COURSE SYLLABUS

Linux Essentials Course (Self-Paced)

Build practical Linux command-line skills to navigate, manage files, set permissions, and automate simple tasks.

> Group classes (Live Online) and onsite training are available for this course. For more information, email onsite@graduateschool.edu or visit: https://www.graduateschool.edu/courses/linux-essentials-course-self-paced



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Course Outline

Module 1: Introduction to Linux and Open Source

- Lessons:
  - What Linux Is and Why It Matters
  - Open Source Principles and Licensing Basics
  - A Look at Linux Distributions
- Applied activity: Learners compare two described operating systems, one proprietary and one open source, and identify at least three practical differences a working professional would notice, such as cost, source access, and support model.

Module 2: Getting Around: The Linux Command Line

- Lessons:
  - Opening a Terminal and Understanding the Shell
  - Navigating the Filesystem: pwd, cd, ls
  - Getting Help: man, help, and Command Syntax
  - Command History and Useful Shortcuts
  - Practicing Core Navigation Commands
- Applied activity: Learners are given a short, text-described starting directory and a target file location, and write the sequence of commands that would get them there and confirm they arrived.

Module 3: Files, Directories, and the Filesystem Hierarchy

- Lessons:
  - The Linux Filesystem Hierarchy: What Lives Where
  - Files versus Directories versus Links
  - Hidden Files and Common Configuration Locations
  - Exploring the Filesystem Hands-On
- Applied activity: Learners review a short, text-described directory listing and identify the purpose of each top-level directory shown, plus which entries are files, directories, or links.

Module 4: Working with Files: Creating, Copying, Moving, and Deleting

- Lessons:
  - Creating Files and Directories
  - Copying and Moving Files
  - Deleting Files Safely
  - Wildcards and Working with Multiple Files
- Applied activity: Learners are given a short scenario describing a messy project folder and write the commands to reorganize it: create a new subdirectory, move a group of files into it, and remove files that are no longer needed.

Module 5: Users, Groups, and Permissions

- Lessons:
  - Understanding Users and Groups
  - Reading and Interpreting Permission Strings
  - Changing Permissions and Ownership
  - Why Permissions Matter: A Security Perspective
- Applied activity: Learners are given a short scenario with a shared project directory and a list of who should be able to read, edit, or run each file, and set the permissions and ownership to match.

Module 6: Editing Text Files and Redirecting Output

- Lessons:
  - Using a Command-Line Text Editor
  - Viewing and Searching File Contents
  - Redirection and Pipes: Connecting Commands
- Applied activity: Learners are given a short, described log file and use a search command to find and count how many lines match a given pattern, then redirect the result to a new file.

Module 7: Installing and Managing Software

- Lessons:
  - How Package Management Works
  - Installing, Updating, and Removing Packages
  - Finding Software and Checking What Is Installed
- Applied activity: Learners are given a short scenario describing a system that needs a specific tool installed and its package list updated, and write the sequence of package management commands to accomplish it.

Module 8: Processes and System Monitoring

- Lessons:
  - What a Process Is and How Linux Manages Them
  - Viewing Running Processes
  - Stopping and Managing Processes
  - Basic System Resource Monitoring
- Applied activity: Learners review a short, text-described process listing and identify which process is consuming excessive resources, then identify the command and steps to stop it safely.

Module 9: Introduction to Shell Scripting and Automation

- Lessons:
  - Why Automate: From Commands to Scripts

- Writing and Running a Basic Shell Script
- Variables and Simple Conditionals
- Scheduling a Recurring Task

- Applied activity: Learners take a short sequence of commands from an earlier module and turn it into a small script that performs the same task in one step, then describe how they would schedule it to run automatically.

Module 10: Linux Networking and Troubleshooting Basics

- Lessons:
  - Checking Network Configuration
  - Testing Connectivity: ping and Friends
  - Reading Basic Log Files for Troubleshooting
  - Putting It Together: A Simple Troubleshooting Scenario

- Applied activity: Learners are given a short, described scenario in which a service is not responding, and walk through checking network configuration, testing connectivity, and reviewing a log excerpt to identify the likely cause.