Network Administration – Linux Server
A Hybrid-Online Course
Spring 2019

Instructor: Buddy Spisak   **Office Hours**: Wed. 7:00-9:00 p.m. (Jan. 16th to May 21st)
Office Location: BSS-143

Voice Mail: (916) 286-3691 ext. 14162
E-mail: spisakj@crc.losrios.edu The turnaround time for responding to most e-mails is about one to two days. Be sure to include your name and the course number in each email so I can identify who you are and what the e-mail is about.
Course Web page: https://lrccd.instructure.com
Instructor Web page: http://crc.losrios.edu/spisakj/

Prerequisites: CISN 300
Lecture: Online (21603)
Lab: Tuesday 6:00 to 9:05 p.m. in BSS-146
Accepted for Credit: CSU
Class Credits: 3 units

Textbook: There is a suggested textbook that can be purchased through the bookstore.

Suggested Textbook: *Red Hat System Administration III, Student Guide* (optional)
Authors: Red Hat Academy
Publishing Info: RHA, 2018
Order Number: RH254-EN-SG-P

Suggested eBook: *Red Hat System Administration III, Student Guide* (optional)
Authors: Red Hat Academy
Publishing Info: RHA, 2018
Order Number: RH254-EN-SG-E

Supplies: A flash drive is also recommended (at least 32GB) and it should contain no other data.

Course Description:

This course provides introductory coverage of Linux Network Administration. The course maps to the CompTIA Linux+ certification exam and to SAIR/GNU's Linux Networking course. Specific course topic coverage includes: introducing Linux; exploring the desktop; using the Shell; understanding users and file systems; understanding text processing; managing processes; using network clients; installing Linux; understanding system initialization; managing software packages and file systems; managing users; configuring networks, system and kernel management; writing Shell scripts; and advanced topics and troubleshooting. The course requires many hands-on projects, which allow students to practice what they learn.

Student Learning Outcomes and Course Objectives:

Upon completing this course, you will be able to:

EXAMINE THE BASIC FEATURES OF THE LINUX OPERATING SYSTEM IN COMPARISON TO OTHER OPERATING SYSTEMS (SLO #01).

- Describe how Linux was created and how it compares to other operating systems.
- Outline the skills required and challenges facing a system administrator.
- Distinguish between the graphical system used by Linux and command line.
- Support the basic features of the GNOME and KDE desktop interfaces.

UTILIZE THE SHELL AND EVALUATE ITS FUNCTIONALITY (SLO #02).

- Manipulate variables in the shell to control the working environment.
- Formulate data at the command-line and for print files.
- Manipulate text using the vi editor.
- Create and manage user and group accounts.
- Construct access permissions on files and directories.

COMPARE AND CONTRAST DIFFERENT LINUX NETWORK TOOLS (SLO #03).

- Demonstrate how to log in to a Linux system over a network connection. Describe how it is different from a Windows network connection.
- Select the appropriate command-line tools for common network services such as FTP and the Web.
- Illustrate the difference between network interfaces using command-line and graphical utilities.
- Apply the skill necessary to set up a simple DHCP server and manage networked printing services.

ANALYZE AND ARTICULATE THE BASIC STEPS OF A LINUX SOFTWARE INSTALLATION (SLO #04).

- Analyze the hardware components of your computer system.
- Design a hard disk space to hold a new Linux installation.
- Describe the steps that hardware starts a standard PC operating system.
- Explain the difference between the LILO and GRUB boot loader.
- Create the init program and the scripts used to start system services.
- Manage system services after start-up.

Methods of Measuring Student Learning Outcomes:
- You will demonstrate knowledge of course concepts through class discussions and achievement on quizzes and a final examination.
- You will demonstrate competence in the coursework by completing lab work and participating in discussions during the semester.

Student Obligations:

- **Attendance**: Since this course is hybrid, it is important to attend the first day of class on campus for the orientation on Tuesday, Mar. 19, and the on-campus final exam on Tuesday, May 21. There will be weekly lab time on campus, and it is up to you to complete the lab assignments during the lab time or at home.
- **Late Work**: Unless noted all assignments are due on Sunday by midnight each week. Late work will be accepted ONLY if you have contacted me prior to the due date either by e-mail or voice

mail. In general, late work is due the next week, and no late assignments may be turned in after one week from the original due date regardless of the reason. For every day an assignment is late, you will lose 10% of its grade.

