

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

Using Galaxy and the Command Line

**Date: 9 am – 5 pm, Monday 23<sup>rd</sup> January 2017**

**Location:** MR117, MacRobert Building, University of Aberdeen, Old Aberdeen Campus.

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

**Instructor:** CGEBM Bioinformaticians (Eduardo de Paiva Alves, Antonio Ribeiro and Sophie Shaw)

**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 key steps in analysis of RNA sequencing data for production of a list of differentially expressed genes. Biological interpretations of the results such as gene ontology or pathway analysis, more complex statistical models and detailed visualisation will be covered in the Advanced RNA Sequencing Workshop.

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

A Maxwell account is needed. We are providing teaching accounts for all participants to use for the duration of the workshop. However if you would like to use 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>. If you already have a Maxwell account you are welcome to use that.

**Closing Date for registrations:** 16/01/2016 or when capacity is reached.

**Closing Date for cancellations:** 20/01/2016. Full course fee will be charged for cancellations after this date.

**Cost:** For University of Aberdeen staff and PhD students the workshop is £50. Details on how to complete payment are provided on the registration form.

For external delegates from academic institutions the workshop fee is £125. Please contact Sophie Shaw ([s.shaw@abdn.ac.uk](mailto:s.shaw@abdn.ac.uk)) for details on commercial rates.

**Registrations:** To register please follow the relevant link at <http://www.abdn.ac.uk/genomics/bioinformatics/training/> and complete the registration form.

**Further Information:** Please contact Sophie Shaw ([s.shaw@abdn.ac.uk](mailto:s.shaw@abdn.ac.uk))