CpSc 207, Shell Commands and Scripting
Syllabus, Spring, 2016
Dr. Conlon

Catalog Description: This course introduces the student to the shell commands and shell programming in prevalent operating systems. The architecture of the PC and how it relates to the OS is discussed conceptually and physically examined. The hardware and software required for data communications are discussed. (3 credits)

Professor's Description: In this course you will learn the architecture of the IBM-PC-compatible computer, basics of networking, and the command-line (*shell*) interfaces to the Windows and, especially, Linux operating systems. Unix shell programming will be emphasized.

Class Meeting:

Section	Time	Place
1	MWF 1:00-1:50 p.m.	ATSH 230

Instructor:

Name	Phone	Email	Office
Michael P. Conlon, Ph.D.	724-738-2143	michael.conlon@sru.edu	ATSH 252

Office hours: As indicated below, or by appointment.

Day	Mon	Tue	Wed	Thu	Fri
Time	2 p.m.-4 p.m.	11 a.m.-12 m.	9 a.m.-10 a.m.	11 a.m.-12 m.	

Office hours are for you. Please feel free to visit me to discuss any problems. Do not wait until problems become unmanageable. If I am doing other work during my office hours, it is because no student has come to see me. I will gladly drop what I am doing to help you. If my office hours are inconvenient, see me before or after class and we will find a better time to meet.

Grading:

Exams	Projects	Lab, homework, service, etc.
35%	35%	30%

Exam dates:

	Exam 1	Exam 2	Final
Section 1	Feb 29, Mar 2	Apr 11, 13	Thu, May 8, 10:30-12:30

Text: *A Practical Guide to Linux Commands, Editors, and Shell Programming*, second edition, © 2010, by Sobell, Prentice Hall. ISBN #0-13-136736-6.

Software: This course will use the Linux operating system extensively. It is strongly suggested that you install Linux on your personal computer. I recommend Kubuntu Linux, available from http://www.kubuntu.org, but any current distribution, such as Debian, Red Hat, SuSe, or Ubuntu is acceptable. Linux can be installed side-by-side with Windows on your hard drive, such that you can choose which OS to load at boot time. Alternately, you can install a virtual machine, such as Vbox, and run either Linux or Windows in the virtual machine while running the other on the real hardware.

Linux is available both in the Unix Lab, ATSH 224, and when using obsidian.sru.edu. However, it is a lot more convenient to have Linux running on your own computer. (You're likely to have a more up-to-date version, too.)

Late Assignment Policy: Late assignments will not be accepted, and will receive a grade of zero. Exceptions will be made only in extraordinary circumstances.

Attendance, reading, and participation:
- You are expected to attend every class and to arrive on time. Do not expect to be admitted to class if you are late.
- Please do all assigned reading *before* the class in which it is covered. You are expected to attend and participate in class, and you must do the reading and homework to participate.

Exams:
- Exams will cover both text and lecture material. Some text material may not be covered in class, and much material covered in class is not in the text. You must both do the reading and attend class to succeed.
- If you must be absent for an examination, please see me one week in advance to make alternate arrangements to take the exam.
- Please take care of bodily needs before coming to an exam: you will not be permitted to leave the room during an exam until your paper is handed in.
- All electronic communication, computation, and entertainment devices must be turned off and put away during exams. Use of such devices during an exam will be considered cheating.

Labs:
- Labs will be graded on completion, i.e, *acceptable* (100) or *unacceptable* (0).
- Your first responsibility in lab is to complete the lab assignment. When that is complete, you may work on CpSc 207 project work or homework. If you have no outstanding homework or project, make and test modifications to programs you have completed, or work on a shell programming project of your choice. Your lab grade will be reduced if you are not working on coursework during lab time.
- If you do not complete your lab assignment during lab time, you must demonstrate it to the instructor within two classes or it will be marked as *unacceptable (0).* It is your responsibility to find out whether a class you missed was a lab, and, if so, what the assignment was.

Service, etc.: You will be expected to complete four service/professional-development activities during the semester. For an activity to be eligible, it must be an organized activity and it must meet one of the following criteria:

- It helps you prepare for the world of work you will enter after graduation.
- You help others to use computers.
- You learn more about computing, jobs in computing, or computing in industry.

Such activities may take the form of lectures on or off campus, resumé workshops, dress-for-success workshops, Computer Technology Club meetings, and service activities for the community. If you are not sure whether an activity will count, ask me! Day-long activities count double.

