Course Syllabus

Course Information

Course Number/Section	CS/SE 3377.sec
Course Title	Systems Programming in Unix and Other Environments
Term	Spring 2022
Location	ECSS 2.415
Day/Time	05:30 PM – 06:45 PM

Professor Contact Information

Professor	Scott Dollinger
Office Phone	972-514-7190
Email Address	Scott.Dollinger@utdallas.edu All e-mails must have **Course.section** in the e-mail subject title, or the **e-mail will not get a response**.
Office Location	ECSS 3.606
Office Hours	Mon, Wed 01:00 PM – 02:00 PM

Course Pre-requisites, Co-requisites, and/or Other Restrictions

CE 2336 or CS 2336 or TE 2336 with a grade of C or better or equivalent.

You should have completed CS1336 & CS1337 (or equivalent courses) in C/C++ programming and/or have a proficient programming experience with C/C++.
Otherwise, please contact immediately the instructor for your case under consideration and to grant the instructor's approval. No student without C/C++ programming experience is allowed to register for cs3377.

Note. CS 2337 uses C++ CS2337 is taken by students who finish AP CS (Java) in High school (or transfer student) and skip CS 1336 & CS 1337... (instead of CS 2336 which uses Java).
The following course sequence shows the course track:

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CS 1336 (C++) --> CS 1337 (C++) --> CS 2336 (Java)----> CS 3377 (C++)
AP CS (Java) ---------------------> CS 2337 (C++) ----> CS 3377 (C++)
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Both paths ensure that the students have C/C++ proficiency before they come to CS 3377.

Course Description

CS 3377 - Systems Programming in UNIX and Other Environments (3 semester credit hours)
Basic UNIX concepts, commands and utilities, organization of UNIX file system including links and access control, creating, and managing UNIX processes and threads, implementing algorithms using shell scripts, basic networking concepts including socket and client-server programming, inter-process communication using pipes and signals, using a version control system to manage work, and introduction to cloud computing. Design and implementation of a comprehensive programming project is required. Prerequisite: (CE 2336 or CS 2336 or CS 2337) with a grade of C or better or equivalent. (Same as SE 3377) (3-0).

Student Learning Objectives/Outcomes

1. Ability to use Unix/Linux operating system (command line interface, shell scripting, regular expression).
2. Ability to use Unix/Linux programming environment and development tools.
3. Ability to program with Unix/Linux processes, threads, and interposes communication facilities.
4. Ability to program with Unix/Linux file system, file input and output, and redirection.
5. Ability to develop programs for network environment (client-server model, socket programming, and cloud computing).*

Note. CLO #5 “Cloud computing” is conceptual level.

Required Textbooks and Materials
Required Texts
1.
A Practical Guide to Linux® Commands, Editors, and Shell Programming, 4ed.
Mark G. Sobell, Matthew Helmke.
Addison-Wesley Professional. © 2017.
ISBN-10: 9780134774602. ISBN-13: 978-0134774602
(Note. 3ed of this book is also acceptable)

Sobell source code: http://www.sobell.com/CR3/
https://learning.oreilly.com/library/view/practical-guide-to/9780134774626/
(Available online & free via UTD Library => eBook => O'Reilly). This book is referred as [**Sobell**].

2.
Advanced Programming in the UNIX® Environment, 3e.
W. Richard Stevens and Stephen A. Rago.
Addison-Wesley. © 2013.
ISBN-10: 0-321-63773-9. ISBN-13: 9780321637734

APUE source code: http://www.apuebook.com/code3e.html
https://learning.oreilly.com/library/view/advanced-programming-in/9780321638014/
(Available online & free via UTD Library => eBook => O'Reilly) This book is referred as [**APUE**].

Textbooks and some other bookstore materials can be ordered online or purchased at the UT Dallas Bookstore.

Technical Requirements

In addition to a confident level of computer and Internet literacy, certain minimum technical requirements must be met to enable a successful learning experience. Please review the important technical requirements on the Getting Started with eLearning webpage.

Course Access and Navigation

This course can be accessed using your UT Dallas NetID account on the eLearning website.

Please see the course access and navigation section of the Getting Started with eLearning webpage for more information.

