

C S 30B Linux Shell Programming

Foothill College, Computer Science Department

Course Description

Linux shell script programming using the Bourne Again shell programming language (bash) and Linux utilities to create practical shell scripts. Topics covered include customizing the environment, running and writing scripts, variables, loops, functions, text processing and debugging

General Information

Prerequisite	<ul style="list-style-type: none">• Advisory CS30A or equivalent.• Good comprehension in reading and writing in English is strongly advised.• Good comprehension of simple algebra.
Instructor:	Mike Murphy and you can email me at: MurphyMike@fhda.edu You should post your questions in the Discussions. If you have personal questions use the messaging function (Inbox - on the left side of the screen) here in Canvas and only use email (MurphyMike@fhda.edu) only you have trouble logging in to Canvas.
Weekly Time Estimate:	<ul style="list-style-type: none">• Module Reading – about five hours. This includes time at the Linux command line typing in shell scripts and trying them out.• Lab Assignment – about two – four hours. The lab assignments include answering weekly topic questions as well as a programming component. The time required to complete the lab varies greatly with individuals, depending on the level of background experience with programming. Some students take one hour, some longer. <p>All sections of this class is conducted online. The amount of time you spend varies greatly with the individual. Some students take 7 hours, some take 15 hours.</p>
Laboratory:	Lab Objectives: The purpose of the labs is to provide students hands-on independent practice at problem solving using the operating system principles covered in the lessons. The lab component is a critical part of the learning tool for this course. CS Support: The STEM Center (Links to an external site.) Links to an external site. located in the 4200 building, room 4213, will have qualified CS tutors at various times each

	<p>day. There is also a dedicated Computer Science lab located in the 4200 building, room 4204. For details and hours, please visit the web page.</p> <p>We will also provide online tutoring using Confer Zoom.</p>
Textbook:	<p>Shell Programming in Unix, Linux and OS X, 4th edition by Stephen G. Kochan and Patrick Wood, ISBN 9780134496009</p> <p>The eText link (Links to an external site.)Links to an external site.</p>
Website:	<ul style="list-style-type: none"> • We will be using Canvas for this term. You can log in to Canvas two different ways: <ol style="list-style-type: none"> 1. the Foothill College Canvas login webpage. 2. through MyPortal • Log In Through Foothill College Login Webpage <ol style="list-style-type: none"> 1. Go to https://foothillcollege.instructure.com 2. Type in your ID number and password that you use to log into MyPortal • Log In Through MyPortal <ol style="list-style-type: none"> 1. Login to MyPortal (https://myportal.fhda.edu (Links to an external site.)Links to an external site.) using your Student ID Number and Password 2. Click on the Students tab 3. Look for My Online Courses 4. Click on "Log into Foothill Canvas"

Software needed for this course

You will need access to a Linux Operating System (OS). To obtain a Foothill College Linux account, go to this site:

http://www.psme.foothill.edu/?page_id=481 ([Links to an external site.](#))[Links to an external site.](#)

Popular Linux distributions to be configured on your own computer can include:

- [Ubuntu \(Links to an external site.\)Links to an external site.](#)
- [openSUSE \(Links to an external site.\)Links to an external site.](#)
- [centOS \(Links to an external site.\)Links to an external site.](#)
- [fedora \(Links to an external site.\)Links to an external site.](#)

To access a Linux server remotely you'll need a secure terminal program for remote login and file transfer. **Linux, Max OS X, and other UNIX Varieties:** Open SSH is already integrated into the base system of major distributions of Linux and BSD UNIX, including Mac OS X.

On Mac OS X: Finder – Applications – Utilities – Terminal

Windows: [SSH Downloads \(PuTTY\) \(Links to an external site.\)](#)[Links to an external site.](#)

WinSCP (For file transfer):

[Windows \(Links to an external site.\)](#)[Links to an external site.](#)

[Mac \(Links to an external site.\)](#)[Links to an external site.](#)

For further information regarding software setup for this course see module Software Setup. If you need help with your Foothill Linux account access contact Luis Barreto:

barretoluis@fhda.edu .

