

Rust Training Course

Course content

Introduction to Rust

- Language fundamentals
- Obtaining Rust
- Setting up your development environment
- Useful Online Resources

Getting started with Rust

- Variables
- Data Types
- Functions
- Comments
- Flow of Control
- Expressions

Rust Ownership

- What is Ownership?
- Memory safety
- Stack & Heap
- Borrowing
- Slices

Structuring Data

- Structs
- Related Data
- Instantiating Structs
- Tuple Structs

- Ownership of Struct Data

Pattern Matching

- Enums
- Defining Types
- Expressions
- Match control flow operator

Keeping track of your project

- Packages
- Crates
- Modules
- Paths
- Controlling Scope and Privacy

Rust Collections

- Lists
- Values
- Vectors
- Keys & Hash Maps

Error Handling

- Don't panic! (using the panic! macro)
- Backtracing
- Using the Result type

Generics

- Types
- Traits
- Lifetimes

Testing

- Writing tests

- Cargo test
- Unit tests

OO Programming

- Is Rust really an Object Oriented language?
- When to use OO patterns in Rust
- Objects
- Encapsulation
- Inheritance
- Trait Objects
- Loops or Iterators?

Functional programming

- Iterators
- Closures
- Loops or Iterators?

Smart Pointers

- Using Box
- The Drop trait

Concurrency

- Threading
- Join Handles
- Message Passing
- Sync and Send