

**Introduction to Bash Programming**

**Course Number:** LNX-110
**Duration:** 3 days

**Overview**

Accelebrate's Introduction to Bash Shell Scripting course teaches students to read, write, and debug Bash (Bourne Again Shell) scripts.

NOTE: This class can be taught using the Linux distribution of your choice.

**Prerequisites**

All students should have basic knowledge of Unix or Linux, or have taken Accelebrate's [Introduction to Linux for End Users](file:////training/linux-end-user) class. Prior programming or scripting experience is helpful but not required.

**Materials**

All attendees receive comprehensive courseware.

**Software Needed on Each Student PC**

Attendees will not need to install any software on their computer for this class. The class will be conducted in a remote environment that Accelebrate will provide; students will only need a local computer with a web browser and a stable Internet connection. Any recent version of Microsoft Edge, Mozilla Firefox, or Google Chrome will be fine.

**Objectives**

* Understand Unix processes and how to control them
* Learn how to use and script the Bash shell
* Master core Bash language constructs such as variables, loops, conditionals, and functions
* Learn advanced Bash programming techniques
* Debug Bash scripts

**Outline**

* Introduction
* Unix Processes
	+ What is a Process?
	+ Process Structure
	+ The ps Utility
	+ Options to the ps Utility
	+ Background Commands (&)
	+ Killing Background Processes
	+ Redirecting the Standard Error
* Getting Started
	+ What is a Shell?
	+ Running Scripts
	+ Specifying the Script’s Interpreter
	+ The PATH Environment Variable
	+ Sub-shells
* Variables
	+ Shell Variables
	+ The read Command
	+ The export Command
	+ The Shell Environment
	+ Parameter Expansion
	+ Command Substitution
* The Login Process
	+ The Login Process
	+ The System Profile Script
	+ Your .bash\_profile Script
	+ The . Command
* Conditional Statements
	+ The Exit Status of Commands
	+ Command Line Examples
	+ The test Command
	+ The if-then-else Construct
	+ The elif Construct
	+ case Statements
* Loops
	+ The for Loop
	+ The while Loop
	+ break and continue
	+ Reading Lines From Files
	+ Using Arrays with Loops
* Special Variables
	+ $$ - PID of Shell
	+ Command-Line Arguments
	+ $# - Number of Arguments
	+ $\* - All Arguments
	+ The shift Command
	+ The set Command
	+ Getting Options
* Quoting Mechanisms
	+ Single vs. Double Quotes
	+ What is a Here Document?
	+ Using a Here Document
	+ Here Document Quoting
	+ Ignoring Leading Tabs
* Functions
	+ Shell Functions
	+ Passing Arguments to Functions
	+ Returning Values from Functions
	+ Function Declarations
* Advanced Programming
	+ Shell Arithmetic
	+ The select Statement
	+ Terminal Independence in Scripts
	+ The eval Command
* Debugging Techniques
	+ Using echo
	+ Bash Programming
	+ Using Standard Error
	+ Script Tracing
	+ Options for Debugging
	+ Conditional Debugging
* Conclusion