

BOWIE STATE UNIVERSITY
Department of Computer Science
CTEC 222 UNIX Operating Systems (3 Credits)
Fall 2016

Instructor: Dr. Sharad Sharma
Classroom: Computer Science Building, Room 309
Class Hours: Tuesday: 7:30 PM – 10:00 PM
Office Hours: Tuesday: 2:30PM – 7:30 PM
Other Times by Appointment
Office Location: Computer Science Building, Room 317
Email: ssharma@bowiestate.edu
Phone: 2-4502 (in campus)
Course Website: <http://cs.bowiestate.edu/sharad/unix/index.htm>

COURSE DESCRIPTION:

Introduction to basic operating system concepts. Coverage of UNIX and UNIX environment for common users and software developers. Coverage of concepts and applications for background jobs, piping, file redirection, and file directories. Introduction to scripting, such as Bourne-shell, Perl, Sed, Awk, etc.

PREREQUISITE: COSC 111 or CTEC 114.

REQUIRED TEXT:

Mark G. Sobell, "Practical Guide to Linux® Commands, Editors, and Shell Programming", Prentice Hall, 2005. **ISBN-10:** 0131478230, **ISBN-13:** 978-0131478237

RECOMMENDED READING LIST:

- "The UNIX Programming Environment" by Kernighan and Pike, Prentice Hall, ISBN 0-13-937681-X
- Todd Meadors, "Linux Shell Script Programming", Thomson Course Technologies, 2003, ISBN 0-619-15920-0
- Syed Mansoor Sarwar, Robert Koretsky, and Syed Aqeel Sarwar, "Unix: The Textbook", Addison-Wesley Pub Co; ISBN: 0201612607
- Keith Haveland, Dina Gray, and Ben Salama, "UNIX System Programming" Addison-Wesley Pub Co; ISBN: 0201877589; 2nd edition (December 9, 1998)
- Stephen G. Kochan and Patrick H. Wood "UNIX Shell Programming", Hayden Books, 1990.
- Marty Poniatowski, "UNIX User's Handbook, Second Edition", Prentice Hall PTR, 2002.

Program Outcomes (PO):

This course is required for all computer science major students and has significant relationship with the following program outcomes:

- b. An ability to analyze problem, and identify and define the computing requirements appropriate to its solution

- c. An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
- i. An ability to use current techniques, skills, and tools necessary for computing practice.

STUDENT EXPECTED OUTCOMES

Upon completion of this course, the student will be able to:

- Apply basic UNIX commands to accomplish system tasks. (quizzes, exams)
- Define describe UNIX operating system and basic commands. (quizzes, exams)
- Write a complete program in Bash Shell Programming. (quizzes, projects)
- Describe the use of arrays. (quizzes, exams)
- Use elementary scripts to automate tasks. (quizzes, exams)

STUDENT COURSE LEARNING OBJECTIVES (SCLO)

The essential objectives for this course are to:

1. Acquire skills and understand UNIX operating system and basic commands.
 - Instruments: programs Quiz 1, 2, 3, HW1
 - Covers PO (b), (c) and SCLO (1), (4)
2. Develop proficiency and familiarity with using vi editor.
 - Instruments: programs Quiz 3, 4, 5, HW1
 - Covers PO (b), (c) and SCLO (1), (4)
3. Acquire skills and understand variables, commands, operators, conditional statements, looping statements, and expressions in Bash Shell programming.
 - Instruments: programs Quiz 5,6,7,8, Project
 - Covers PO (b), (c) and SCLO (1), (4)
4. Use and manipulate strings and functions in Bash Shell programming.
 - Instruments: programs Quiz 9,10, Project
 - Covers PO (b), (c) and SCLO (1), (4)

TEACHING MODE:

The primary teaching mode will be lecture-discussion, problem solving, and question-answer approach. The lectures will be supplemented by some projects in computer labs. This course is an introduction to UNIX operating system and commands. Topics include: file manipulation; directory structure; operating system performance; editors; UNIX shell scripts programming.

