C and Unix Systems Programming
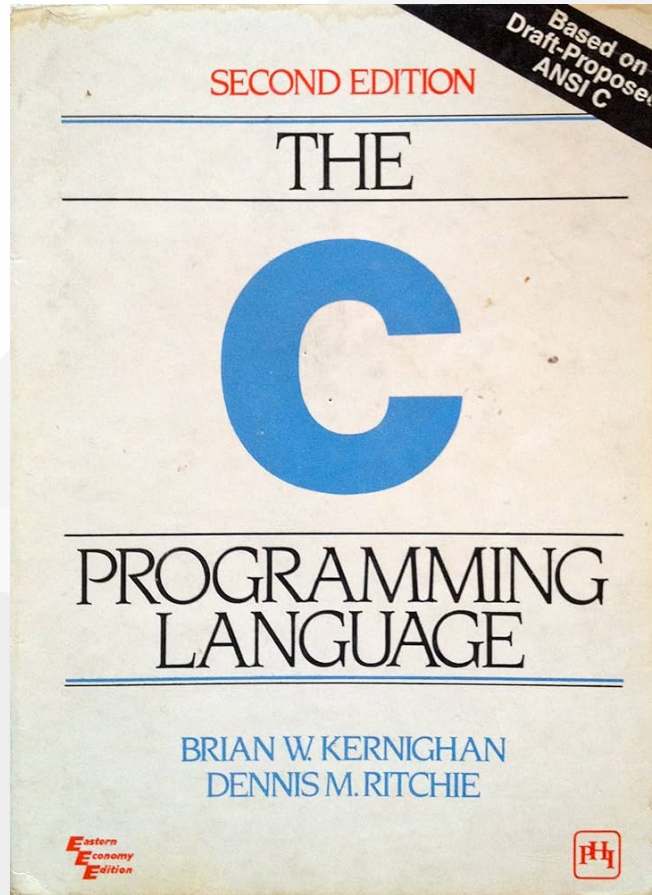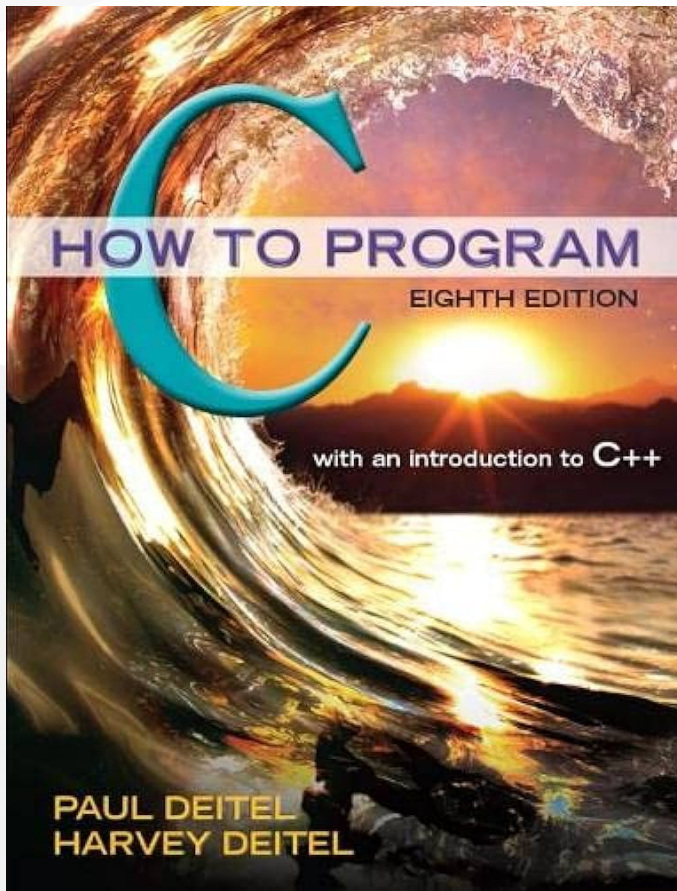
Instructor :   Nicole Hynes

Email :   nicolehy@camden.rutgers.edu

Course Number :   50:198:211:01
Course Time :   Tue, Thur 9:35 am - 10:55am
Course Location :   BSB-336

Office Hours :   By Appointment

Website :   https://rutgers.instructure.com/courses/276296

Textbook

- Any good book in C and Linux/Unix programming will do.