Communication

Announcements:	<ul style="list-style-type: none">• Announcements and important reminders will be posted to help keep students on track with where we are in the course. If you are not receiving an email after I send out an Announcement from Canvas, check that you have provided the correct email.• Other general topics of course interest will be posted throughout the week to the course site Announcements window – when you log in to the course site you will want to make sure that you regularly check the Announcements page.
Public Forum:	<ul style="list-style-type: none">• The first week an introduction is required.• Questions and comments should be posted to the Discussions, which you can reach by clicking on Discussions on the left menu.• Unless a question is of a private nature (i.e. grades, registration issues), please use the public Discussions. Also, feel free to answer your fellow student questions, even if you only have a guess as to what the answer is. It's great to engage in conversation with each other in this manner.• If you have a new topic, please start a new discussion. If you want to add to or ask about an existing topic, Post a Reply to that discussion.• No points are awarded for contributions, and there are no weekly requirements, but it's collegial form to participate, inquire and assist. According to the college requirements you must post an introduction in the first week of class or you will be dropped as a "no show".
Private Messages:	<ul style="list-style-type: none">• Please use public Discussions for any question or comment that relates to the class. If you have a confidential question (grades or registration) use the Inbox menu of Canvas.
Posting Program Code:	<ul style="list-style-type: none">• Do not post entire programs and ask "what's wrong?" or "is this good?" or paste numerous sections of the reading and ask "please explain page X of reading". That's frivolous and indicates you have not tried to narrow down the problem.

	<p>Find exactly what you want to know about and post only the problematic code or unclear reading section.</p> <ul style="list-style-type: none"> • To avoid plagiarism, do not share code code which is required to complete an assignment (see exception). This includes sharing via Canvas Discussion section and email. • You can post to the public discussions topics that do not directly answer questions from programming assignment. If you are asking or answering a question post pseudo-code of fragments • When posting code fragments (i.e., portions of your program) into questions, make sure these code fragments are perfectly indented and that they are properly formatted. <p>Exception: The exception is unless the code was already provided in the course material.</p>
<p>How to Ask a Question:</p>	<p>Be specific. Show exactly where you seem to be faltering so that qualified others can know how to help you. This holds true if you are posing your question to the public forums, the STEM center or me directly. Questions are encouraged. The engagement of questioning helps everyone learn. Just be sure to have wrestled with the problem first so that you can show you have tried to solve it. If unclear or stuck you then have narrowed down your question specifically. Knowing exactly where you are uncertain allows for incremental progress on each assignment task.</p> <p>Start your labs early – this allows time for the question, answer and progress cycle to happen most successfully.</p>

Course Site Information

Format of lectures: Weekly topic material is released on Mondays at 8:00 AM. The first few weeks there are additional resource modules to help you get set up for the course.

Lab assignments: are assigned each week. Assignment will open on Mondays at 8:00 AM and are due on Sundays at 11:59 PM.

Exams: There will be a one hour midterm exam and a comprehensive two hour Final exam.

Discussions: Student forum discussion opportunities and private communication are supported by posting to the **Discussion** and Messaging (**Inbox** link) tools.

Grades: Displays current course grades for all students per each assessment.

Supplementary course support materials are provided in these course menu on the right hand side.

Policy Accessing and Saving Material

- All course material (see exception) is available on Canvas.
 - **Can I print the material?** Yes, you may print a hard copy **for your own use**.

- **Can I share the material?** To avoid copyright infringement **do NOT share or post the material** via hardcopy, file transfer, posting online outside of this course, etc.
To see if there are any exceptions, contact the instructor via Private Message on Canvas.

Exception: source code and documentation related to practice problems and programming assignments.

