Old Dominion University
School of Cybersecurity
CYSE 270 Linux System for Cybersecurity

1. **Course Information**
   Code and Name: CYSE 270-33410, 33411, 33412, 33413 Linux System for Cybersecurity
   Semester: Spring **Year:** 2022 **Credits:** 3
   Class Time: MW 3:00 PM – 4:15 PM **Room#:** Monarch Hall - 2115
   Mode: Synchronous online and In-person

2. **Instructor Information**
   Name: Shobha Vatsa
   Office Hours: Monday and Wednesday 1:00 PM – 2:30 PM, or by appointment
   Office: Monarch Hall 2123F

   Email: svatsa@odu.edu **Phone: 7576835585**
   Zoom URL (for lectures and office hours): TBA

3. **Text/s and Resource/s**
   Recommended textbook:

   - Rothwell, William, and Denise Kinsey. Linux Essentials for Cybersecurity. Pearson Education, 2019. ISBN: 0789759357.
   - Paul S. Wang. Mastering Modern Linux. 2nd Edition, June 2018

   - **Lab Manual:** Linux Essentials for Cybersecurity Lab Manual, First Edition. https://learning.oreilly.com/library/view/linux-essentials-for/9780135305232/

4. **Course Description**
   This course introduces the basic operations in major Linux distros for cybersecurity using both graphical interface and command-line interface. Students will learn about the basic installation and configuration, file systems management, shell scripts, and user authentication in Linux systems.

5. **Course Prerequisites**
   CS 150 or permission of the instructor

6. **Course Objectives**
   • Introduce the basic concept and knowledge about different Linux distros, including the most popular distribution for cybersecurity, Kali Linux,
   • Install and operate different Linux distros locally and remotely (on AWS cloud),
   • Understand the ownership and permissions of the files and directories,
   • Understand the shell scripts,
   • Perform essential system administration functions, such as network configuration, process and log administration, and software management, and
   • Perform security tasks, such as footprinting, firewalls, and tools in relation to Intrusion Detection.

7. Expected Learning Outcomes

Students should be able to:

- perform the essential system administration functions in Linux systems
- write shell scripts to automate tasks in Linux systems
- perform the necessary security tasks to secure the Linux systems

Course Outline (tentative list of topics to be covered):

Module 1. Introducing Linux
- Distributions and Key components • Command line
- Accessing resources on AWS cloud

Module 2. User and Group Accounts
- Managing Group Accounts
- Managing User Accounts
- Develop an Account Security Policy

Module 3. File and Data Storage
- File Permissions
- Manage Local Storage: Essentials

Module 4. Automation
- Shell scripting
- Common Automation Tasks

Module 5. System Administration
- Process and Log Administration
- Networking

Module 6. Security Tasks
- Foot printing
- Firewalls
- Intrusion Detection

8. Grading Policy

The final letter grade for this course is calculated weighted average of grades in five categories (assignments, examinations, individual project, group project, and in class participation (quiz, attendance, CLO - Class Learning Objective). The sum of contributions from five categories yields the final letter grade. The breakdown of five categories are as follows.

	Weight Factor
Homework/Assignment	50%
Final Exam	25%
Quiz	25%
Class participation, Discussion Board Participation	Extra Credit

Grading Scale:

92- 100	90-91	86-89	83-85	80-82	75-79	70-74	65-69	60-64	< 60
A	**A-**	**B+**	**B**	**B-**	**C+**	**C**	**C-**	**D**	**F**

Note: Grade Distribution may be revised as deemed necessary by the instructor

Academic Honesty:
Students are expected to follow the ODU Honor Code for all assignments, term papers, and examinations. All work that you turn in with your name on it should reflect your work; references are provided at the appropriate places. A first offense will result in the homework/examination/term-paper **grade of zero** for all participants. A second offense will result in **a grade of F** for the course for all participants.

Honor Code
We, the students of Old Dominion University, aspire to be honest and forthright in our academic endeavors. Therefore, we will practice honesty and integrity and be guided by the tenets of the Monarch Creed. We will meet the challenges to be beyond reproach in our actions and our words. We will conduct ourselves in a manner that commands the dignity and respect that we also give to others.

Withdrawal
A syllabus constitutes an agreement between the student and the course instructor about course requirements. Participation in this course indicates your acceptance of its teaching focus, requirements, and policies. Please review the syllabus and the course requirements as soon as possible. If you believe that the nature of this course does not meet your interests, needs or expectations, if you are not prepared for the amount of work involved - or if you anticipate that the class meetings, assignment deadlines or abiding by the course policies will constitute an unacceptable hardship for you - you should drop the class by the drop/add deadline, which is located in the ODU Schedule of Classes. For more information, please visit the Office of the Registrar.