EVALUATION METHOD:

Final semester grade will be determined by the average of the student performance on the homework, in-class projects, projects, midterm, and the final exam as follows:

In-class Quizzes	30%
Project & Homework	10%
Midterm	20%
Final	30%
Class attendance and participation	10%

Letter Grades will be assigned according to:

90 - 100	= A
80 - 89	= B
70 - 79	= C
60 - 69	= D
below 60	= F

[IMPORTANT DATES AND TEST SCHEDULE:](http://www.bowiestate.edu/about/events.asp) (right click and open hyperlink)

<http://www.bowiestate.edu/about/events.asp>

IMPORTANT TELEPHONE NUMBERS:

Dept of Comp Sc (Secretary): (301) 860-3960

Dept of Comp Sc (Fax): (301) 860-3979

Bowie State University (Main): (301) 860-4000

Inclement Weather related closures: (301) 860-4000

Weekly Time Schedule

Date	Topics	Assignments
2 Feb	Introduction to Unix	
9 Feb	Unix Operating System and UNIX commands	
16 Feb	Unix Editor: Vi Editor	Quiz 1
23 Feb	VI Editor	Quiz 2, Homework 1
1- March	VI Editor	Quiz 3,
8- March	VI Editor, Bash Programming: export, single/double quote, environmental variables, exit command, read command	Quiz 4
15- March	Mid Term Exam	Homework 2
22- March	Spring Break	
29- March	Bash Programming: Command substitution, arithmetic operator, arithmetic evaluation	
5- April	Bash Programming: Conditional Statements, expressions, if-else, case statement, Iteration statement: for, list	Quiz 5
12- April	Bash Programming: Example case statement, Iteration statement	Quiz 6, Final Project assigned
19- April	Bash Programming: List, arrays, loops	Quiz 7
26- April	Bash Programming: debugging, error resolution, while statement	Quiz 8
3 May	Bash Programming: Strings, Functions, menu	Quiz 9
10 May	Bash Programming: Find pattern, continue, break statement	Quiz 10
17-May	End Term Exam	

IMPORTANT!

- Class attendance is mandatory at Bowie State University. This policy will be enforced. After six (6) absences from a daytime course or two absences (2) from an evening course, the matter will be referred to the department chair. It is of the utmost importance that you attend **every** class!
 - Expect a quiz or test every week. The quiz time will run from the start of class for 15 minutes. Therefore, if you are 15 minutes or more late, you will miss the quiz.
 - All homework and assignments are to be turned in *on or before the due date*, even if class is cancelled for *any* reason or you are not able to attend class. Assignments may be submitted in class, slipped under my office door, or given to me during my office hours. It is each individual student's responsibility to submit homework and assignments on time.
 - There will be **no make-up** for missed homework, assignments, or quizzes. Makeup of exams will be allowed *only* if the absence is validated by a formal documents (e.g., from the hospital) and a prior notice if it can be notified before the class.
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Policy on Cell Phones, etc.

The ringers of cell phones, pagers and any other electronic devices must be turned OFF or set to vibrate during class time. Only calls of an urgent or emergency nature should be taken and you should step outside the classroom to do so. If you do not observe this policy, you may be asked to leave the class for that day and an unexcused absence will be incurred.

Some Useful Resources

Refer course website for more links:

- Writing a Research Paper: <http://owl.english.purdue.edu/owl/resource/658/01/>
- Writing a Research Paper: <http://www.aresearchguide.com/>
- A Guide for Writing Research Papers Based on Modern Language Association (MLA) Documentation: <http://www.ccc.commnet.edu/mla/index.shtml>
- Format for a Research Paper: <http://www.aresearchguide.com/4format.html>
- BASH Reference: http://www.faqs.org/docs/bashman/bashref_4.html#SEC4
- UNIX Shell Accounts: <http://acc.uic.edu/service/shell-accounts>
- chmod Tutorial: <http://catcode.com/teachmod/>