A Few Course Policies In Brief—more details later

- **Attendance and Participation** Weekly attendance and participation is assessed through our lab submissions. Students who are enrolled in the class but who do not submit the first assignment will be dropped for non-attendance. After the first week, students **may** be dropped if they miss or receive a 0 on two consecutive assignments.
You must also post an introduction in the first week to avoid being dropped as a no-show.
- Students who do not take the midterm will be dropped.
- You must take the exam within the specific date and time interval (see Topics).
- If you have a documented medical necessity or family emergency and will miss submitting a substantial portion of the course work when it is due:
 - you **MUST HAVE** specific written permission prior to the exam date, assignment, or presentation dates,
 - and (unless a medical emergency) you **MUST CONTACT** me and receive confirmation that you have permission to make alternate arrangements.
- Otherwise, you may receive a failing grade on any work you miss as a result, and accommodations will **NOT** be made for you. This includes exam(s).

Briefly on collaboration...

- Collaboration is only permitted when specifically allowed for—otherwise, you must do your own work.
- If there are collaboration assignments you may collaborate with at most one other person (who must be named).

However, the work you turn in **MUST BE YOUR OWN**. Your solution must have your "thumbprint" on it and not be the same as any other student's. If two students turn in identical papers, both students receive zero.

- Please read the [academic integrity policy \(Links to an external site.\)](#)Links to an external site. of Foothill College.

Grading Policy

Course grades are based on shell programming lab assignments (20 x 9 = 180 points = 75%), and exams (midterm + final = 20 + 40 = 60 points = 25%).

Please note that, Canvas grade page can show a **incorrect** overall grade than your actual grade. Canvas calculates the overall grade based on your partial grades only, **without** setting the missing ones to 0. So to get your real grade, either make your own calculation by setting the missing grades to 0 or wait until all your grades are available on Canvas.

To determine your final letter grade, I will calculate all parts: projects + exams. I will then use the following table:

To earn this letter grade	% needed
A	93
A-	90
B+	87
B	83
B-	80
C+	77
C	73
C-	70
D	60
F	weighted course average below 60 OR weighted exam average below 50

The grade scale above represents the minimum letter grade you will be assigned. At the instructor's discretion, the grading scale may be altered in the students' favor if this will better reflect the students' mastery of the material.

Exam format:

The midterm and final exams cover everything prior to the exam date. The questions will have a variety from multiple choice, fill in the blank to writing portions of code. However, most of the questions will require you to write code. So, it's good to start practicing in class.

If you have any questions about the course policy, ask the instructor.

Assignment Submission

Programming project assignments - Please submit to your assigned repository only the version that successfully runs.

Late Submission Policy - This class moves at a demanding pace so getting even a few days behind will be hard to recover from resulting in a domino effect. If for some reason, you are not able to complete all tasks by the specific due date, you should submit your best effort by the deadline.

With this said:

- You may turn in programming assignments 24 hours late for a 10% penalty, 48 hours for a 30% penalty, 72 hours for 60% penalty. **After 3 days late, they will not be accepted.** NOTE: I only grade *one* submission and that is the **last submission you make.**
- You may submit up to 72 hours late, but **I will not be able to assist you, if your submission is not between Monday through Friday.**

However, plan for unforeseen incidents such as slow network, network outage, repository conflicts, etc. So, do *not* wait until the last minute. Make sure to *check* that the latest submission is actually available in your repository. Last minute requests may not be answered or taken to consideration by me, so make sure you have a working copy before the due date

Late exams are not accepted.

Midterm Exam:

There is a midterm exam in the sixth week. The midterm is a one hour timed exam. The exam will open at 6:00 PM on Wednesday of the sixth week of the quarter and must be completed by 11:59 PM on the next Sunday within a one hour uninterrupted window.

Final Exam:

There is a comprehensive final exam in the final week. The final is a two hour timed exam. The exam will open at 6:00 PM on Monday, of Finals Week and must be completed by 11:59 PM on Tuesday, within a two hour uninterrupted window.

Participation:

Regular weekly participation is required by College regulation. To continue in this class you must participate weekly in all assessment areas: lab assignments, and exams. This is part of the class participation requirement that online classes must enforce to maintain their transfer-ability and accreditation.

