



Course Content

Course Description:

This 3 day course covers the fundamental components of the Ruby Programming Language. Emphasis is placed on the object oriented aspects of Ruby. Topics include arrays, hashes, regular expressions, io, exceptions, modules, and applications areas.

Prerequisites:

Students should have at least six months of programming experience in at least one programming language.

Audience:

This course is for those who are experienced in programming in languages such as, but not limited to, C, C++, Java, or Perl

Topics:

An Introduction to Ruby

- What is Ruby?
- Installing Ruby Executing Ruby Code Getting Help
- Dynamic Types
- Ruby Reserved Words
- Naming Conventions

Standard Ruby Data Types

- Numbers
- Strings
- Simple Input and Output
- Converting String Input
- Regular Expressions
- Time Methods

Language Components

- The if Statement
- The case Construct
- Loops
- Iterators
- Numeric Iterators
- String Iterators
- Methods
- Odds and Ends

Collections

- Arrays
- Array Operator Methods
- Array Equality Operator
- Arrays as Stacks and Queues
- Higher Dimensional Arrays
- Other Useful Arrays Methods
- Command Line Arguments
- Hashes
- Common Hash Methods
- Sorting Hashes
- Iterators with Arrays and Hashes
- Arrays and Methods
- Hashes and Methods
- Named Parameters
- Symbols
- Procs
- Closures

Classes

- Objects
- Brief History of OOP
- OOP Vocabulary
- Creating a New Class
- Using Objects



- Defining Operator Methods
- Inheritance
- Ancestors
- self
- Access Levels - public
- Access Levels - private
- Access Levels - protected
- Access Levels - Specification
- Class Data and Class Methods
- Adding Methods to Classes and Objects
- Special Global Variables
- Scope of Variables
- Built-in Classes
- The Math Class
- The NilClass Class
- TrueClass and FalseClass
- Built-in Class Hierarchy

Input and Output

- Introduction
- Reading from the Standard Input
- Reading a Character at a Time
- Writing to the Standard Output
- Reading and Writing Disk Files
- Reading Files Using Iterators
- I/O With Command Line Commands
- Seeking About Files
- tell
- Capturing Data About Files
- Processing Directories

Exceptions

- Introduction
- Exception Hierarchy
- Handling Exceptions
- Multiple Rescue Clauses
- Exceptions are Classes
- ensure
- retry
- raise
- Creating Your Own Exceptions
- catch and throw

Modules

- Introduction
- Using Core Ruby Classes
- Ruby Standard Library
- require
- Search Path
- File Organization
- load
- Modules
- include
- Mixins
- Using the Comparable Module
- Collection Classes
- yield
- Using the Enumerable Module

Odds and Ends

- Ruby Conventions
- Bit Manipulation
- Substituting
- Marshalling
- Reflection
- grep
- Classes are Objects
- Aliasing
- Testing
- Test::Unit::TestCase
- Testing Your Own Classes
- Freezing Objects
- Object Equality