

CS 491/591 Introduction to Computer Security - Fall 2012

Instructor:

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Course home page: <http://www.cs.pdx.edu/~apt/cs491>

Catalog Description

Provides a broad overview of computer security. Provides a solid theoretical foundation, as well as real-world examples, 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.

Prerequisites

Formal prerequisites are CS 333 and 350 (with grades of C or better), and C and Java programming experience. Basic knowledge of compilers and assembly code and of networking protocols will also be quite useful.

Texts

The required textbook is

- Pfleeger and Pfleeger, *Analyzing Computer Security*, Prentice Hall, 2012. ISBN 978-0-13-278946-2.

Additional required readings from other sources will be made available on the web page.

Exams

There will be one mid-term and a final exam. Both are *closed-book*, but a one-page “cheat sheet” of notes will be allowed. Exams will cover topics from lectures and readings. Exams are scheduled in advance; unless prior arrangements are made, a grade of zero will be recorded for missed exams.

Projects

There will be three small programming projects, using C and/or Java, performed in small teams. The *tentative* topics of the projects are:

- 1 Buffer overflow attacks
- 2 Implementing cryptographic protocols
- 3 Network intrusion detection

Projects are to be submitted electronically; details will be provided with each project assignment.

Term Paper

Graduate students (enrolled in CS591) must write a term paper on a computer security topic mutually agreed between student and instructor. The paper should be based on library research, i.e., information that the student assembles primarily from published sources. The student is not expected to obtain novel research results, but all writing in the

paper should be original. Survey papers are recommended. A survey paper should motivate and define a problem area and then develop and evaluate one or more potential solutions to that problem.

The intended subject of the paper, together with an annotated bibliography of five to ten key papers, must be submitted for instructor approval approximately half way through the term.

Each term paper author must give a brief presentation to the class on the last day of the term.

The paper itself should be 10-15 pages (20 page maximum), and will be due at the beginning of finals week.

Class Participation

Discussion of the reading is an important part of classes. To seed discussion, several questions will be posed in advance each week. Students should come to class prepared to discuss these questions, and the reading in general. Participation will be a (small) part of the overall grade.

Grading

For undergraduates (enrolled in CS491):		For graduate students (enrolled in CS591):	
Midterm	30%	Midterm	20%
Final	35%	Final	25%
Projects	30%	Projects	20%
Class participation	5%	Term paper and presentation	30%
		Class participation	5%

Computing Facilities

For some of the projects, you will need access to the CS linuxlab machines. Other projects will require use of Java, but can be completed on your own machine. If you don't already have an account, go to FAB 82-01 to obtain one. Files associated with the projects will be made available for download via the course web page.

Mailing List

Important information will be distributed throughout the term via a mailing list called `cs491`. To subscribe to the list, visit <https://mailhost.cecs.pdx.edu/mailman/listinfo/cs491> and follow the directions there. Please mail questions to the instructor directly (at `apt`) rather than to this list; the instructor will copy mail of general interest to the list. The list is archived so you can consult previous messages.

Rules

All project submissions must represent represent the work of the submitting team. It is permissible to discuss the assignment with students on other teams, but you must develop the solution yourselves. *Do not, under any circumstances, copy another person's program and submit it as your own.* Writing code for use by another or using another's code 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.

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 instructor's 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/>.

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.