Attendance Guidelines:

You are expected to sign on and follow the lecture and assignments. If you need to drop the class, this will be your responsibility.

Drops and Withdrawal

For a complete reference of all withdrawal dates and deadlines, refer to the Foothill College registration page at the college web site here:

<https://foothill.edu/calendar/spring2018.html> (Links to an external site.)Links to an external site.

I reserve the right to drop you for any of the following:

Missing a scheduled test without prior notice will result in an automatic drop or a zero, depending on the situation and my judgment.

- If you do not login or I do not hear from you by email for 10 consecutive days I may drop you. (see exception)
- If you receive a zero on, or fall behind in, two consecutive weekly assignments, I will drop you. (see exception)
- If you do not contribute to discussions weekly by asking (or better yet answering) a question in the current week's forum(s) at least once in any 7 day period, I will drop you. (see exception)

Exception to Above Policies:

If the non-participation that has just been described occurs partially beyond the last date to drop (with a W), I may not be able to drop you, and you will receive whatever grade that your points dictate. Therefore don't assume that you can simply stop participating late in the quarter and you will be dropped. If you intend to drop please do so yourself, so you don't accidentally end up with an unintended "F."

If you decide to drop the class, please let me know. I cannot allow anyone who has dropped to continue to have access to the material.

Please ensure you have no conflicts with midterm or final exam dates; there will be no make-ups.

Student Learning Objectives

You can see the SLOs for this class here:

http://www.fgamedia.org/faculty/loceff/cs_courses/common/slos/cs_slos_1.html (Links to an external site.)Links to an external site.

Accommodations

Foothill College views disability as an important aspect of diversity, and is committed to providing equitable access to learning opportunities for all students. Disability Resource Center

(DRC) is the campus office that collaborates with students who have disabilities to provide and/or arrange reasonable accommodations

- If you have, or think you have, a disability in any area such as, mental health, attention, learning, chronic health, sensory, or physical, please contact DRC to arrange a confidential discussion regarding equitable access and reasonable accommodations.
- If you are registered with DRC and have accommodations set by a DRC counselor, please use **Clockwork** to send your accommodation letter to your instructor and contact your instructor early in the quarter to review how the accommodations will be applied in the course.

Students who need accommodated test proctoring must meet appointment booking deadlines at the Testing Center.

- **Exams** must be booked at least **three (3) business days/weekdays in advance** of the instructor approved exam date/time.
- **Finals exams** must be scheduled **seven (7) business days/weekdays** in advance of the instructor approved exam date/time.
- Failure to meet appointment booking deadlines will result in the forfeit of testing accommodations and you will be required to take your exam in class.
- [Contact the DRC \(Links to an external site.\)](#)[Links to an external site.](#) if you cannot find or utilize your [MyPortal \(Links to an external site.\)](#)[Links to an external site.](#) Clockwork Portal
- DRC strives to provide accommodations in a reasonable and timely manner, some accommodations may take additional time to arrange. We encourage you to work with DRC and your faculty as early in the quarter as possible so that we may ensure that your learning experience is accessible and successful.

DRC Location: Building 5400, Student Resource Center

Phone: 650-949-7017

On the web: <http://www.foothill.edu/drc/> ([Links to an external site.](#))[Links to an external site.](#)

Email: drc@foothill.edu

Where everything is?

Access the various areas of your course through Canvas menu on the left.

Assignments:	<ul style="list-style-type: none">• View from Assignments.
Tests	<ul style="list-style-type: none">• Taken through the Canvas Quizzes module
Questions or comments:	<ul style="list-style-type: none">• posted using the Discussion.

Typical Week:

Here is the day-by-day breakdown of a proposed typical week to help you understand approximately what you are facing on a weekly basis.

Mondays Module Reading is assigned
Wednesdays Lab should be in progress
Sundays Lab Assignment Due (11:59 PM)

The first few weeks there are additional reference modules that you'll need to read to get started. The lab assignments are based on the week's topic materials allowing you the flexibility to choose when is most convenient for your schedule to read the current week's lecture materials.