Grading

- Assignments : 40%

- Midterm : 30%

- Final : 30%

Please read and understand the University Policy on Academic Integrity (http://fas.camden.rutgers.edu/student-experience/academic-integrity-policy/) which defines the common types of violations and their consequences. If you have any questions, please ask.

Class Environment

- All open to questions and changes!
  Within reason, logic, and class goal oriented.

- Here to help you learn.

- Give feedback. Talk and Discuss.

- Participation in the materials presented can help you

- It is your responsibility to find out what occurred during
  your absence and to "catch up" with the rest of the class.

Classroom Conduct

- Respect & Mutual Understanding

- Cell phone usage is prohibited during class. Please step outside to use phone. Keep all devices on silent so it does not disturb class.

- Computer usage for unrelated materials to the class curriculum is prohibited during class.

- Disruptive, disorderly or reckless behavior in educational settings interferes with the teaching and learning process. The Rutgers University Code of Student Conduct (available at https://www.rutgers.edu/) prohibits such behaviors.

- No food or drink in the classroom.

Why C Programming?

- Widely used in the implementation of operating systems

- Portable, Multi-user / Multitasking, File handling

- Shell Programming, System calls, Library functions

- Small, Procedural, Efficient programs

- Function calls and pointer implementation

- High-level constructs

- Loose typing format

- Provides low level access to memory

- Language that enable low level access to hardware

- Proactive Error Checking Programmers

Why UNIX?

- Unix is most widely used

- Supports Portable Operating System Interface (POSIX) and application programming interface (API)

- Compatibility with variants of Unix and other operating systems

Why Linux?

- Open source distribution of the Unix, everywhere

- Widely used in the World Wide Web (WWW)

- Secure, easy to use, powerful

- There are a number of distributions

Why Shell/Bash?

- A user interface for access to OS services
    - Command-line interface (CLI)
    - Graphical user interface (GUI)
- Named because it is the outermost layer
- Shell scripting language controls the shell
- Bourne-Again SHell (Bash) create 1978
- Bash default on most Linux installions

The C Programming Language

https://www.electronicsforu.com/resources/free-c-programming-ebooks

https://www.academia.edu/43687770/C_Programming_Language_2nd_Edition_by_Brian_W_Kernighan_Dennis_M_Ritchie

https://www.tutorialspoint.com/cprogramming/index.htm

C Reference Manual

http://www.gnu.org/software/gnu-c-manual/gnu-c-manual.html

http://www.gnu.org/software/libc/manual/html_mono/libc.html

Bash Reference Manual

http://www.gnu.org/software/bash/manual/bash.html#What-is-Bash_003f

http://www.gnu.org/software/bash/

https://tldp.org/LDP/Bash-Beginners-Guide/Bash-Beginners-Guide.pdf

Introduction to UNIX

http://www.doc.ic.ac.uk/~wjk/unixintro/Lecture1.html

https://docstore.mik.ua/orelly/linux/lnut/index.htm

https://linux.die.net/man/1/tcsh

http://ftp.wayne.edu/ldp/en/Intro-Linux/Intro-Linux.pdf

Access and Activate the Accounts Required

Outside the Rutgers Network Use the Rutgers VPN

https://vpn.rutgers.edu

Notes: https://it.rutgers.edu/guides/remote-access-with-anyconnect-virtual-private-network/ or

https://tools.rutgers.edu/manage/services

Establish Access to the CS Projects Server

Go to https://csprojects.rutgers.edu

Click on 'Create Your CSPROJECTS Account'.

On Rutgers Network? - Do Not Need to Use VPN

Assignment 1 Due Tomorrow

NetID, Password, DUO Device

Questions?