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# Essentials: Communication, Content, and Structure

## Communications

Class Meetings: Monday, Thursday 14:45 - 16:00, Room C107HN  
Office: HN1090J  
Office Hours: Tuesdays, 13:00 - 15:00  
Email: [stewart.weiss@hunter.cuny.edu](mailto:stewart.weiss@hunter.cuny.edu)  
Telephone: (212) 772-5469

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## Resources

*Textbooks:* Dave Taylor, *SAMS Teach Yourself Unix in 24 Hours, Third Edition*. Sams Publishing, 2001. ISBN 0-672-32127-0. (out of print)  
Andrew L. Johnson, *Elements of Programming with Perl*, Manning Publications, 1999, ISBN 1-884777-80-5. (out of print)  
*Because these books are out of print, you must get them second hand from any one of several used-book websites or dealers.*

*Computing Facilities:* All registered students will be given user accounts on the Computer Science UNIX network unless they already have one. These accounts provide access to all UNIX hosts in the network, including those in the 1000G lab on the tenth floor of Hunter North. This lab is available 24 hours a day, 7 days a week, to students enrolled in selected courses. The accounts also enable students to remotely login to the network using an *ssh* client. See ***Programming and System Access*** below for instructions on how to obtain an *ssh* client for a home computer.

*Website:* All course materials, including lecture notes, slides, assignments, syllabus, and other resources, including this document, are posted on my website, at [http://www.compsci.hunter.cuny.edu/~sweiss/course\\_materials/csci132/csci132\\_f14.php](http://www.compsci.hunter.cuny.edu/~sweiss/course_materials/csci132/csci132_f14.php)

## Prerequisites

None.

## Course Objectives and Content

This is an introduction to elementary computer programming and the UNIX operating system. It also serves as a gateway into the bioinformatics concentration/program. Students are taught fundamental programming principles that can be applied to any programming language, but Perl, which is a versatile and yet easy-to-learn language, is what is taught in this course. Students are given a conceptual overview of the UNIX operating system and programming environment, and a practical introduction to the use of various UNIX tools, such as filters and utilities. This is primarily a pragmatic course with an emphasis on skills acquisition; students will learn how to get things done quickly and easily in a UNIX environment. Specific learning outcomes are that the student will

1. know the basic types of variables and methods of storing data in Perl;



2. know the basic statements structures, including iteration and conditional and selective branching;
3. know how to create and use functions with parameters;
4. know how to redirect I/O within a program and use operating system commands from within Perl;
5. know how to construct and use Perl patterns for manipulating textual data;
6. know various list processing techniques;
7. write bash scripts that use command line arguments and have conditional control structures;
8. understand the structure of the UNIX file hierarchy, permissions and security within UNIX, and how to customize the `bash` environment;
9. use UNIX filters for manipulating and processing textual data;
10. use pipelines and file globs for processing textual data;
11. identify the variable inputs, outputs, and fixed parameters of a problem statement;
12. use top-down stepwise refinement to convert an informal problem statement into a precise, pseudo-code description of an algorithm;
13. understand the structure of man pages and know how to use the information contained in them;
14. know how to use key word searches combined with filtering techniques to do topic searches in the man pages.

## Assignments, Exams, and Grading

We will cover a lot of material. Students are expected to do all of the specified reading, complete all assignments on time, and work independently, unless stated otherwise. There will be many short programming exercises, a non-programming project, and a single, comprehensive final exam.

Your final grade will be based on the weighted average of eight assignment grades and the final exam grade. Specifically: the assignments are worth 10% each, and the final exam, 20%.

