

UNIX Introduction

3 days

50% lecture, 50% labs

Basic Level

Overview: The course introduces the UNIX operating system to new users who need to get up to speed on the basic commands, directory navigation, file manipulation, and learn how to use the *vi* editor. There will also be discussion of processes and how the UNIX shells are used.

Upon completion of this course, students will be able to:

- log on and log off
- understand the function of the UNIX shell as a command line interpreter
- change passwords
- use function keys and control characters
- understand and use basic UNIX commands and arguments
- use UNIX manual (man) pages
- create and edit files with the *vi* editor
- manipulate files (remove, copy, spell-check, rename, print, backup, etc.)
- understand how to use UNIX shell metacharacters and quotes
- understand the directory and path structure of UNIX
- use UNIX file permissions
- use I/O redirection and pipes
- use electronic communication
- understand how UNIX processes are created and how to kill them
- overview of shell features, dot files (initialization scripts) and simple scripting

Intended Audience: *UNIX Introduction* is recommended for those who need to use the UNIX operating system as a user interface to create and manipulate files, to navigate the UNIX directory structure, edit with *vi*, and be able to make use of the basic features of UNIX.

Prerequisites: Students need basic typing skills and need to know how to use a computer.

Suggested follow-on course: *UNIX Shell Programming*

Training Approach: This is an intensive, interactive course, which is approximately 50% lecture and 50% lab. Questions are highly encouraged. On the final day, students are given access to a zipped file containing all of the solutions to the labs and the examples used throughout the notebook.

Course Outline

Day 1

Module 1-- Intro to the Operating System

- What is an operating system?
- What is UNIX?
- History of UNIX
- System Startup
- Logging on
- Logging out
- What is a Shell?
- Passwords
- Special Function Keys
- Control Sequences
- Basic Commands
- Options and Arguments
- Help from the *man* Pages

Lab Exercise 1

Module 2 -- The vi Editor

- What is an Interactive Editor?
- What is your Terminal Type?
- File Naming Conventions
- Creating file with vi
 - Insert and Command Mode
 - Commands
- Quick Review

Lab Exercise 2

Module 3 -- File Manipulation Commands

- Displaying the Contents of a File
- Removing Files
- Spell-Checking Files
- Disk Usage of Files
- Finding Patterns in Files with *grep*
- Printing Files
- Saving Files on Storage Media
- Sorting Files

Lab Exercise 3

Day 2

Review and more vi

Module 4 -- Metacharacters

- Filename Substitution
- Quotes

Lab Exercise 4

Module 5 -- Directories and Files

- Plain Files
- Directory Files
- Hierarchical Directory Structure
- Naming Conventions for Files and Directories
- The Home Directory
- Making Directories
- Listing Directory Contents
- Changing Directories
- Path Structure
 - The root Directory
 - System Directories
 - Search Path
 - Absolute Pathnames
 - Relative Pathnames
 - Moving up the Path
 - Moving down the Path

Lab Exercises 5 and 6

Module 7 -- Advanced vi Editor

- Searching for Patterns
- Substitution
- Regular Expressions
- Yanking (Copying) Text
- Reading from a File
- Writing to a File
- Escaping to the Shell
- Recovery from Crashes

- Setting Parameters
- The *.exrc* File

Lab Exercise 7

Module 7 -- File Permissions

- What are File Permissions?
- Directory Permissions
- Changing Permissions with *chmod*

Lab Exercise 8

Module 8 -- More File Manipulation Commands

- Copying Files and Directories
- Moving Files and Directories
- Finding Files and Directories

Lab Exercise 9

Day 3

Module 9 -- I/O Redirection

- Standard input
- Standard output
- Standard error
- Redirection Metacharacters

For more information, contact:

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Lab Exercise 10

Module 10 -- Electronic Communication

- The mail Command (UCB and ATT)
- Reading mail
- Sending mail
- Mail over the Net
- UUCP and Domain Addressing

Module 11 -- Processes

- The *ps* Command
- The *kill* Command

Lab Exercise 11

Module 11 -- Shell Features

- Job Control
- Aliases
- History
- The dot Files
- Simple Scripting

Lab Exercise 12

Review