To become familiar with the eLearning tool, please see the Student eLearning Tutorials webpage.

UT Dallas provides eLearning technical support 24 hours a day, 7 days a week. The eLearning Support Center includes a toll-free telephone number for immediate assistance (1-866-588-3192), email request service, and an online chat service.

Communication

This course utilizes online tools for interaction and communication. Some external communication tools such as regular email and a web conferencing tool may also be used during the semester. For more details, please visit the Student eLearning Tutorials webpage for video demonstrations on eLearning tools.

Student emails will be answered within 3 working days under normal circumstances.

All e-mails must have **Course.section** in the e-mail subject title, or the **e-mail will not get a response**.

Server Unavailability or Other Technical Difficulties

The University is committed to providing a reliable learning management system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time sensitive assessment activity, the instructor will provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and contact the online eLearning Help Desk. The instructor and the eLearning Help Desk will work with the student to resolve any issues at the earliest possible time.

Tests
All tests will be in class. The student must have a laptop to be able to take the tests. UTD policy states in the Student Handbook that students must have a laptop computer.

Class Materials

The instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course; however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class or uploaded to other online environments except to implement an approved Office of Student Accessibility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Class Participation

Regular class participation is expected. Students who fail to participate in class regularly are inviting scholastic difficulty. A portion of the grade for this course is directly tied to your participation in this class. It also includes engaging in group or other activities during class that solicit your feedback on homework assignments, readings, or materials covered in the lectures (and/or labs). Class participation is documented by faculty. Successful participation is defined as consistently adhering to university requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Grading Policy
(Including percentages for assignments, grade scale, etc.)

97-100 A+	94-96 A	90-93 A-
87-89 B+	84-86 B	80-83 B-
77-79 C+	74-76 C	70-73 C-
60-69 D	< 60 F	

Each range shown above is inclusive and without any rounding-off. For example, 94-96 for grade A is for the score falling in the range between 94.000 and 96.999. The grade of 93.999 is for A-.

Be careful, in eLearning, the Running total in your gradebook shows the current weighted grade based on your graded work only based on what you have submitted and graded. For example, if you have done only Test1, Assignment1, Weekly postings so far (but you have missed Test2 and missed Assignment2 totally), current total grade will be based on only those entries that you have submitted and done. We will try to enter 0s for missed work as much as possible.

Assessment Grading Percentage of Grade Policy

Tests

30% for Test1 and Test2, so each test is 15%. Each test is a closed book online test taken in the classroom.

Tests will focus more on concepts and less on details. You can expect to see some multiple-choice questions, and a few coding free response (essay) questions in each test.

Any tests requiring Student Accommodation must be arranged and scheduled in the beginning of the semester or at least by two weeks prior to the scheduled test date at the discretion of the instructor. Such students must contact the Office of Student Accommodation office to request accommodations. See the student handbook for more information.

Missed tests have a valid reason for scheduling make-up tests. Such make-up tests need to be coordinated with the instructor. Missed tests for such reasons such as for serious medical condition with Doctor's excuse will be required as a valid proof.

Activities (Shell Based)

30% for **Activities**.

Each activity may include a shell programming coding-lab.

40% for **Assignments Programming in C++/** Unix Platform

Programming assignments using C++ in a Unix platform.

General Activity/Assignment Considerations

You are expected to start working on activities/assignments when these are posted. Do not expect us to rescue you on the day of submission. You can upload each item as many times as you like, but the last submission will be the graded item. All these weekly activity/assignment items should be done using a Unix platform environment. You will submit your activities/assignments directly to eLearning.

More details on Activities/Assignments, Requirements, and Submission steps will be given with eLearning.

An instructor who believes a student has committed an act of **plagiarism** should take appropriate action, which includes reporting the issue for academic dishonesty to the Office of Community Standards.

If you need a quick response for an urgent issue or concern, you may send an email to instructor or TA directly via email to get a quicker response and/or immediate attention.

Extra Credit

Make-Ups

Activities/Assignments that received a score of less than 75%, can be made up (re-submitted), but will be graded out of a maximum score of 75.

Such make up activities/assignments must be submitted by the due date and time of the last assignment in the course.

