Cosumnes River College

CISN 303

Network Systems Administration/Linux System Administration

An Online Course

Spring 25 16w: January 18 - May 22

Instructor: Buddy Spisak **Online/In Person Office Hours**: Mondays/Wednesdays 1:30 to 3:00 p.m.
Tuesdays/Thursdays 1:30 to 2:30 p.m.
Office: SOC 115 Using this link: https://lrccd.zoom.us/j/87466016886
Phone: (916) 691-7062
Email: spisakj@crc.losrios.edu The turnaround time for responding to most emails 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 email is about.
Course Web page: https://lrccd.instructure.com
Instructor Web page: http://crc.losrios.edu/spisakj/

Prerequisites: None
Advisory: CISC 310
Lecture/Lab: Fully online (14724) Asynchronous – optional live office hours via Zoom on Wednesdays from 7 to 9 pm.

Accepted for Credit: CSU
Class Credits: 3 units

Textbook: No textbook is required for this course. All the reading materials are available via the Red Hat Academy at https://rha.ole.redhat.com/rha/app

Labs: Some labs are done through NDG Netlab+ via Canvas.
Supplies: Earbuds or a headset would be beneficial when listening to videos and a camera for Zoom conferencing.

A flash drive (at least 16GB, but 32GB is preferred) is recommended to store your work for the class**.**

Course Description:

This course will provide a student with the knowledge and skills required to build, maintain, troubleshoot, and support server hardware and software technologies. The student will be able to identify environmental issues, understand and comply with disaster recovery and physical/software security procedures, become familiar with industry terminology and concepts, and understand server roles/specializations and interactions within the overall computing environment. C-ID ITIS 155

Student Learning Outcomes and Course Objectives:

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

- EXAMINE SERVER FUNDAMENTALS (SLO #01).
    - Differentiate between peer-to-peer and client-server networking models
    - Investigate server functions and benefits
- IDENTIFY THE HARDWARE COMPONENTS OF A SERVER (SLO #02).
    - Identify characteristics that distinguish server hardware from client hardware
    - Rank user demands on a server
    - Optimize server placement
- EVALUATE SERVER HARDWARE (SLO #03).
    - Evaluate motherboard buses
    - Inspect common server processors and common types of memory
    - Contrast how clock frequency affects performance
    - Compare physical and logical drives and describe their functionality
    - Identify characteristics of the IDE interface and configure IDE cabling and connectors
- DESCRIBE THE FEATURES OF SERVER SOFTWARE (SLO #04).
    - Calculate, adequately test, and pilot the server upgrade
    - Verify the availability of system resources
- ASSESS COMMON NETWORKING PROTOCOLS, TOPOLOGIES, MEDIA, AND EQUIPMENT (SLO #05).
    - Examine bus, ring, and star network topologies
    - Describe Token Ring and Ethernet media access methods
    - Uncover the purpose behind bridges, switches, hubs, and routers
    - Discuss NetBEUI, IPX/SPX, and TCP/IP protocols
- CONTRAST DIFFERENT SERVER SOFTWARE (SLO #06).
    - Identify network operating system characteristics and versions
    - Examine network operating system hardware requirements
    - Judge different network operating system installations and upgrade techniques
    - Configure, install, and maintain a Linux and/or Windows network operating system
- DIFFERENTIATE THE USE OF COMMON NETWORK SERVICES AND APPLICATIONS (SLO #07).
    - Identify and understand major network operating system services
    - Discuss the different ways that servers run network applications
    - Describe the function of monitoring agents
    - Specify the functions of the server as a network device
    - Implement and configure IPv4 and IPv6 services

Methods of Measuring Student Learning Outcomes:

- You will demonstrate knowledge of course concepts through class discussions and achievement on quizzes, mid-term exam, and a final examination.
- You will demonstrate competence in the coursework by completing lab work and participating in discussions during the semester.

