Online Course Syllabus – Spring 2022

Course Information

Course Number/Section	CS3377.0W1 & SE3377.0W1
Course Title	Systems Programming in Unix and Other Environments
Term	Spring 2022

Professor Contact Information

Professor	Richard K. Min, Ph.D., MBA, MS/CE, M.Div.
Office Phone	972-883-4522
Other Phone	
Email Address	rkm010300@utdallas.edu
Office Location	ECSS 4.609
Online Office Hours	TTh 2-4pm (via email, MS Teams, or by appointment)
Other Information	

Note: *state time/day and how office hours will be held, e.g., BlackBoard Collaborate or MS Teams (add appropriate links) and/or phone call – optional; please ensure student's identity in adherence to FERPA*

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.**

That is, 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 would be a bit more clear:

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CS 1336 (C++) --> CS 1337 (C++) --> CS 2336 (Java)---->
AP CS (Java) ---------------------> CS 2337 (C++) ---->
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Where 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) S

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 interprocess 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 and 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**].

Required Materials

TBA in elearning

Suggested Course Materials

Suggested Readings/Texts

TBA in elearning

Suggested Materials

TBA in elearning

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 and discussion board messages will be answered within 3 working days under normal circumstances.

Distance Learning Student Resources
Online students have access to resources including the McDermott Library, Academic Advising, The Office of Student AccessAbility, and many others. Please see the eLearning Current Students webpage for more information.

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 also 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.

Academic Calendar

*Note: Any items (including description and time/date) in this syllabus and Academic Calendar are subject to change at the discretion of the Professor (at the last minute).

Dates	**UNIT in Week#**	**TOPIC/LECTURE**	**READING***	**ASSESSMENT** Weekly Activity items (usually with 2 Labs, Reading & 1 Essay for each week - See elearning for detail), Test	**DUE DATE** Weekly Activity items due by Friday 11:59pm of the week
01/17 M 01/18 T 01/19 W 01/20 Th	1	Course Orientation Syllabus & Course Introduction. 1. Prerequisite Form 2. Seat Reservation at Testing Center (and/or to arrange Makeup or SAO) 3. Unix/Linux Introduction 4. First log in to cslinux1.utdallas.edu 1/17 Monday is Holiday	Sobell Ch1-Ch2	Week01 Activity ** To complete (1) Prerequisite form, (2) Seat Reservation for all Tests, (3) Arrange Makeup Test and/or OSA if needed. (4) Log in to cs1 (using mobaXterm or ssh or putty to connect cs1) See Week02 Activity folder in elearning for detail	01/21/22 F After 1/28, there will be a late penalty point (50 pts) per day.