See the Assignment Guides in the Activities page that can be accessed in the Navigation menu in Blackboard.

Late Work

*Activities/*Assignments that are submitted by due date and time will be graded out of 100%.

Activities/Assignments that are handed in late will be scored as follows:

Days Late	Graded Out Of
1	95
2	90

After 2 days activities/assignments will **not** be available for late submittal but may be submitted later as make-ups.

Classroom Citizenship

Please review the UTD policy and guideline on Student behavior and conduct, academic honesty and integrity in https://www.utdallas.edu/conduct/integrity/ and UTD BAIT team in https://www.utd.edu/conduct/bait/.

Also note that all the course materials are only for your individual and personal use and for this course. Do not share or redistribute any of the course materials in any form or means with other. Do not make any of the course materials available via Internet or web site (e.g., git or github) or any commercial sites.

Comet Creed

"As a Comet, I pledge honesty, integrity, and service in all that I do."

Academic Support Resources

Please go to Academic Support Resources webpage for these policies.

UT Dallas Syllabus Policies and Procedures

Please go to UT Dallas Syllabus Policies webpage for these policies.

Any information contained in this syllabus is subject to change by the Professor and will be announced. .

All Activities and Assignments are due by 11:59 PM on the Due Date

APUE - *Advanced Programming in the UNIX® Environment*, 3e. W. Richard Stevens and Stephen A. Rago.
Sobell – *A Practical Guide to Linux® Commands, Editors, and Shell Programming*, 4ed.

Wk No.	Dates	Topics/Lectures/Due Dates
01	01/16 Mon	MLK Holiday
	01/18 Wed	Syllabus, Course Introduction, Prerequisite Form
02	01/23 Mon	How to Log into cs1.utdallas.edu, Sobell Ch1-Ch2, Activity 02
	01/25 Wed	Unix & Basic Commands Introduction, Basic VIM Introduction
03	01/30 Mon	Sobell Ch4, APUE Ch2, More Unix Commands, Activity 01, 02 Due
	02/01 Wed	Continued, File Systems
04	02/06 Mon	Activity 04, Shell (Sobell Ch5), Activity 03 Due
	02/08 Wed	Activity 05, Editors (Sobell Ch6)
05	02/13 Mon	Sobell Ch8, Ch10, Shell Script Programming (bash), Activity 04, 05 Due
	02/15 Wed	Continued
06	02/20 Mon	Test 01 Discussion
	02/22 Wed	Test 01
07	02/27 Mon	APUE Ch01, Unix System Prog & API
	03/01 Wed	Assignment 01 Files Bison, Unix File Systems and IO, and API
08	03/06 Mon	Assignment 02 Binary Files Diagonal, (APUE Ch03-Ch04), Assignment 01 Files Bison
	03/08 Wed	Continued
	03/11 Sat	Midterm Grades Due
09	03/13 Mon	Spring Break
	03/17 Fri	
10	03/20 Mon	Unix Process, APUE Ch07-CH08 Assignment 02 Binary Files Diagonal Due
	03/22 Wed	Continued
11	03/27 Mon	Assignment 03 Fork Pipes Quotes, Shell and Signal
	03/29 Wen	Continued
12	04/03 Mon	Assignment 04 Fork Execvp Calculate, Assignment 03 Fork Pipes Quotes Due
	04/05 Wed	Continued
13	04/10 Mon	Assignment 05 Named Pipes, 04 Fork Execvp Calculate Due
	04/12 Wed	Continued
14	04/17 Mon	Sockets (APUE Ch16), Cloud Computing Concepts, A05 Named Pipes Guess Word Due
	04/19 Wed	A06 Sockets Guess Number
15	04/24 Mon	Threads, A06 Sockets Guess Number Due
	04/26 Wed	Continued
16	05/01 Mon	Test 02 Discussion, Assignment 07 Threads Due, Make-Up Assignments Due
	05/03 Wed	Last Class Day Question Session
	05/08 Mon	Final Test 02
	05/17 Wed	Final Grades Due

As part of the syllabus, any information in the Academic Schedule Calendar is subject to change at the discretion of the Professor at any time. Any changes will be in Announcements.