Student Obligations:

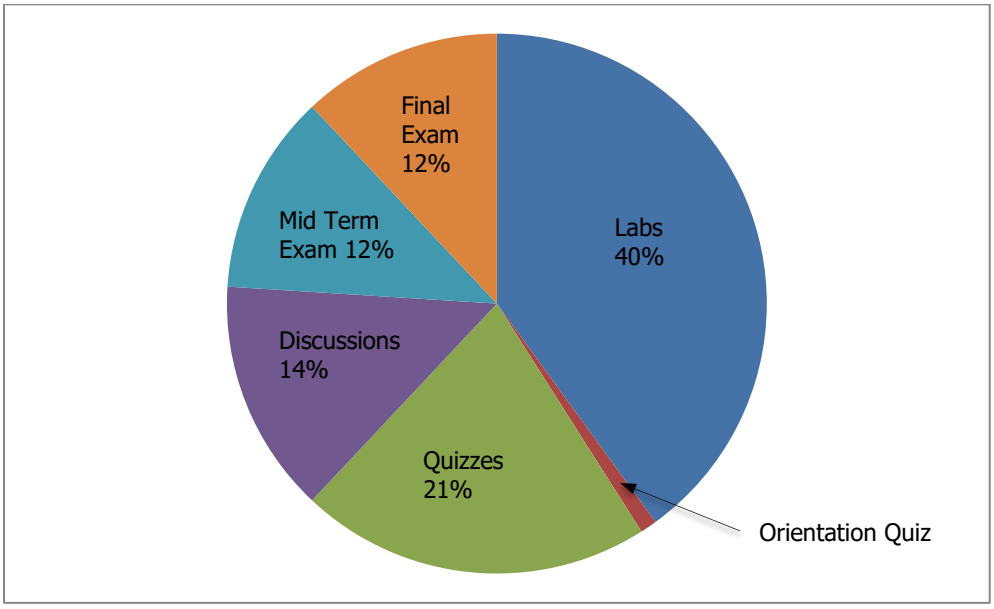
- **Attendance**: Since this course is online, it is important to participate frequently in the class.
- **Late Work**: Unless noted, all assignments are due on Sunday by midnight each week. Late work will be accepted ONLY if you have contacted me prior to the due date either by email or voicemail. In 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 email it to me instead so that you are not penalized for being late. Quizzes and 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 seven 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 you must answer in Canvas to receive points for that assignment.
- **Discussions**: I want everyone to take a proactive 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.
- **Language Matters:** Part of communicating effectively involves communicating correctly with one another. This is not an English class; however, I will be looking at and commenting on the basic accuracy of your written English, such as sentence boundaries, spelling, and other basic grammar issues. While you will not fail the class because of your English, you may lose some points for frequent and repeated errors. Remember that your use of English can influence your readers positively—or negatively.
- **Mid-term and Final Exams**: These exams will be administered through 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://crc.losrios.edu/about-us/our-values/student-rights-and-responsibilities/student-standards-of-conduct.)
- **CRC Honor Code:** Academic integrity requires honesty, fairness, respect, and responsibility. [See the Cosumnes River College Honor Code posted on the college website (https://crc.losrios.edu/student-honor-code/student-honor-code/student-honor-code/student-honor-code)].
- **Email**: 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.
- **Email etiquette**: I will not tolerate rude and demeaning comments or emails to anyone in this class. Please keep your comments and emails topic-related. If I determine that a comment or email 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**: All cell phones, beepers, pagers, etc. should be turned off or set to vibrate during any of the online lectures/labs.
- **Disabilities:** If you have a documented disability and wish to discuss academic accommodations, please contact me or contact the Office of Disabled Student Programs and Services at 916-691-7275 as soon as possible.
- **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 11 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 5.5 hours per week in class for this course: a total of 162 hours.Allow yourself at least 9 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 online format provides a much easier way to study this subject than an on-campus framework because they love to read and avoid parking problems. Others feel very intimidated at first. Be patient as you work your way throughthe activities.

- **AI Policy:** We now live in a world where it has become very easy and, therefore, very tempting to use ChatGPT or other AI tools for course assignments. In this course, the use of AI is considered akin to receiving assistance from another person and raises the same concern that work is not your own. Therefore, the use of AI software for your own study purposes is allowed but using generative AI tools to substantially complete an assignment, particularly written assignments that require your own interpretation and analysis, is not permitted. Your voice, your words, are more important and interesting than anything AI can create. Should your work be flagged by AI detection software, I intend to give you the benefit of the doubt, have a conversation with you first, and offer the opportunity to revise any work that is AI-generated. In return, I expect you to be honest and upfront about your AI usage and ask for extensions or support if you need it.
- **Online Access via Zoom:** This class utilizes a product called "Zoom." It is highly recommended that you are in a quiet room without distractions, have stable internet access, and use a video camera with a quality microphone so that you are seen and heard by everyone.

