CS 3377 Course Syllabus

Course Information

Course Number/Section	CS 3377.001/002, SE 3377.001/002
Course Title	C/C++ Programming in a UNIX Environment
Term	Fall 2019

Professor Contact Information

Professor	Erik Peterson, MS
Office Phone	N/A (I share an office)
Email Address	eap190004@utdallas.edu
Office Location	ECSN 3.610
Office Hours	M-Th 12:30-1:30 PM (other times by request; always wise to email before coming by)

Grader Information

Grader	Yash Zalavadia
Email Address	yxz170023@utdallas.edu
Office Location	ECSS 2.103B1
Office Hours	W 12-2 PM, Th 4-6 PM

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

Prerequisite: (CE 2336 or CS 2336 or TE 2336) with a grade of C or better or equivalent. (Same as SE 3377) (3-0) S.

** That is, you should have completed CS1336 & CS1337 (or equivalent courses) in C/C++ programming.

Course Description

CS 3377 C/C++ Programming in a UNIX Environment (3 semester hours) Advanced programming techniques utilizing procedural and object-oriented programming in a UNIX environment. Topics include file input and output, implementation of strings, stacks, queues, lists, and trees, and dynamic memory allocation/management. Design and implementation of a comprehensive programming project is required.

Student Learning Objectives/Outcomes

1. Ability to use the UNIX operating system interactively as a user (commands)
2. Ability to express algorithmic solutions using shell scripting (utilities)
3. Ability to understand and use regular expressions
4. Ability to use the UNIX programming environment (editor, compiler and linker)
5. Ability to understand UNIX processes (creation and control)
6. Ability to perform input/output of binary files
7. Ability to use interprocess communication (pipes, sockets and signals)
8. Ability to understand the UNIX file system
9. Ability to understand and use version control system

Required Textbooks

1. *A Practical Guide to Linux® Commands, Editors, and Shell Programming, Third Edition*. Mark G. Sobell. Prentice Hall. © 2012. ISBN-10: 0-13-308504-X. ISBN-13: 9780133085044
   Sobell example & source code: http://www.sobell.com/CR3/
   (Available online & free via UTD Library => eBook => Safari) 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
   (Available online & free via UTD Library => eBook => Safari) This book is referred as [APUE].

Textbooks and some other bookstore materials can be ordered online through Off-Campus Books http://www.offcampusbooks.com or the UT Dallas Bookstore http://www.bkstr.com/texasatdallasstore/home. They are also available in stock at both bookstores.

Other Suggested Resources

See eLearning for some other possible resources if you get stuck or want to learn more about a topic.

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 http://www.utdallas.edu/elearning/students/getting-started.html#techreqs on the Getting Started with eLearning webpage http://www.utdallas.edu/elearning/students/getting-started.html.

Course Access and Navigation

The course can be accessed using the UT Dallas NetID account at: https://elearning.utdallas.edu. Please see the course access and navigation http://www.utdallas.edu/elearning/students/gettingstarted.html#courseaccessandnav section of the site for more information.

To become familiar with the eLearning tool, please see the Student eLearning Tutorials http://www.utdallas.edu/elearning/students/eLearningTutorialsStudents.html.

UT Dallas provides eLearning technical support 24 hours a day/7 days a week. The eLearning Support Center http://www.utdallas.edu/elearninghelp services include 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 eLearning Tutorials webpage

http://www.utdallas.edu/elearning/students/eLearningTutorialsStudents.html for video demonstrations on eLearning tools.

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

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 http://www.utdallas.edu/elearninghelp. The instructor and the eLearning Help Desk will work with the student to resolve any issues at the earliest possible time.

Projected* Calendar
*The descriptions and timelines are subject to change at the instructor's discretion.

Week Of	Week #	TOPIC/LECTURE	READING
	0	Course Orientation and To Do: 1. Prerequisite Form 2. Seat Reservation for Test1,2,3	
8/19 M	1	Syllabus & Course Introduction	Sobell Ch1-3 APUE Ch01
8/26 M	2	Unix, Linux Commands (Advanced) File Systems (Sobell Ch4) Shell (Sobell Ch5) Editors (Sobell Ch6) Makefiles	Sobell Ch4-6 APUE Ch02
9/02 M	3	Bourne Again Shell – bash (Sobell 8, 10) Shell Script Programming with bash	Sobell Ch8, 10
9/09 M	4	Files in C/C++ Programs	APUE Ch03, 04
9/16 M	5	C/C++ programs in UNIX	APUE Ch07
9/23 M	6	Unix Process Control **Test 1**	APUE Ch08
9/30 M	7	Process Relationships	APUE Ch09

10/07 M	8	Signals	APUE Ch10
10/14 M	9	Threads	APUE Ch11
10/21 M	10	Threads (cont.)	APUE Ch12
10/28 M	11	Interprocess Communication (IPC)	APUE 11.6 (review) APUE Ch15
11/04 M	12	Socket Programming **Test 2**	APUE Ch16
11/11 M	13	Socket Programming (continued)	TBD
11/18 M	14	Version Control (Github, etc.)	TBD
11/25 M	15	Fall Break	
12/02 M	16	Advanced Topics/Catch-up 12/04 (W)/05 (Th) Last Day of Class **Test 3 12/4 (W) and 12/5 (Th)** **End of course (no final)**	TBD
12/09 M	17	Final Exam Week	12/07 Sat – 12/13 F
		Final Grade Due 12/18 W	

For Required Reading.