The Syllabus May Be Updates

This syllabus is as accurate as possible, but is may be updated.

Next Steps

With all that said, let's begin. Look at the course summary and see that in the first week you are supposed to:

- Read this syllabus
- Post an Introduction in the Class Discussion
- Check your email setting in your Canvas profile
- Software setup: Obtain access to Linux account
- Select an editor: Suggest vi/vim or emacs
- Read and do the work described in the Weekly Modules

Course Summary:

Date	Details	
Sun Sep 30, 2018	0.1 Getting to Know You, Please Introduce Yourself to the Class	due by 11:59pm

Date	Details	due by
Sun Oct 7, 2018	<u>Lab Assignment 1-1: Getting Started with bash</u>	11:59pm
	<u>Lab Assignment 1-2: Creating a bash Shell</u>	due by 11:59pm
	<u>Quiz 1 Getting Started with bash</u>	due by 11:59pm
	<u>Lab Assignment 2-1: The shell As a Programming Language - Solve the problem interactively</u>	due by 11:59pm
Sun Oct 14, 2018	<u>Lab Assignment 2-2: The shell As a Programming Language - Solve the problem by creating a shell script</u>	due by 11:59pm
	<u>Quiz 2 The Shell as a Programming Language</u>	due by 11:59pm
	<u>Quiz 1 Getting Started with bash</u> (1 student)	due by 11:59pm
	<u>Lab Assignment 3-1 Mastering the Tools of the Trade</u>	due by 11:59pm
Sun Oct 21, 2018	<u>Lab Assignment 3-2 Mastering the Tools of the Trade, Writing and Testing a Shell Script.</u>	due by 11:59pm
	<u>Quiz 3 Mastering the Tools of the Trade</u>	due by 11:59pm
	<u>Lab Assignment 4-1 Command Files and Shell Variables</u>	due by 11:59pm
Sun Oct 28, 2018	<u>Lab Assignment 4-2 Command Files and Shell Variables - Writing and Testing a Shell Script.</u>	due by 11:59pm
	<u>Quiz 4 Command Files and Shell Variables</u>	due by 11:59pm
	<u>Lab Assignment 5-1 Quoting and Command Substitution</u>	due by 11:59pm
Sun Nov 4, 2018	<u>Quiz 5 Quoting and Command Substitution</u>	due by 11:59pm
	<u>Lab Assignment 5-2 Quoting and Command Substitution - Writing and Testing a Shell Script</u>	due by 11:59pm
	<u>Lab Assignment 6-1 Command Line Parameters</u>	due by 11:59pm
	<u>Lab Assignment 6-2 Command Line Parameters - Writing and Testing a Shell Script</u>	due by 11:59pm
	<u>Midterm Exam</u>	due by 11:59pm

Date	Details	due by
	Quiz 6 Command Line Parameters	11:59pm
	Lab Assignment 4-1 Command Files and Shell Variables (1 student)	due by 11:59pm
	Lab Assignment 4-2 Command Files and Shell Variables - Writing and Testing a Shell Script. (1 student)	due by 11:59pm
Sun Nov 11, 2018	Lab Assignment 7-1 Conditions and Test: True and False	due by 11:59pm
	Lab Assignment 7-2 Conditions and Test: True and False	due by 11:59pm
	Quiz 7 Conditions and Test: True and False	due by 11:59pm
Sun Nov 18, 2018	Lab Assignment 8-1 bash Loop Constructs: Practice with the commands	due by 11:59pm
	Lab Assignment 8-2 bash Loop Constructs: Creating a Bash Script File	due by 11:59pm
	Quiz 8 bash Loop Constructs	due by 11:59pm
Sun Nov 25, 2018	Lab Assignment 9-1 Reading and Printing Data	due by 11:59pm
	Lab Assignment 9-2 Reading and Printing Data Copy: Shell Script	due by 11:59pm
	Quiz 9 Reading and Printing Data	due by 11:59pm
Wed Dec 12, 2018	Final Exam due by 11:59pm	