



Tentative:

Time	Day 1	Day 2	Day 3
8 am (Lobby)	Registration	-	-
9 am (Level 3) Location: Bioinformatics Lab	Lecture: Introduction to Differential Gene Expression Analysis using RNA-seq Speaker: <i>Dr. Wan Fahmi</i>	Practical: Aligning reads Speaker: <i>Dr. Wan Fahmi</i> Topic: 1) Read alignment 2) Reference genome & transcript annotation 3) Alignment STAR, BAM/SAM files, QC	Practical: Differential expression analysis using DESeq2 Speaker: <i>Dr. Wan Fahmi</i> Topic: 1) Exploring read counts -rlogs transformation 2) Similarly assessments -hierarchical clustering -PCA
10 am (Level 1)	Refreshments	Refreshments	Refreshments
10:30 am Location: Bioinformatics Lab	Lecture: Linux command line for basic bioinformatics Speaker: <i>Mr. Ang Mia Yang</i> Topic: 1) Introduction to shell 2) Searching and redirection in shell 3) Shell scripts and for loops	Practical: Counting reads Speaker: <i>Dr. Wan Fahmi</i> Topic: 1) Read quantification 2) Normalizing and transforming read counts 3) Normalization for sequencing depth differences 4) Experimental design	Practical: Differential expression analysis using DESeq2 Speaker: <i>Dr. Wan Fahmi</i> Topic: 1) Theoretical background for DE analysis 2) DE analysis using DESeq2 3) Exploring results
12:30 pm (Level 1)	Lunch	Lunch	Lunch
2 pm (Level 3) Location: Bioinformatics Lab	Lecture: Linux command line for basic bioinformatics Speaker: <i>Mr. Ang Mia Yang</i> Topic: 1) Permissions and environment variables 2) Project and data organization	Practical: Counting reads Speaker: <i>Dr. Wan Fahmi</i> Topic: 1) QC of aligned reads 2) Counting reads -working with reads counts -normalizing - transforming	Practical: Pathway enrichment analysis Speaker: <i>Mr. Ang Mia Yang</i> Topic: 1) Getting more information about a gene list 2) Discovering what pathways are enriched in a gene list (and using it for hypothesis generation)
4 pm (Level 3)	Day 1 Review	Day 2 Review	Day 3 Review & Wrap up