In general, I do not produce these activities. Watch the bulletin boards around campus to find activities that qualify. There will be plenty of them available, but if you wait until the end of the semester to start looking, you will not be able to complete this assignment.

Plagiarism policy:
- Cooperation in doing homework and lab work is encouraged.
- If you have cooperated with anyone in your homework projects, you must indicate that person's name in your header comments or it will be counted as plagiarism.
- You are not to cooperate with others *in any way* in the development of your programming projects, except as specified in the assignment.
- Plagiarism or collusion on a project will earn you a failing grade for the project, and you may be reported to the committee on academic integrity.

Email: I may communicate via electronic mail, using your SRU address. Assignments may be announced this way. Be sure your email account is properly set up. You are responsible for checking your SRU email regularly.

Recording of Lectures: Video and/or audio recording of lectures is generally prohibited. Permission to record will be granted if there is an educational need for you to do so. The instructor reserves the right to reduce your grade should you make illicit recordings.

High Impact Practices: This course will make use of the following practices that have been correlated with student success:
- Intensive writing
- Collaborative assignments
- Service learning

Copyright Permission: By registering in this course you grant the SRU Computer Science Department permission to copy any of your work from the course for use in assessment or accreditation processes. Information that identifies you will be removed from such work.

The following statement is required of SRU faculty in order to comply with the TEACH Act, which modifies U.S. copyright law primarily to deal with the copyright implications of online education. The link to references is mine.

Copyright Statement: Students shall adhere to the laws governing the use of copyrighted materials. They must ensure that their activities comply with fair use and in no way infringe on the copyright or other proprietary rights of others. Additional information regarding copyright and fair use can be found at www.teachingcopyright.org/handout/copyright-faq

Course Outcomes: This course and its outcomes support the Information Technology Learning Outcomes of **Problem Solving and Critical Thinking** (PS&CT) and **Ethical and Professional Responsibilities** (E&PR). These Information Technology Learning Outcomes are tied directly to the University Wide Outcomes of *Critical Thinking and Problem Solving*, *Communication*, and *Values and Ethics*.

Program Objectives Assessed in CpSc 207:

Learning Outcomes	Assessed Course Objective
PS & CT b. Integrate design and implementation principles to develop effective applications	1. Identify and use system utilities to manage files, processes, network connections and other resources on two computing platforms.
E & PR b. Recognize important legal issues and demonstrate appropriate social responsibilities in information technology.	2. Understand the basic concepts of system and network security and use the related system tools.
E & PR c. Demonstrate an awareness of the codes of professional ethics in the information technology industry	3. Recognize the ethical, legal, and social implications of system deployment.
E & PR e. Recognize the need for continuing professional development.	4. Use new tools and utilities in the solution for information technology problems.

Additional Course Objectives include that the student will be able to:
1. Define and identify terms related to computer systems, telecommunications, and networking.
2. Manipulate and configure system resources.

Calendar (tentative), with assigned readings:

Date		Topic	Reading
Jan	20	Introduction. Windows, Unix, Linux	Sobell, Ch. 1
	22	PC Hardware, lab	*Building a PC* handout.
	25	Linux introduction: remote access	Sobell, Ch. 2, 17
	27		
	29	Linux Shell Commands	Sobell, Ch. 3
Feb	1		
	3	The Linux and Windows Filesystems	Sobell, Ch. 4
	5		
	8	The Shell	Sobell, Ch. 5
	10		
	12	The vim editor	Sobell, Ch. 6
	15	Bash: the Bourne Again Shell	Sobell, Ch. 8
	17		
	19	Bash programing: scripts	Sobell, Ch. 10
	22		
	24		
	26		
	29	Exam 1	
Mar	2	Exam 1	
	4	Project 1	
	14	Grep and regular expressions	Sobell, pp. 833-837; Appendix A
	16		
	18		
	21	awk	Sobell, Ch. 12
	23		
	25		
	28	sed	Sobell, Ch. 14
	30		
Apr	1		
	4	The Common Gateway Interface	HTML/CGI Handout
	6		
	8	Exam 2	
	11	Exam 2	
	13	Project 2	
	15	Using the Windows Command Line Effectively	Windows handout

Date		Topic	Reading
	18		
	20	Completing Data-Specific Tasks	
	22	Discovering the System Status	
	25		
	27	Locating Files and Other Resources	
	29		
May	2	Creating .CMD and .BAT files	
	8	Final exam, 10:30-12:30	