01/24 M 01/25 T 01/26 W 01/27 Th	2	Unix/Linux Introduction & Commands • Connect to cs1 from your laptop (with MobaXterm or SSH) • Learn basic Unix/Linux Commands • Simple File editing with vi editor. • Simple C programming with hello.c	Sobell Ch3 APUE Ch01	Week02 Activity (1) Use mobaXterm or ssh or putty to connect cs1 or cs2 systems, etc. See Week02 Activity folder in elearning for detail, (2) Try Unix commands in Sobell	01/28/22 F
01/31 M 02/01 T 02/02 W 02/03 Th	3	Unix, Linux Commands (Advanced) File Systems (Sobell Ch4)	Sobell Ch4 APUE Ch02	Week03 Activity	02/04/22 F
02/07 M 02/08 T 02/09 W 02/10 Th	4	Shell (Sobell Ch5) Editors (Sobell Ch6) Makefile	Sobell Ch5 & Ch06 APUE Ch03	Week04 Activity	02/11/22 F
02/14 M 02/15 T 02/16 W 02/17 Th	5	Bourne Again Shell – bash (Sobell Ch8, Ch10) Shell Script Programming with bash	Sobell Ch8 & Ch10 APUE Ch04	Week05 Activity	02/18/22 F
02/21 M 02/22 T 02/23 W 02/24 Th	6	MySQL (Sobell Ch13) sqlite3 prog with C	Sobell Ch13 APUE Ch05-Ch06	Week06 Activity	02/25/22 F
02/28 M 03/01 T 03/02 W 03/03 Th	7	Python prog (Sobell Ch12) Python Tools Unix/Linux System Prog & API APUE Ch01	Sobell Ch12	Week07 Activity Test1 on Sobell Ch1-Ch6, Ch8, Ch10.	03/04/22 F Test1 at UTD Test Center 3/01 T 9am-7pm
03/07 M 03/08 T 03/09 W 03/10 Th	8	Unix File Systems and IO, and API (APUE Ch03-Ch04)	APUE Ch07-Ch08	Week08 Activity	03/11/22 F
03/14 M 03/15 T 03/16 W 03/17 Th	9	Spring Break		Week09 Activity	
03/21 M 03/22 T 03/23 W 03/24 Th	10	Unix/Linux Process (APUE Ch07-Ch08)	APUE Ch09-Ch10	Week10 Activity	03/25/22 F
03/28 M 03/29 T 03/30 W 10/31 Th	11	Shell and Signal (APUE Ch09-Ch10)	APUE Ch11-Ch12	Week11 Activity	04/01/22 F

04/04 M 04/05 T 04/06 W 04/07 Th	12	Thread Programming (APUE Ch11)	APUE Ch14	Week12 Activity Test2 on APUE Ch1-Ch4, Ch7-Ch10	04/08/22 F Test2 at UTD Test Center 4/05 T 9am-7pm
04/11 M 04/12 T 04/13 W 04/14 Th	13	Interprocess Communication (APUE Ch11.6 & Ch15)	APUE Ch15	Week13 Activity	04/15/22 F
04/18 M 04/19 T 04/20 W 04/21 Th	14	Socket Programming (APUE Ch16)	APUE Ch16	Week14 Activity	04/22/22 F
04/25 M 04/26 T 04/27 W 04/28 Th	15	Socket Programming Client-Server Concurrent Server	TBA in elearning	Week15 Activity	04/29/22 F
05/02 M 05/03 T 05/04 W 05/05 Th	16	Advanced Topics VCS (Git, Github, etc) Cloud Computing Oracle VirtualBox	TBA in elearning	Week16 Activity All My Essays	05/05/22 Th
05/07 Sat to 05/13 Sat		Final Exam Week		Test3 Comprehensive	Test3 at UTD Test Center 5/10 T 9am-7pm
		Midterm Grade due by 3/12 Sat Final Grade due by 5/17 T			

* For Reading.
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.

Proctored Final Exam Procedures
If your course has a proctored exam requirement, please see the UTD Testing Center webpage and Distance Learning Proctored Exams webpage to make arrangements.

Note. All the tests are to be taken at UTD Testing Center. Please make your seat reservation for all the tests during the first two-week time in the beginning of the semester, along with any makeup or SAO arrangement.

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 AccessAbility 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.

Class Recordings

Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the Office of Student AccessAbility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Note: if the instructor records any part of the course, then the instructor will need to add the following syllabus statement:

The instructor may record meetings of this course. These recordings will be made available to all students registered for this class if the intent is to supplement the classroom experience. If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law.

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-
67-69	D+	64-66	D	60-63	D-
Below 60	F				

Note 1. Each range shown above is inclusive and without any rounding-off. For example, 94-97 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-.

Note 2. In elearning, "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.

Note 3. To get A- or above, each student is required to complete all the assigned work (including all tests, weekly activity items and projects). To get B- or above, each student is required to complete all tests and at least 70% of the weekly activity items (including projects).

75% for 3 Tests. 20% for Test1, 25% for Test2 and 30% for Test3. Each test will be closed-book and online test via elearning (to be taken at UTD Testing Center during the designated test date and time) for 1-hour to 2-hour examination. Time and detail of each test will be announced later in elearning.