- **Due Dates**: Unless noted, all assignments will be submitted in Canvas. If, for any reason, you cannot access Canvas or are unable to submit the assignment on time, please e-mail it to me instead so that you are not penalized for being late. Quizzes and the discussion items cannot be taken past their due dates. If you miss a quiz and you want to make up points, you can take advantage of the extra credit assignments posted in Canvas. Everyone is welcome to work on the extra credit assignments. Typically, they are five to ten points each, depending on the difficulty of the assignment.
- **Labs**: There will be six labs credited for homework for the class. The due dates are in the **SCHEDULE** portion of this handout. We will spend a lot of time working on lab activities. Each lab has a set of review questions that you will need to answer in Canvas to receive points for that assignment. If you do the lab work at the college during the regularly scheduled lab time, you will not have to submit your results in Canvas. Instead, I will visually confirm your work and assign your points in class.
- **Discussions**: I want everyone to take a pro-active approach to learning this material. This includes using the discussion feature in Canvas to ask questions and answer other students' questions. I will also post questions each week that you can answer to further your understanding of the material. I expect two postings each week unless otherwise noted.
- **Final Exam:** The final exam will consist of two parts. One part of the exam will be a hands-on practical demonstration of assigned tasks, and the other part will be an exam taken in Canvas.
- **Plagiarism Policy:** It is inappropriate, and a violation of academic policy, to copy information from any source (including, but not limited to, textbooks, magazine articles, newspaper articles and internet articles) without giving proper credit to the author by using standard quotation procedures such as in-line quotes, footnotes, endnotes, etc. Quotes may not exceed 25% of the assignment's total length. You will receive no credit (0 points) for any assignment that copies any material from any other source without giving proper credit to the author(s). Repeat offenders of this policy are subject to academic discipline as outlined in the policies published by the college.
- **Cheating**: Students who cheat will receive a failing grade for the course. (See the Student Behavior and Academic Integrity page of the college website (https://www.crc.losrios.edu/catalog/geninfo/integrity.)
- **E-mail**: Every student will be required to have an email account. If you do not have an email account, the college provides free email accounts for all current students. To activate your account, go to http://www.losrios.edu/lrc/lrc_email.php and follow the directions provided.
- **E-mail etiquette**: I will not tolerate rude and demeaning comments or e-mails to anyone in this class. Please keep your comments and e-mails topic-related. If I determine that a comment or e-mail to anyone else in the class is rude or demeaning, I will warn you once. If your behavior continues to be unacceptable, I will refer you to the administration of the college for disciplinary action.
- **Personal belongings**: No food or drinks are allowed in the classroom. All cell phones, beepers, pagers, etc. should be turned off or set to vibrate.
- **Disabilities:** If you have a documented disability and wish to discuss academic accommodations, please contact me after class or contact the Office of Disabled Student Programs and Services at (916) 691-7275 as soon as possible.
- **Campus Police:** You can call (916) 558-2221 to request a safety escort.
- **Canvas:** This class utilizes a product called "Canvas." It is highly recommended that you check the website frequently for scheduling updates and homework assignments. Most of the homework assignments and quizzes will be done on Canvas.
- **Online Course Responsibilities:** This course requires significant self-motivation. You must not get behind. Labs and weekly assignments can take up to eight hours to finish. Please don't try to finish them in one day. Not all activities are created equal. Some may take a bit longer than others. You would normally spend three hours per week in class for this course: total of 54 hours. Allow yourself at least 10 hours per week to complete the activities online, including the

time spent writing the class discussion postings. You should plan additional time to read the textbook and study for the quizzes. Some people believe that an on-line format provides a much easier way to study this subject than an on-campus framework because they love to read and avoid the parking problems. Others feel very intimidated at first. Be patient as you work your way through the activities.

Grading:

Course Topic		Points	Total	Approximate % the of Grade
Labs (6)		50	300	37
Orientation Quiz (1)		10	10	1
Quizzes (6)		30	180	22
Discussions (6)		20	120	15
Final Exam (1)		200	200	25

Point System:

There are 810 total assigned points.

Grade Ranges:

A=729-810, B=648-728, C=567-647, D=486-566, F=0-485

Schedule: It is tentative and can change during the term. All changes will be located under the "Announcements" section in Canvas for the course.

	Day:		Lecture/Lab Schedule:	Assignment Due:	Due Date (By Midnight):
Week 1	Tues.	3/19	Orientation and Introductions	View the Online Orientation	Sun., Mar. 31
			Chapter 1: Controlling Services and Daemons	Orientation Disc.	
			Chapter 2: Managing IPv6 Networking	Orientation Quiz	
			Lab #1		
Week 2	Tues.	3/26	Chapter 3: Configuring Link Aggregation and Bridging	Disc. #1 (Ch. 1-2)	Sun., Apr. 7
			Chapter 4: Network Port Security	Lab Review #1	
			Lab #2	Quiz#1 (Ch. 1-4)	
Week 3	Tues.	4/2	Chapter 5: Managing DNS for Servers	Disc. #2 (Ch. 3-4)	Sun., Apr. 14
			Chapter 6: Configuring Email Transmission	Lab Review #2	
			Lab #3	Quiz#2 (Ch. 5-6)	
Week 4	Tues.	4/9	Chapter 7: Providing Remote Block Storage	Disc. #3 (Ch. 5-6)	Sun., Apr. 21
			Chapter 8: Providing File-based Storage	Lab Review #3	
			Lab #4	Quiz #3 (Ch. 7-8)	
			Spring Break (4/15 to 4/21) No classes		
Week 5	Tues.	4/23	Chapter 9: Configuring MariaDB Databases	Disc. #4 (Ch. 7-8)	Sun., May 5
			Lab #5	Lab Review #4	
				Quiz #4 (Ch. 9-10)	
Week 6	Tues.	4/30	Chapter 10: Providing Apache HTTPD Web Service	Disc. #5 (Ch. 9-10)	Sun., May 12
			Chapter 11: Writing Bash Scripts	Lab Review #5	
			Lab #6		
Week 7	Tues.	5/7	Chapter 12: Bash Conditionals and Control Structures	Quiz #5 (Ch.11-12)	Sun., May 19
			Chapter 13: Configuring the Shell Environment	Disc. #6 (Ch. 11-12)	
			Lab #7 (Optional)	Lab Review #6	
Week 8	Tues.	5/14	Chapter 14: Comprehensive Review	Quiz#6 (Ch. 13-14)	
				Lab Review #7	
	Tues.	5/21	Final Exam		Tues., May 21 All work needs to be turned in.