*The final exam is scheduled for Thursday, December 22nd, from 13:45 to 15:45 in the classroom.*

## Lateness and Incomplete Grades

All assignments must be submitted by their due dates. Late assignments will not be accepted. Failure to take an exam counts as a zero grade on that exam. The only exceptions to these two rules are in the case that you have a legitimate medical or personal emergency that prevents your timely completion of homework or sitting for an exam and have notified me in a timely manner about this emergency. I will schedule a make-up exam or allow a homework extension only in that case. I do not give incomplete (IN) grades except to those students who were unable to complete the work because of legitimate, documented medical or personal problems, and this is entirely at my discretion.

## Class Calendar

The last day to drop a class without a "W" is September 17. The last day to withdraw is November 6. There is no class on Monday, September 1, Thursday, September 25, Monday October 13, or Thursday, November 27. The last day of class is Monday, December 15.



## Programming and System Access

This is a "hands-on" course. One cannot learn UNIX or learn how to program without practical experience on a UNIX system or programming. Therefore, every student is given an account on the Computer Science Department's UNIX network, and has two different methods of accessing that account.

The first is to work in the 1000G lab, which has workstations that run the latest stable release of Fedora Linux, an open-source version of UNIX. This lab is open "24/7" and has 29 workstations. The advantage of working in the lab is that you will be sitting in front of the monitor of the Linux host and will not be subject to potential network problems that might occur in remote connections. The disadvantage is that it requires you to be in school.

The other choice is to work remotely. The Computer Science Department has a gateway host named *eniac.cs.hunter.cuny.edu*, accessible to every student who has an account on the network. You will be able to access this host from any computer on the internet, provided that it has *ssh* client software. If you download the *ssh* client software to your home machine, you will be able to login from home. Detailed instructions on how to work remotely will be provided in class and posted on the course website. You have the option to work in either way at any time.

There are several versions of *ssh*. **OpenSSH** is an open source version developed for the *OpenBSD* project. It is available for many operating systems. The *OpenSSH* home page is at

<http://www.openssh.com>.

Alternatives for Windows are at

<http://www.openssh.com/windows.html>

and those for Mac are at

<http://www.openssh.com/macos.html>.

**PuTTY ssh** is another free version for the various Windows operating systems, available at

<http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>.

My preference for Windows is the original SSH client, which is no longer supported. It can be downloaded from my website at

<http://www.compsci.hunter.cuny.edu/~swiss/resources.php#Applications>.

## Course Materials, the Web, and Blackboard

All lecture notes will be posted on the course's home webpage, which does not require special privileges to access. Grades will be posted in the grade center on Blackboard. For the purpose of discussions and course-related questions, the class has a Google group with the following essentials:

Name: `hc_csci132_fall114`  
Home page: `http://groups.google.com/group/hc\_csci132\_fall114`  
Email address: `hc_csci132_fall114@googlegroups.com`

If you do not have a Google email address, you will not be able to post to this group, so I suggest that you obtain one on or before the start of classes. The Google group will be the means by which to ask and answer questions related to the course. I require that you use the following protocol if you have a question:

1. Check whether the question you want to ask has been posted and answered in the Google group.
2. If it has been answered, you are finished. If not, send the question to the Google group.



3. Anyone in the group can answer the question. If no one else answers the question, I will post an answer to it.

I will ignore any non-personal questions sent to my Hunter email address. Personal questions (such as a question about a grade or missing a class) should be sent via private email to my Hunter email address, not to the Google group.

## Academic Honesty

Unless I state otherwise, all assignments and projects are to be your work alone. If someone else does part of this for you, it is considered to be academic dishonesty. Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The college is committed to enforcing the CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures. In this class, I will enforce the University's Policy on Academic Integrity and bring any violations that I discover to the attention of the Dean of Students Office.

## ADA Compliance

In compliance with the *American Disability Act of 1990* (ADA) and with *Section 504* of the *Rehabilitation Act of 1973*, Hunter College is committed to ensuring educational parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (emotional, medical, physical and/or learning) consult the *Office of AccessABILITY* located in Room E1124 to secure necessary academic accommodations. For further information and assistance, the student can call (212-772-4857)/TTY (212-650- 3230).