

# RNAseq Workshop

Monash Genomics and Bioinformatics Platform (MGBP)

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# Chapter 1

## Getting started

Instructors:

### 1.1 Summary

Important links:



## Chapter 2

### Introduction





## Chapter 3

# Experimental design

3.1 Sequencing methods

3.2 Cost optimisation approaches

3.3 Sequencing

3.4 Batches and replicates (technical/biological)



## Chapter 4

# Library Preparation

4.1 Read length/type, paired/single

4.2 Enrichment/depletion

4.3 cDNA synthesis



## Chapter 5

# Pipeline Overview

5.1 Sequencing

5.2 (fastq)QC

5.3 multiQC interpretation

5.4 Mapping

5.5 Proper references and annotated genome  
references

5.6 multiQC interpretation

5.7 Counting

5.8 Feature counts

5.9 UMIs

5.10 Show them where they may run it



## Chapter 6

# Differential Expression

### 6.1 Normalisation

### 6.2 analysis ie DEG

( should we go into more details on design matrices, contrast matrices, fitting linear models etc.?) ## QC of results ### MDA/PCA plots and running additional adjustments such as RUVseq or adding covariates in DGE





## Chapter 7

# Post Analysis

7.1 Discuss additional plots and variations

7.2 Discuss Network analysis

7.3 Discuss Multivariate integration

7.4 Discuss Single Cell