Syllabus

Communication

Class Meetings: Monday, Wednesday 7:00PM – 8:15PM, Room HW-W507
Email: tdang@hunter.cuny.edu, or
                    Trami.Dang67@myhunter.cuny.edu

You can see me outside scheduled class meetings, but you will need to specify an appointment. The best way to arrange one is to send me an e-mail. You can schedule appointments if you see me before or after class. Regarding email, please keep it to plain text in the email body. Note: any email concerning anything that might fall under the FERPA regulations (e.g. questions about grades or other class related issues) must be sent from your "myhunter" account.

Resources

Textbooks:
- Dave Taylor, *SAMS Teach Yourself Unix in 24 Hours, Third edition or greater*. Sams Publishing, 2001. ISBNs: 978-0672337307, 978-0672328145, 978-0672319938.
- Andrew L. Johnson, *Elements of Programming with Perl*, Manning Publications, 1999, ISBN 1-884777-80-5

    These books are out of print. it is highly recommended to 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 1001B lab on the tenth floor of Hunter North. This lab is available '24 hours a day, 7 days a week'*, to students enrolled in computer science courses at Hunter College.

*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 your personal computer.

*Website and
Discussion
Board:*
Blackboard will be used for assignment submissions and posting of grades.

All course materials, including lecture notes, slides, assignments, syllabus, and other resources, including this document, will posted on the Piazza webpage:

https://piazza.com/hunter.cuny/spring2019/csci13202/home

Prerequisites:

None.

Course Objectives and Content

This course is primarily 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. In this course, Perl, which is a versatile and easy-to-learn language, is the language taught in this course.[1]

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. It also introduces basic concepts of open-source, collaborative software development. Specific learning outcomes are that the student will

1. know what open source software is and how it differs from proprietary software;
2. know the basic types of variables and methods of storing data in Perl;

---

[1] Some discussion about the choice of Perl is due here. Many people will say that Perl is no longer a good choice of language to learn because it has been supplanted by Python. You can read comparisons of the two languages on many web pages online. The major differences for you, as a starting programmer are that:

• Python code might be easier to understand than Perl;
 • Python requires that you indent certain code and use tabs and blanks in specific ways, whereas Perl does not;
• There are many bioinformatics modules available in Perl, much more than in Python.

It is possible that this is the last time that this course is taught using Perl because of outside pressure to replace it with R or Python, but for now you should just appreciate how much Perl will have to offer.

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

The final grade will be based on the weighted average of the assignment grades and the final exam grade. Specifically by worth,

- all programming assignments : 80%,
- non-programming assignments : 10%,
- final exam, 10%.

The final exam is scheduled for Monday, May 20, from 6:20PM - 8:20PM in the classroom. It is highly recommended to not make any plans that will prevent you from taking the final exam.

Lateness and Incomplete Grades

All assignments are to be submitted by their due dates. *Late assignments are*

accepted with penalty of 20% approximately two days after the due date. **Late assignments past the penalty date will not be accepted.**
Failure to take the final 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 the 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 completing all work throughout the semester but were unable to complete the last few tasks because of legitimate, documented medical or personal problems, and this is entirely at my discretion.

Class Calendar

There are no classes scheduled on:

Tuesday February 12
Monday February 18
Friday - Sunday April 19-28

The last class session is Monday, May 13th.

The final exam will be on Monday, May 20, 6:20PM - 8:20PM .

Programming and System Access

All students enrolled in the class are given accounts on the Computer Science Department's network. This entitles you to around-the-clock access to all of the Department's publicly accessible computers and access to the Linux Lab, which is equipped with Linux workstations. This lab is normally open "24/7". The account also enables you to work from home or another remote computer by connecting to any of the lab machines remotely. The details are described below.

The advantages of working in the lab, as opposed to working remotely, are that you will be sitting at the console of a Linux host and will not be subject to potential disconnections that can take place when working remotely, you will also be much less affected by network problems than if you connect remotely from outside of Hunter, and you will learn how to use the Linux desktop environments. The disadvantage is that you have to be in school to do this.

When you are in the lab there are a few important rules that must be followed:

• Never power down a machine for any reason.
• Never leave a machine without logging out.
• Never use lockscreen to lock the screen in your login.

There are several other rules regarding lab use; they are posted there. Please take the time to read them and then follow them.

The Computer Science Department makes a UNIX host, named

`eniac.cs.hunter.cuny.edu,`

is available to students who have accounts on the network. *eniac* is a gateway computer - you will be able to login to this host from any computer that has *ssh* client software and is on the Internet. Once you login to *eniac*, you must login from *eniac* to one of the computers in the Linux Lab, which are named `cslab1`, `cslab2`, `cslab3`, and so on, up to `cslab27`[2]. You cannot *ssh* directly to those machines from outside of Hunter College for security reasons. For example, you can first login to *eniac*, and then when it gives you a prompt such as "`$`", you would type

`ssh cslab5`

and re-enter your network password at the prompt from `cslab5`.

Many computers come with a version of *ssh* already installed. If yours does not, you can get one for free. In particular, all Apple computers have the *ssh* client installed and available by opening the terminal application and typing the `ssh` command, such as

`ssh <username>@eniac.cs.hunter.cuny.edu`

Where `<username>@` is their given username by the computer network administrator.

There are several free versions of ssh. OpenSSH is an open source version developed for the OpenBSD project. PuTTY ssh is a free version for the Windows operating systems, available at

`http://www.chiark.greenend.org.uk/~sgtatham/putty/`

Course Materials, Web, Piazza, Blackboard

All lecture notes will be posted on the Piazza page, which does not require special

---

[2] There may be less than 27 when machines are taken out of service.

privileges to access. We will be using Piazza for class discussion and posting of homework assignments. The system is highly catered to getting you help fast and efficiently from classmates and me. Rather than emailing questions regarding the assignments to me, you are to post them on Piazza. If you have any problems or need feedback for the developers, email team@piazza.com.

The only thing for which I use Blackboard is for assignment submissions and posting of grades, which will be posted in the Grade Center there.

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[3] 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).

Hunter College Policy on Sexual MisConduct

In compliance with the *CUNY Policy on Sexual Misconduct*, reaffirms the prohibition of any sexual misconduct, which includes sexual violence, sexual harassment, and gender-based harassment retaliation against students, employees, or visitors, as well as certain intimate relationships. Students who have experienced any form of sexual violence on or off campus (including CUNY-sponsored trips and events) are entitled to the rights outlined in the *Bill of Rights for Hunter College*.

• Sexual Violence: Students are strongly encouraged to immediately report the

incident by calling 911, contacting NYPD Special Victims Division Hotline (646-610-7272), or their local police precinct, or contacting the College's Public Safety Office (212-772-4444).

- All Other Forms of Sexual Misconduct: Students are also encouraged to contact the College's Title IX Campus Coordinator, Dean John Rose (jtrose@hunter.cuny.edu or 212-650-3262) or Colleen Barry (colleen.barry@hunter.cuny.edu or 212-772-4534) and seek complimentary services through the Counseling and Wellness Services Office, Hunter East 1123.

- CUNY Policy on Sexual Misconduct Link: http://www.cuny.edu/about/administration/offices/la/Policy-on-Sexual-Misconduct-12-1-14-with-links.pdf

Changes to This Syllabus

Except for changes that substantially affect the implementation of the grading statement, this syllabus is a guide for the course and is subject to change with advance notice. Any changes will be posted to Blackboard and to the Piazza group for the course.