WDL Workflows Guide

November, 2023

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# About this Course

This WDL workflow development guide shows a bioinformatics workflow developer how to strategically develop and scale up a WDL workflow that is iterative, reproducible, and efficient in terms of time and resource used. This guide is flexible regardless of where the data is, what computing resources are being used, and what software is being used.

## 0.1 Target Audience

The course is intended for first time developers of the [WDL workflow language](https://github.com/openwdl/wdl), who wants to iteratively develop a WDL bioinformatics workflow. The audience should be able to run a WDL workflow on a computing engine of their choice, such as Cromwell, miniWDL, or a cloud computing environment such as Terra, AnVIL, or Dockstore.

## 0.2 Curriculum

The course covers…

An excellent WDL companion resource that is not platform dependent is [OpenWDL Docs](https://docs.openwdl.org/en/stable/). OpenWDL Docs focuses on the basic grammar of WDL as well as providing excellent cookbook recipes of common WDL workflow structures. In this guide we will reference these basic grammar structures and common workflow cookbook recipes.

# 1 Introduction to WDL

Welcome!

* Review of basic WDL syntax
* Workflow structure of a linear chain
* What should be in the input metadata

# 2 A simple linear chain workflow

## 2.1 Workflow development principles

## 2.2 Example: Somatic variation workflow

tg-wdl-LILAC-workflow is a consensus variant calling workflow for human hybrid capture-based paired-sample panel based DNA sequencing.

We want to build it up from scratch!

# About the Authors

These credits are based on our [course contributors table guidelines](https://www.ottrproject.org/more_features.html#giving-credits-to-contributors).

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## ─ Session info ───────────────────────────────────────────────────────────────  
## setting value   
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## stringr 1.4.0 2019-02-10 [1] RSPM (R 4.0.3)   
## testthat 3.0.1 2023-03-28 [1] Github (R-lib/testthat@e99155a)   
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## withr 2.3.0 2020-09-22 [1] RSPM (R 4.0.2)   
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##   
## [1] /usr/local/lib/R/site-library  
## [2] /usr/local/lib/R/library

# 3 References