APUE - 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 (Available online & free via UTD Library => eBook => Safari)

Sobell – A Practical Guide to Linux® Commands, Editors, and Shell Programming, Third Edition. Mark G. Sobell. Prentice Hall. © 2012. ISBN-10: 0-13-308504-X. ISBN-13: 9780133085044 (Available online & free via UTD Library => eBook => Safari)

Proctored Final Exam Procedures
If your course has a proctored exam requirement, please see the UTD Student Success Center – Testing Center website http://www.utdallas.edu/studentsuccess/testing-center/ to make arrangements.

Note: All tests are scheduled and held at Test Center (Student Success Center). See the detail below to make your seat reservation and/or to arrange any makeup test, etc.

Grading Policy
Letter grades will be assigned as follows:

97-100	A+	93-96	A	90-92	A-
87-89	B+	83-86	B	80-82	B-
77-79	C+	73-76	C	70-72	C-
67-69	D+	63-66	D	60-62	D-
Below 60	F				

Note: Each range shown above is inclusive and without any rounding-off. For example, 93-97 for grade A is for the score falling in the range between 93.000 and 96.999. The grade of 92.999 is for A-.

Note: 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 Test 1 and Assignment 1 (but you have missed Test 2 and missed Assignment 2 totally), current total grade will be based on only those entries that you have submitted and done.

60% for 3 Tests. 20% for each test. Each test will be taken at Testing Center (Student Assessment Center, McDermott Library 1st floor) for 2-hour examination. Time of Test will be announced later in elearning. Each student should make a seat reservation prior to each test (as soon as possible). All exams are closed book and closed notes. Exams will focus more on concepts and less on details. Necessary 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.

Any make-up tests will be arranged and scheduled during the same week (usually Tuesdays prior to the actual 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, 1-2 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, there will be 15% penalty for any 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.

40% for Assignments (projects), likely at least 6, which will complement the lecture/book material. No late submissions are accepted. While you may ask questions of your classmates, these assignments must be completed individually. You are more than welcome to email the instructor with coding questions. You are expected to start working on them as soon as they are posted. Do not expect us to rescue you on the day of submission. I encourage everyone to submit the projects 1 or 2 days early. You may make multiple submission—only the last will be graded. [Do not wait

until the last minute to submit it. I do understand things happen and occasionally as you may not be able to submit projects on time.]

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, to seek for any further discretion and/or consideration.

All these assignments/projects should be done in Unix, Linux or Mac, and code you submit may be compiled and run by the instructor.

Submit your assignment through elearning (Assignments folder). More details on Assignment & Submission steps will be given with eLearning. If needed, we will schedule a demo of the assignment.

Attendance

Attendance will not be kept (beyond an attempt to learn your names), but it is certainly important for you to get everything possible out of this course.

Course Policies

Instructor is responsible for grading all the tests. A TA (if assigned) will grade assignments. If you need details/clarification on an assignment, you are encouraged to meet the TA/instructor during office hours & get personal attention. Do not rely on email alone to get the full response. If you are stuck with your assignment, it is better to turn in what you have and send us email. We will revise your submission and give some guidance. Your next submission will override the previous submission—the last submission will be the one graded. Include the detailed problem description & applicable error messages, zip all your source files and include it with your email, too. Do not just say "my program does not work" and expect us to figure out everything - you need to help us to help you efficiently. We expect to complete grading assignments (projects), weekly activities or quizzes, and tests in a week or so. However, when the schedule gets too busy, it can be as long as 2 weeks before the grades are assigned. It is the students' responsibility to review the grade details when they become available and follow up for clarifications if needed.

Course Policies

Make-up exams

Any make-up tests will be scheduled during the same week (usually Tuesdays prior to the actual 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, 1-2 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 any valid reason, there will be 15% penalty for any makeup test after the scheduled test date.

Extra Credit

Extra credit is not likely in this course but will be given at the instructor’s discretion.

Late Work

No late submission of any work is accepted unless stated otherwise.

Classroom Citizenship

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."

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 go to http://go.utdallas.edu/syllabus-policies for these policies.

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

Many thanks to Dr. Min for his template for this course!