

# Course Outline



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Email: [training@ptr.co.uk](mailto:training@ptr.co.uk) Web: [www.ptr.co.uk](http://www.ptr.co.uk)

## Introduction To Perl Programming

### Course Description:

Perl is a mature, extremely flexible, general-purpose programming language, which is especially well-suited to textual manipulation. In addition to its brilliant built-in-facilities, there are vast freely-accessible libraries of Perl code to help build almost every conceivable application. And its available free-of-charge.

The capabilities of Perl have been applied by a wide range of professionals in both systems support and programming fields for various applications including manipulating text and data, database access, CGI programming, HTML generation, and parsing and generating XML files.

This three-day course provides a comprehensive introduction to the major aspects of the Perl programming language and a very brief overview of selected applications. It covers the basic techniques and programming structures provided by Perl5. A few topics are normally self-study, or as time allows. This is a 'hands-on' course with many brief, practical examples of everyday use of Perl.

#### Follow-on:

This course focuses on the language aspects of Perl. For an in-depth exploration of a range of applications for which Perl is typically applied see also Perl Applications. For further examination of Perl techniques, such as its approach to object-oriented programming in detail, see also Perl Advanced. For one organisation selected aspects of all three courses can be combined to address a very wide and flexible range of requirements.

### Pre-requisites:

This course is for experienced developers who need a firm comprehensive foundation in the language and a succinct appreciation of the capabilities of Perl in selected application areas. Systems administrators, database administrators and testers; developers working with Perl applications of all types.

Attendees should have programming experience with any language that uses C-like syntax such as C, C++, C#, PHP, Java or JavaScript. For one organisation, for those without such experience, the initial topics can be covered at a less challenging pace. Attendees should in any case have an understanding of the concepts and use of literals and variables, expressions and operators, including precedence and associativity, if/else statements and looping statements using both while and for keywords.

### Course Content:

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- **Introduction**
  - Perl as a practical language
  - Perl applications and capabilities
  - Perl flavours, including Perl 6
  - The CPAN
  - Compiling and invoking Perl
  
- **Basics**
  - Program structure, including comments
  - Standard input, output and error
  - Input and output functions and constructs
  
- **Data types, expressions, operators**
  - Integers, floats, strings
  - Scalars, variables, assignment and scope
  - Creating expressions using operators
  - Conversion functions
  
- **String processing and manipulation**
  - Simple string functions
  - More advanced string functions
  - Regular expression basics
  - Transliteration operator
  
- **Basic control structures**
  - Relational expressions
  - Conditional processing: if , else, unless, elsif
  - Logical operators
  - Looping: while, until, for
  - List constructor
  - foreach with lists
  - Simple subroutines
  
- **Other control structures**
  - Statement modifiers
  - Using logical operators as control structures
  - Labels and other loop constructs

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- **Arrays and lists**
  - Defining normal (ordered) arrays
  - Assigning and extracting values
  - foreach with arrays
  - Array dimensions
  - Extending and reducing arrays
  - Conversion functions: split, join
  - List interpolation and slices
  - Array functions: pop, shift, push, unshift, splice
  - List functions: sort, reverse, map, grep
  
- **Functions and subroutines**
  - Creating your own functions and subroutines
  - return value(s)
  - Passing arguments: the @\_ array
  - my, local, and state functions
  - defined function for subroutines
  
- **Hashes (associative arrays)**
  - Defining hashes
  - Assigning and extracting hash elements
  - keys function
  - Hash element functions: exists, delete
  - Accessing values: values, each
  - Hashes in list/scalar context
  - Hash dimensions; hash slices
  
- **Special variables**
  - Global special arrays
  - Array and hash special variables
  - Regular and per-filehandle special variables
  
- **Reading and writing text files**
  - Filehandles; open and close functions
  - Opening files for input, output and appending
  - Reading/writing individual/multiple lines

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- **Reading and writing text files**
  - **Further file and storage features**
  - **Regular expressions**
  - **Packages and module basics**
  - **Introduction to references**
- die, warn, exit and the special variable \$!
  - File tests, eg -e FILENAME
  - Using @ARGV for multi-file processing
  - In-place editing
  - open modes
  - Match and pattern-binding operators
  - Metacharacters
  - Alternation and grouping
  - Character classes including special classes
  - Anchors and word boundaries
  - Quantifiers and greediness
  - Capturing
  - Regular expression special variables
  - Use of modifiers
  - Substitution operator
  - Package scope and symbol tables
  - my, our, use vars;
  - use and require keywords
  - Module location: @INC array; use lib
  - Module invocation variations
  - Standard library modules and examples
  - Implementing simple modules
  - Exporter standard module
  - Creating references to anonymous data
  - 'Multidimensional' arrays
  - Reference types and ref function
  - Referencing/dereferencing existing data

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- **Introduction to references**
- Passing array and hash references to subroutines
- Hashes of arrays
- Arrays of hashes
- **Following are demonstration-only, as time allows:**
- Typical Perl applications
- Database access
- CGI scripts
- Generating HTML
- Parsing XML
- Perl/Tk

**Course Duration:**

**5 Days**

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