

# System Programming Using UNIX/Linux

CS 671

Spring 2018

On Campus, SCI 115

Monday 6:00 pm – 8:45 pm

Jie Lu

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## Course Description

This course teaches students how to develop complex applications based on the UNIX/POSIX standard. Topics include UNIX standardization and implementation, shell programming, system calls, library function, process control and relationships, signals, file and terminal input/output, and inter-process communication.

## Course Prerequisites

MET CS 575, C or C++ programming proficiency, and prior user experience on Linux/UNIX.

## Books

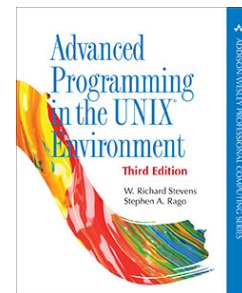
Required

*Advanced Programming in the UNIX Environment, 3rd Edition*

By W. Richard Stevens, Stephen A. Rago

Published by Addison-Wesley Professional

<http://www.apuebook.com/apue3e.html>



## Courseware

The course Web page is hosted on Blackboard Learn (<https://learn.bu.edu>). The class notes, homework assignments, and additional announcements will be posted here.

## Class Policies

- 1) Attendance & Absences** – Class attendance is required. Individual student is responsible for all scheduling and other announcements made in class. The likelihood of failing the course is subsequently increased if one fails to attend class regularly. The format of this course will be lectures, which will include working through sample problems. Certain course material will only appear during lectures, and most announcements will only be made in class.

- 2) **Assignment Completion & Late Work** – Blackboard Learn will be used for assignments submission. Each assignment is due on the assignment due date. 10% of the full score will be deducted from the assignment grade for each day that it is late. The submission will not be accepted after 7 days after the due date, and grade of 0 will be assigned.
- 3) **Academic Conduct Code** – Cheating and plagiarism will not be tolerated. They will result in no credit for the assignment or examination and may lead to disciplinary actions. Please take the time to review the Student Academic Conduct Code:  
[http://www.bu.edu/met/metropolitan\\_college\\_people/student/resources/conduct/code.html](http://www.bu.edu/met/metropolitan_college_people/student/resources/conduct/code.html).

NOTE: [This should not be understood as a discouragement for discussing the material or your particular approach to a problem with other students in the class. On the contrary – you should share your thoughts, questions and solutions. Naturally, if you choose to work in a group, you will be expected to come up with more than one and highly original solutions rather than the same mistakes.]

#### **Grading Criteria**

Grades will be based on your participation in class and online discussions (5%), your grades for homework exercises (60%), and the final examination (35%).

**Class Meetings, Lectures & Assignments**

*Lectures, Readings, and Assignments subject to change, and will be announced in class as applicable within a reasonable time frame.*

Session	Date	Topic	Reading
1	01/22	Overview; Standardization & Implementation	1, 2
2	01/29	File I/O	3
3	02/05	Files and Directories	4
4	02/12	Standard I/O Library; System Data Files	5, 6
5	02/20	<b>Tuesday substitutes Monday (02/19) schedule</b> Process Environment; Process Control	7, 8
6	02/26	Process Control; Process Relationships	8, 9
	03/05	<b>Spring Recess, No Class</b>	
7	03/12	Signals	10
8	03/19	Threads; Thread Control	11, 12
9	03/26	Daemon Processes; Inter-process Communication	13, 15
10	04/02	Sockets	16
11	04/09	Advanced IPC	17
12	04/18	<b>Wednesday substitute Monday (04/16) schedule</b> Terminal I/O	18
13	04/23	Shell Programming	Notes
14	04/30	Review	
	05/07	<b>Final Exam (6:00 pm – 8:00 pm)</b>	