Grading:



Course Topic		Points	Total	Approximate % the of Grade
Labs (7)		50	350	40
Orientation Quiz (1)		10	10	1
Quizzes (6)		30	180	21
Discussions (6)		20	120	14
Mid Term Exam (1)		100	100	12
Final Exam (1)		100	100	12

Point System: There are 860 total assigned points.

Grade Ranges: A=774-860, B=688-773, C=602-687, D=516-601, F=0-515

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	Wed.	1/22	Orientation and Introductions	View the Online Orientation	Sun., Jan. 26
			RH124 Ch 1: Getting Started with Red Hat Enterprise Linux RH124 Ch 2: Access the Command Line	Orientation Disc.	
Week 2	Wed.	1/29	RH124 Ch 3: Manage Files from the Command Line RH124 Ch 4: Get Help in Red Hat Enterprise Linux	Orientation Quiz	Sun., Feb. 2
			Lab #1		
Week 3	Wed.	2/5	RH124 Ch 5: Create, View, and Edit Text Files RH124 Ch 6: Manage Local Users and Groups	Disc. #1 (Ch. 1-4)	Sun., Feb. 9
Week 4	Wed.	2/12	RH124 Ch 7: Control Access to Files RH124 Ch 8: Monitor and Manage Linux Processes	Lab Review #1	Sun., Feb. 16
			Lab #2	Quiz #1 (Ch. 1-4)	
Week 5	Wed.	2/19	RH124 Ch 9: Control Services and Daemons RH124 Ch 10: Configure and Secure SSH	Disc. #2 (Ch. 5-8)	Sun., Feb. 23
Week 6	Wed.	2/26	RH124 Ch 11: Manage Networking RH124 Ch 12: Install and Update Software Packages	Lab Review #2	Sun., Mar. 2
			Lab #3	Quiz #2 (Ch. 5-8)	
			Finishing up the first half of the course		
Week 7	Wed.	3/5	RH124 Ch 13: Access Linux File Systems RH124 Ch 14: Analyze Servers and Get Support	Disc. #3 (Ch. 9-12)	Sun., Mar.9
Week 8	Wed.	3/12	RH124 Ch 15: Comprehensive Review	Lab Review #3	Sun., Mar. 16
			Lab #4	Quiz #3 (Ch. 9-12)	
			Mid Term Exam (Chapters 1-15)		
	Wed.	3/19	Spring Break – No classes or office hours held from March 17 through 23		
				Midterm Exam	Sun., Mar. 23
Week 9	Wed.	3/26	RH134 Ch 1: Improve Command-line Productivity RH134 Ch 2: Schedule Future Tasks	Disc. #4 (Ch. 13-15)	Sun., Mar. 30
Week 10	Wed.	4/2	RH134 Ch 3: Analyze and Store Logs RH134 Ch 4: Archive and Transfer Files	Lab Review #4	Sun., Apr. 6
			Lab #5	Quiz #4 (Ch. 13-15)	
Week 11	Wed.	4/9	RH134 Ch 5: Tune System Performance RH134 Ch 6: Manage SELinux Security	Disc. #5 (Ch. 1-4)	Sun., Apr. 13
Week 12	Wed.	4/16	RH134 Ch 7: Manage Basic Storage RH134 Ch 8: Manage Storage Stack	Lab Review #5	Sun., Apr. 20
			Lab #6	Quiz #5 (Ch. 1-4)	
Week 13	Wed.	4/23	RH134 Ch 9: Access Network-Attached Storage RH134 Ch 10: Control Boot Process	Disc. #6 (Ch. 5-8)	Sun., Apr. 27

Week 14	Wed.	4/30	RH134 Ch 11: Manage Network Security RH134 Ch 12: Install Red Hat Enterprise Linux	Lab Review #6	Sun., May 4
			Lab #7	Quiz #6 (Ch. 5-8)	
Week 15	Wed.	5/7	RH134 Ch 13: Run Containers	Lab Review #7	Sun., May 11
Week 16	Wed.	5/14	Finishing up the second half of the course Final Review		All other work must be turned in Sun., May 18
			Final Exam	Final Exam	Wed., May. 21