9. Course Lecture Weekly Schedule (Due date of assignments and exams)
(Check Blackboard throughout the semester for possible adjustments)

Week	Chapter	Topic
Week-1 1/10, 1/12	1: Introducing Linux	Distributions and Key Components
Week-2 1/19		Command line
Week-3 1/24, 1/26		Working with vi editor
Week-4 1/31, 2/2 **Week-5** 2/7, 2, 9	2: User and group accounts	Managing Group accounts Managing User accounts
Week-6 2/14, 2/16 **Week-7** 2/21, 2/23	3: File and Data Storage	File Permissions File system and partitions
Week-8 2/28, 3/2	4. Automation	Shell Scripting
Week-9 3/7 – 3/12	Spring Break – No Classes	
Week-10 3/14, 3/16	4. Automation (Contd..)	Automation Tasks
Week-11 3/21, 3/23	5. System Administration	Firewalls
Week-12 3/28, 3/30		Network Configurations
Week-13 4/4, 4/6		System Logs Process control
Week-14 4/11, 4/13	6. Security Tasks	Footprinting
Week-16 4/25	**Last Day of the class (Final Exam Review)**	
Week-16 April 30 and May 1	**Final Examination**	

10. Instructions for Assignments, Exams, Individual Project, Group Project, and Policy of Lateness.

Quiz, Class Learning Objective (CLO), & Class Discussions: You are expected to participate in the class discussion, CLO, and quizzes in the class meetings. If you miss a class, it is your responsibility to get notes and any announcements from your classmate. These activities will help you in addressing questions asked in the exams, assignments, and project.

Assignments: There will be three assignments assigned periodically throughout the semester. It will be designed based on previous lessons covered in the class. All assignments must be completed and submitted by the due date/time to receive full credit. You must fulfill the requirements of an assignment submission to receive full credit for that assignment.

Examinations: There will be two exams – midterm and final- in this course. These exams will be taken in the classroom during assigned lecture hours. There would not be any make-up exams, but exams may be taken with a valid reason. The majority of the exam will cover the specified chapters, corresponding lectures slides, exercises, and questions from previous chapters may appear. You are expected to appear, complete and submit by the due date/time to receive full credit. Students should take exams independently and are not to work with other students, friends, etc.

Group project: The group project will be related to the contents of this course. A group of **three students** will develop their own Cybersecurity related project. The detail guidelines, instructions, rubric, and schedule of group project (report, ppts and oral presentation) will be posted on the Blackboard and discussed in class.

Policy on Lateness.
The following paragraph describes the late penalties.

- **Per week late**: 10% less of your secured points.
- **Quiz – No retake or late submission is allowed.**

10, University Policies

10.1 Standards of Classroom Behavior

The primary responsibility for managing the classroom environment rests with the faculty. Students who engage in any prohibited acts that result in disruption of a class may be directed by the faculty member to leave the class for the remainder of the class period. Longer separations from a class must be preceded by a conduct conference or hearing as outlined in Section XII.C [of the Code of Student Conduct]. Faculty who encounter disruptive classroom behavior are encouraged to follow the procedures outlined in the Guidelines and Policy on Dealing with Disruptive Students published in the Faculty Handbook. A student dismissed from class may be required to meet with a Department Chair, Program Director, the faculty member or the Director of Student Conduct & Academic Integrity, or designee, before the student is permitted to return to the class from which the student was directed to leave.

10.1 Cultural Diversity

Old Dominion University fosters a campus community that values and supports the cultural identities of each of our members. The university also fosters an inclusive environment and provides programs that cultivate a climate of awareness, understanding, and respect of diverse individuals and groups. [Source: Adapted from https://www.odu.edu/oir]

10.2 Academic Integrity

The Office of Student Conduct & Academic Integrity (OSCAI) oversees the administration of the student conduct system as outlined in the Code of Student Conduct. Through their interactions with students, they attempt to foster a climate of personal and academic integrity that facilitates the success of all University community members. For more information, please visit the Honor Council online at https://www.odu.edu/oscai.

10.3 Educational Accessibility and Accommodations

Students are encouraged to self-disclose disabilities that have been verified by the Office of Educational Accessibility by providing Accommodation Letters to their instructors early in the semester in order to start receiving accommodations. Accommodations are not made until the Accommodation Letters are provided to the instructors each semester. For more information about accessibility, please visit: http://www.odu.edu/educationalaccessibility.

10.4 University Email Policy

The Old Dominion University e-mail system is the official electronic mail system for distributing course-related Communications, policies, Announcements and other information. In addition, the University e-mail user ID and password are necessary for authentication and access to numerous electronic resources (online courses, faculty webpages, etc.) For more information about student email, please visit: http://www.odu.edu/academics/student-computing.

10.5 Withdrawal

A syllabus constitutes an agreement between the student and the course instructor about course requirements. Participation in this course indicates your acceptance of its teaching focus, requirements, and policies. Please review the syllabus and the course requirements as soon as possible. If you believe that the nature of this course does not meet your interests, needs or expectations, if you are not prepared for the amount of work involved - or if you anticipate that the class meetings, assignment deadlines or abiding by the course policies will constitute an unacceptable hardship for you - you should drop the class by the drop/add deadline, which is located in the ODU Schedule of Classes. For more information, please visit the Office of the University Registrar.

10.6 Student Acknowledgement

"I, _____, have completely read this syllabus and understand and agree to the course requirements."