

CS166: Introduction to Computer Systems Security

<http://cs.brown.edu/courses/cs166>

Semester II, 2007–2008

Time & Place: MW 1:00- 2:30 PM, CIT 368

Instructor: Roberto Tamassia (rt) (*office hours by appointment*)

Head TA: Jonathan Natkins (jnatkins) W 6:00 - 8:00 PM

Graduate TA: Jennie Rogers (jennie) M 12:00 - 2:00 PM

Undergraduate TAs:

Olin Gay (ogay) Th 7:00 - 9:00 PM

Paul Meier (pmeier) Tu 6:00 - 8:00 PM

Ali Ozler (aozler) Tu 6:00 - 8:00 PM

Gal Peleg (gpeleg) F 4:00 - 6:00 PM

Course Prerequisites

The prerequisite for this course is either CS016 or CS018. CS166 assumes no prior knowledge of computer security. If wish to take this course but you have not taken either CS016 or CS018, you must get permission from Roberto. A working knowledge of the Java programming language and its basic packages are assumed.

Student Agreement

To be officially enrolled in CS166, you must complete and return a *signed* copy of the CS166 Student Agreement. Please make sure you read and understand the CS166 collaboration policy. Questions regarding the policy should be directed to Roberto or the Head TA.

Reading Material

There is no required textbook for this course. The *recommended* textbook is “Network Security Essentials: Applications and Standards” (3rd edition) by William Stallings, Prentice Hall, 2007. Also, there will be additional assigned or recommended readings to help you gain a deeper understanding of the material presented in class. Class notes and copies of the presentations shown in class will be made available on the course web site. While it is not required, the movie “Hackers” is highly recommended as being a sweet movie. Similarly, “Enemy of the State,” “Firewall,” “Mercury Rising,” and “Swordfish” will lead to no deeper understanding of the course but will provide a solid night of entertainment.

Language Policy

Given the prerequisites for this course, there is no requirement that you know any programming language other than Java in order to take CS166. This means that TA-provided support code, for those assignments where there is any, will be designed for use with Java. It also means that support and assistance will be best across the TA staff for assignments written in Java. However, we recognize that many students would like to use other programming languages where possible, and we will be allowing this option this year. Specifically, this is the full list of programming languages we will allow:

- Java
- C/C++
- Perl
- Python
- PHP
- Ruby
- Bash
- Scheme

With regard to libraries, we will allow you to use the portions of these languages' standard libraries that have an equivalent in the Java SE 6 API. *Standard libraries* are those included with the standard distribution of the language. To use features of the standard libraries outside the subset equivalent to Java SE 6, or to use libraries that are not included with the language, you must get permission from the course staff first. The policy regarding calling external programs (e.g. `System.exec()` or equivalents) will be determined on a per-project basis, since it will be more appropriate for some projects than for others.

As an exception, in recognition of the fact that Bash programming requires external programs to have equivalent functionality to most of the other languages we are allowing, the following external programs will always be allowed in Bash programs (only the standard implementations found in `/bin` or `/usr/bin`):

```
awk basename cat chcon chgrp chmod chown cksum comm cp csplit cut date dd df dir dircolors
dirname du echo egrep env expand expr factor false fgrep fmt fold grep groups head hostid id install
join link ln logname ls md5sum mkdir mkfifo mknod mv nice nl nohup od paste pathchk pinky pr
printenv printf ptx pwd readlink rm rmdir runcon sed seq sha1sum shred sleep sort split stat stty sum
sync tac tail tee test touch tr true tsort tty uname unexpand uniq unlink users vdir wc who whoami
yes
```

Not all the TAs are able to support every language we are allowing. Therefore, when using a language other than Java, you may need to go to specific TAs' hours in order to get proper assistance with your code. The list of which TAs know which languages will be posted on the website.

Graded Work

- Five homeworks (40%)
- Four programming assignments (60%)

CS166 satisfies the practice course requirement but not the significant programming requirement. A 200-level credit option, available to both undergraduate and graduate students, requires the completion and class presentation of a project, to be arranged with Roberto.

Announcements

The CS166 Web site (<http://cs.brown.edu/courses/cs166>) and the CS166 section of MyCourses (<http://mycourses.brown.edu>) are the main sources of information about the course. You should check both regularly, as announcements, clarifications, questions, and answers are posted often, as well as other course-related information. Also, there will be a course mailing list for announcements for which a mass email makes sense. The list will only accept postings from the course staff. You will be subscribed to this list with your CS email address, so please be sure to check that regularly as well as the website and MyCourses.

Students may post questions to TAs on the MyCourses discussion forum. Via MyCourses, the TAs will provide administrative announcements, answers to previously posted questions, and other information of general interest. Students may answer each others' posts, provided that the collaboration policy is not violated. You should never post your own code, or anything too specific, as MyCourses can be read by everyone taking the course. If you have doubts about whether or not posting something is legal: do not do it, ask a TA instead. Remember that the purpose of the MyCourses discussion forums is to allow people quick access to questions and answers. Please do not clutter MyCourses with jokes, flames, or general discussions about the course.

Subjects of MyCourses posts should use the following format:

[Assignment Name] Subject of Question.

TAs will put "***" around important posts. This makes it easier to find the post that you are looking for.

Exams

There are no exams in CS166.

Late Policy

As with most classes in the CS department, there is an official late policy for CS166.

Late Credits: Each student will be allotted a total of 72 "late credits" toward submitting homeworks and programs late. Each late credit can be used to extend the deadline for a homework or program by one hour. At the end of the semester, your late credits will be optimally distributed among your assignments.

Homeworks: You may use no more than 24 late credits on any individual homework. After taking into account any extension due to late credits, the deadline for homeworks is firm and homeworks submitted after this deadline will not be accepted. Please plan accordingly. However, your worst homework will be weighted half as much as the others.

Programs: You may use as many of your 72 late credits as you wish on individual programs, except that no more than 72 late credits total can be used across all homeworks and programs. For every full or partial day that a program is late after taking into account late credits, you will lose 10% of your grade on that program.

Exceptions: Exceptions to the above rules can be made only for "good reasons," which include medical problems, family emergencies, and official Brown-sponsored activities. If you believe you have a good reason, you should discuss the matter with Roberto. If Roberto determines that you have a good reason, you may be excused from doing certain homeworks and/or you may obtain additional late credits for your homeworks or programs. Note that job interviews, availability of low airfares, and recreational activities are not considered good reasons.