 350 Algorithms and Complexity; C programming

Recommended Textbook / Free Online Resource  R. Anderson. Security Engineering, 2nd ed. Wiley,
2008. (Free from the author online: https://www.cl.cam.ac.uk/~rja14/book.html)

Course Outline

Topics include

1. Software Vulnerabilities and Exploitation
2. Malicious Software
3. Software Defenses
4. Basics of Applied Cryptography
5. Authentication, Provenance, and Trust
6. OS and Hardware Protection Mechanisms
7. Access Control Theory and Practice
8. Intrusion Detection and Forensics
9. Advanced Topics (as time permits)
Grading  Final grades will be determined according to the following formula:

<table>
<thead>
<tr>
<th></th>
<th>CS 491</th>
<th>CS 591</th>
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<tbody>
<tr>
<td>Homework and Labs</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>Exam 1</td>
<td>20%</td>
<td>20%</td>
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<tr>
<td>Exam 2</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>Presentation</td>
<td>15%</td>
<td>15%</td>
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Letter grades will be calculated according to the standard US system on a roughly 10-point scale. 
(A- ≈ 90%, B- ≈ 80%, C- ≈ 70%, etc.)

Late Work  Unless there are special circumstances, all assignments should be turned in no later than the assigned deadline. Some late work will be accepted, subject to the following penalties:

<table>
<thead>
<tr>
<th>Time past deadline</th>
<th>Grade Penalty</th>
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<tbody>
<tr>
<td>Less than 2 hours</td>
<td>-5%</td>
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<tr>
<td>Less than 24 hours</td>
<td>-20%</td>
</tr>
<tr>
<td>Less than 48 hours</td>
<td>-33%</td>
</tr>
<tr>
<td>More than 48 hours</td>
<td>-50%</td>
</tr>
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</table>

Note: If there are special circumstances (medical issues, family emergency, etc) that prevent you from turning in an assignment by the given deadline, please let me know as soon as possible. I will work with you to find a fair and workable solution.

Fall 2021: This term we will give unlimited extensions for valid medical reasons. For example, this includes when you yourself are sick, or when you need to care for someone else. Apart from medical issues, we will also be granting one 72-hour extension to every student, with no questions asked.

Electronic Discussions  A space for electronic discussions (mailing list, Piazza, Slack, etc.) will be provided for this course. Details will be provided in class. All students should sign up for the discussion channel to receive important course-related announcements. Please note: Respectful communication is required on all electronic discussion resources. Please be courteous and professional. Use of electronic resources is subject to Portland State’s student code of conduct, and discrimination or harassment of any kind will not be tolerated.

Academic Honesty  All submissions must represent the work of the submitting team or individual. It is permissible to discuss the assignment with other students, but you must develop each solution yourselves. Do not, under any circumstances, copy another persons program and submit it as your own. Writing any material (whether it be code, English text, or other) for use by another or using anothers work as your own, in any form (even with their permission), will be considered cheating. Cheating on an assignment or exam will result in an automatic zero grade for that piece of work, and the initiation of disciplinary action at the University level.

Ethics  Some of the technical material studied in this course might be useful for doing things that violate university regulations, laws, or common standards of ethical behavior. Any such behavior that comes to the instructors attention will be reported to appropriate authorities. In particular, note that use of university computing resources is governed by the Office of Information Technology’s Acceptable Use Policy, which may be found at http://oit.pdx.edu/aup/.

Accessibility  If you are a student with a disability in need of academic accommodations, you should register with Disability Services for Students and notify the instructor immediately to arrange for support services.