Note 1. Each student should make a seat reservation prior to each test (as soon as possible in the beginning of the semester [or two weeks before the scheduled test date]). All exams are closed book and closed notes. Exams will focus more on concepts and less on details. Additional study-material or documentation will be provided to avoid the need for memorization as much as possible. We will likely take all the tests in the testing center as scheduled. You can expect to see a few coding/analysis questions, a few short answer questions and a few multiple-choice questions in each test. Instructor is responsible for grading all the tests.

Note 2. Any make-up tests (and/or SAO arrangement) will 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. There should be a valid reason for scheduling make-up tests & they need to be coordinated with the instructor, at least one to two weeks prior to the test date except for serious medical condition (with Doctor's or Hospital's certificate will be required as a valid proof. Without it or any unexcused makeup test, there will be minimum 15% penalty for any late makeup test after the scheduled test date). It is unlikely that curving will be used to boost the final grades. If the instructor decides to do it, only the test scores will be boosted, but the tests' contribution will be clipped at 60%. In other words, curving will NOT make up for the points lost in all other assignments. So, it is extremely important to complete them in timely manner.

25% for Weekly Activity items (including Projects). Each weekly activity may include weekly reading, short coding-lab, quiz (to help your test), essay (summary of reading), and/or any bonus activity of the week. Each weekly activity item is available by Monday morning and is due by Friday of the week. No late submission is accepted.

Note 1. You are expected to start working on them as soon as they are posted or by the scheduled due date/time. 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 graded. No Late submission is accepted. My advice is to submit whatever you have done (your best effort) before the due and/or by the due date, and to seek for any further discretion and/or consideration if you may need. All these weekly activity items should be done in Unix, Linux or Mac, and you will hand-in your projects directly in Linux.

Note 2. Submit each activity item through elearning (each item in the week's activity folder). More details on Weekly Activity, Requirement, and Submission steps will be given with eLearning. For some activity item (e.g., lab), TA may schedule a demo session and you are required to schedule your demo with TA (for 5-10 minutes) and do your demo to TA in a week after the due date. If you have any conflict for the demo schedule, you may do the demo to the instructor (and/or you record your demo in a video format using your webcam using MS Teams, elearning Collaborate, WebEx, or video recording of your demo (to be uploaded to learning and to notify TA).

Note 3. If you need a quick response for an urgent issue or concern, you may send an email to instructor or TA directly via email (instead of posting here) to get a quicker response and/or immediate attention.

An instructor who believes a student has committed an act of **plagiarism** should take appropriate action, which includes the issuing of a “penalty grade” (that is, F for the course) for academic dishonesty. For any "minor" plagiarism charge, the maximum letter grade for the course would be B+ or lower.

Course Policies

Make-up exams

Any arrangement for make-up test (and/or SAO arrangement) should be arranged and scheduled in the beginning of the semester (or to be done at least two weeks prior to the scheduled test date) at the discretion of the instructor. There should be a valid reason for scheduling make-up tests & they need to be coordinated with the instructor, at least one to two weeks prior to the test date except for serious medical condition (with Doctor's or Hospital's certificate will be required as a valid proof. Without it or any unexcused makeup test, there will be minimum 15% penalty for any late makeup test after the scheduled test date). It is unlikely that curving will be used to boost the final grades. If the instructor decides to do it, only the test scores will be boosted, but the tests' contribution will be clipped at 60%. In other words, curving will NOT make up for the points lost in all other assignments. So, it is extremely important to complete them in timely manner.

Extra Credit

TBA. Please check elearning.

Late Work

TBA. Please check elearning.

Special Assignments

TBA. Please check elearning.

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

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

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

Academic Support Resources

The information contained in the following link lists the University's academic support resources for all students.

Please go to Academic Support Resources webpage for these policies.

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please review the catalog sections regarding the credit/no credit or pass/fail grading option and withdrawal from class.

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

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.