



RNAseq reads to differential genes and pathways

27 & 28 September 2022

1:30-5pm AEST/1:00-4:30pm ACST/11:30-3pm AWST ([check in your timezone](#))

Lead trainer

Nandan Deshpande, Sydney Informatics Hub, University of Sydney

Facilitators

Tracy Chew, Sydney Informatics Hub, University of Sydney
Georgina Samaha, Sydney Informatics Hub, University of Sydney
Sarah Beecroft, Pawsey Supercomputing Research Centre
Steven Morgan, Melbourne Bioinformatics

Host: Melissa Burke, Australian BioCommons

Useful links

Training materials: <https://sydney-informatics-hub.github.io/training.RNAseq.series-quarto/>

Schedule

*Timings are approximate and subject to change. ([Check the start time in your timezone](#))

Day 1: Reads to counts

Time AEST	Time ACST	Time AWST	Activity	Presenter
1:20 pm	12:50 pm	11:20 am	Zoom opened for participants	
1:30 pm	1:00 pm	11:30 am	Welcome, introductions and housekeeping	Melissa
1:50 pm	1:20 pm	11:50 am	Learning objectives for Day 1	Nandan
2:00 pm	1:30 pm	12:00 pm	Introduction to RNAseq and Nextflow	Nandan
			Input files	
2:20 pm	1:50 pm	12:20 pm	Code along: Downloading input files	Nandan
			Why use Nextflow?	
			Nextflow parameters	
2:35 pm	2:05 pm	12:35 pm	Code along: Running the nf-core/rnaseq command	Nandan
3:05 pm	2:35 pm	1:05 pm	BREAK	
3:20 pm	2:50 pm	1:20 pm	A typical DE workflow	Nandan
			The nf-core/rnaseq results folder	
3:25 pm	2:55 pm	1:25 pm	Code along: Download results to your local machine.	Nandan
			Quality control and trimming reads	
3:35 pm	3:05 pm	1:35 pm	Breakout room: Raw data, FastQC of raw data and trimmed reads	Nandan & facilitators
			Alignment and quantification	
4:05 pm	3:35 pm	2:05 pm	Breakout room: Visualise alignments in IGV.	Nandan & facilitators
			Helpful logs	Nandan
4:45 pm	4:15 pm	2:45 pm	Code along: Find and view nextflow log files.	
4:55 pm	4:25 pm	2:55 pm	Recap of Day 1	
			Questions and general discussion	Nandan
5:00 pm	4:30 pm	3:00 pm	Wrap up and information for tomorrow	Melissa
5:00 pm	4:30 pm	3:00 pm	End of Day 1	

Day 2: Enrichment analysis

Time AEST	Time ACST	Time AWST	Activity	Presenter
1:20 pm	12:50 pm	11:20 am	Zoom opened for participants	
1:30 pm	1:00 pm	11:30 am	Welcome and housekeeping	Melissa
1:35 pm	1:05 pm	11:35 am	Logging back into Nimbus	
1:40 pm	1:10 pm	11:40 am	Recap of Day 1 and the plan for day 2	Nandan
1:55 pm	1:25 pm	11:55 am	Helpful logs	
2:05 pm	1:35 pm	12:05 pm	Learning objectives for Day 2	
2:15 pm	1:45 pm	12:15 pm	Setting up R/RStudio on Pawsey Nimbus Code along: Start R/Rstudio on Nimbus, import the count matrix file. View count matrix file.	Nandan
2:30 pm	2:00 pm	12:30 pm	Exploratory analysis Breakout room: Exploratory analysis Summary of analysis	Nandan & Facilitators
3:00 pm	2:30 pm	1:00 pm	BREAK	Melissa
3:15 pm	2:45 pm	1:15 pm	Identifying differentially expressed genes Codealong task: DEseq2	Nandan
4:05 pm	3:35 pm	2:05 pm	Functional enrichment analysis Breakout room: Functional enrichment	Nandan & Facilitators
4:35 pm	4:05 pm	2:35 pm	Linking it back to the case study	Nandan
4:45 pm	4:15 pm	2:45 pm	Summary and questions	Nandan
4:55 pm	4:25 pm	2:55 pm	Wrap up and feedback	Melissa
5:00 pm	4:30 pm	3:00 pm	End of workshop	