

**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 computers 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 work well.

**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