What is this course?

This is a course in C and Unix/Linux programming with a focus on using C and Unix to create interactive pages for the World Wide Web. It covers in detail almost of the the C language, it introduces the major tools and ideas of Unix programming, and it shows how to use HTML forms to connect to remote databases.

Who is prepared for it?

We assume you know how to write computer programs. In particular, we assume you have written programs in a structured language, that you know about editors, understand the ideas of variables, loops, arrays, functions, and some data structures. If you have not written complicated programs that use these ideas in some language, you will be overtaxed by the course.

Administative Details

Lectures	Wednesdays, 7:40-9:40, short break. Covers ideas, sample programs. Be prepared to take notes. All sample programs used in class will be stored on line, so you can retrieve them and examine and/or print them later.
Homework	Several assignments, due on Saturday evenings at midnight. See course outline. Must hand in listing and sample run. Must run on the machine at Harvard. Can be developed on any machine.
Exams	One midterm, one final.
Grading	Homework 50%, Midterm 20%, Final 30%
Sections	One hour each week, times to be arranged
Office Hours	In the computer lab and online, times to be arranged
On-Line Help	Send email with any questions about the course, your homework, or reading, and we shall answer as soon as possible. See our web page for details. Questions of general interest, along with their answers, will be posted on our web site.
Info Sheets	Need name, address, phone, and section requests
Texts	The required texts are *C Programming, A Modern Approach* by King (1st or 2nd edition), *Your Unix: The Ultimate Guide, 2nd ed or 3rd ed.* by Das. The Coop has them. They are for reference and additional examples. The suggested reading does not exactly follow lecture, but is pretty close. The *C Programming* book explains the language, the Unix book explains how to use Unix.
Facilities	The computers can be used via ssh over the Internet. Connect to nice.fas.harvard.edu . There are computers in the Extension School computer lab on Church Street.
Accounts	You need a *Harvard Key* to use the computer system. Claim your *Harvard Key* at https://key.harvard.edu/ . For details about claiming your key, visit: http://www.extension.harvard.edu/resources-policies/resources/computer-e-mail-services
Web Site	http://sites.harvard.edu/~lib113/
Accessibility	The Extension School is committed to providing an accessible academic community. The Accessibility Office offers a variety of accommodations and services to students with documented disabilities. Please visit www.extension.harvard.edu/resources-policies/resources/disability-services-accessibility for more information.
Accessibility	The Extension School is committed to providing an accessible academic community. The Accessibility Office offers a variety of accommodations and services to students with documented disabilities. Please visit www.extension.harvard.edu/resources-policies/resources/disability-services-accessibility for more information.
Academic Integrity	You are responsible for understanding Harvard Extension School policies on academic integrity (www.extension.harvard.edu/resources-policies/student-conduct/academic-integrity) and how to use sources responsibly. Not knowing the rules, misunderstanding the rules, running out of time, submitting the wrong draft, or being overwhelmed with multiple demands are not acceptable excuses. There are no excuses for failure to uphold academic integrity. To support your learning about academic citation rules, please visit the Harvard Extension School Tips to Avoid Plagiarism (www.extension.harvard.edu/resources-policies/resources/tips-avoid-plagiarism) , where you'll find links to the Harvard Guide to Using Sources and two free online 15-minute tutorials to test your knowledge of academic citation policy. The tutorials are anonymous open-learning tools.
Attendance/Participation	Students are expected to attend class and participate by asking and answering questions.
Credit and Work	Students are assigned the same work whether they are enrolled for graduate or for undergraduate credit.

What is the Point of this Course?

This is a course in Unix/Linux programming. Unix is an operating system, but it is more than just a control program for computers; it is a complete programming environment based on the idea of software tools. The Unix programming model is one of building complex, powerful solutions by combining simple, special-purpose tools. These tools are data manipulation programs. Every Unix system comes with a wealth of these tools. Tools are usually written in C. Combinations of tools are often written in a scripting language, such as the Unix shell, *sh* .

Unix programming, then, consists of **(a)** designing and writing tools in C and **(b)** combining them using sh. Csci-e26 teaches C programming and sh programming.

Where does CGI fit into this? To make your nifty combination of tools available from web pages, you need to learn how to connect web pages to Unix programs. The *Common Gateway Interface* is the method web pages use to transfer data from web page to a server and back. By learning this third skill, you will be able to construct Unix tools, combine them into Unix programs, and use web pages for user input and output.

Each of these three skills is useful on its own. C is a great language; its syntax is the basis of C++, JavaScript, Perl, awk, Java. Unix is written in C as are most of the software tools. Shell scripting is an essential skill for Unix administration and for power users. CGI programming may be done in any language, not just C/Unix. The principles we cover apply to any network and programming platform.