

## **RNA Sequencing (RNA-seq) and Differential Expression**

### Using Galaxy and the Command Line

**Date: 9 am – 5 pm, Tuesday 25<sup>th</sup> February 2025**

**Location:** Computer Room 3, Polwarth Building, University of Aberdeen, Foresterhill Campus.

**Format:** Instructor led computer-based tutorial with support demonstrators.

**Instructor:** CGEBM Bioinformaticians (Dr Louie van de Lagemaat, Dr Antonio Ribeiro)

**Description:** Using next generation sequencing of RNA to uncover gene expression patterns is now commonly used with a wide variety of organisms. This workshop will work through the key steps in basic analysis of RNA sequencing (RNA-seq) data to give a list of differentially expressed genes using both Galaxy and the command line.

#### **Topics:**

- Aligning Reads to a Reference Genome
- Quantification of Reads
- Identification of Differentially Expressed Genes

**Who should attend:** This workshop is aimed at researchers, staff and PhD students, interested in RNA sequencing and differential expression analysis. The aim of the workshop is to demonstrate the keys steps in analysis of RNA sequencing data for production of a list of differentially expressed genes. Biological interpretations of the results including gene ontology and pathway analysis are also covered in this workshop as an extra exercise.

**Pre-requisites:** Introduction to the University of Aberdeen HPC Cluster and Basic Unix Skills workshop or alternative experience with the command line and HPC.

An account on the teaching HPC, Macleod, is needed. We are providing teaching accounts for all participants to use for the duration of the workshop. If you would like to use the research HPC, Maxwell, after the workshop you will need to obtain an account. For more details see <http://www.abdn.ac.uk/staffnet/working-here/hpc.php>. Macleod and Maxwell have the same file structure, operating system and scheduler. What you learn on the course is applicable to both University of Aberdeen HPC clusters.

**Closing Date for registrations:** 18/02/2025 or when capacity is reached. This course will only run if there is sufficient interest, so register early!

**Closing Date for cancellations:** Cancellations received by 18/02/2025 will receive a full refund minus a £40 admin fee. Full course fees will be charged for cancellations after this date.

**Cost:** For University of Aberdeen staff and PhD students the workshop is £180. Payments must be made before registration. Please enter your order details on the registration form. Details on how to raise an internal order for the course fees are provided on the registration form. Separate course fees apply for external or commercial delegates. Please contact us for further details before registering.

**Registrations:** To register for this course, please complete the registration form [here](#), or scan the QR code



**Further Information:** Please contact Elaina Collie-Duguid ([e.collie-duguid@abdn.ac.uk](mailto:e.collie-duguid@abdn.ac.uk))