Schedule of the Classes

Date	Day	Topic
23rd August	Wednesday	Introduction to Single-Cell RNA-seq, Its Pipeline and Analysis Gene Expression and Its Significance Cellular and Tumor Heterogeneity Bulk RNA-sequencing vs. Single-Cell RNA-sequencing Single-Cell RNA-seq Technologies (10x Genomics, Smart-Seq, Drop-seq and more)
28th August	Monday	Cell Isolation and Cell Lysis Protocols for Single-Cell Genomics Droplet Technologies: 10x Genomics Hands-on: Obtaining Raw Datasets for scRNA-seq Analysis Hands-on: Installation of Software and R Packages **Students' Status and Queries**
30th August	Wednesday	**Students' Status and Queries** Technical Issues With Single-Cell RNA-seq Data UMIs, Cell Barcodes, Read Alignment and Quantification Hands-on: Read Alignment, Deduplication and Quantification (Count Matrix) Quality Control of Single-Cell Data: Filtering Dead Cells and Unwanted Data
4th September	Monday	**Students' Status and Queries** Batch Effect Correction Hands-on: Filtering Dead Cell and Low Quality Data Hands-on: Normalization, Identification of Highly Variable Features and Scaling
6th September	Wednesday	**Students' Status and Queries** Hands-on: Dimension Reduction and Visualization (PCA, Heatmap, JackStraw, Elbow Plot) Hands-on: Clustering of Cell Subpopulations Hands-on: Cell Annotation of Subpopulations
11th September	Monday	**Students' Status and Queries** Hands-on: Differential Gene Expression Analysis Between Cell Subpopulation Hands-on: Gene Ontology Analysis Using GeneCodis Hands-on: Pathways Analysis Using KEGG, PANTHER, Reactome
13th	Wednesday	**Students' Status and Queries**

September		Paper writing guidelines **Assignment Submission**
18th September	Monday	Assignment Evaluation, Discussion and Conclusion Remarks

Recording will be providing