3000788 อณูชีววิทยาเชิงคำนวณเบื้องต้น (Introduction to Computational Molecular Biology)

Room 207, 2nd Floor, Pattayapat building, Faculty of Medicine or other arrangement by instructors

Week	Module	Session	Date	Time	Place	Topics	Assignmeny
1							Pre-course evaluation
	Introductory	1	17-Aug	13.00-14.30	215, 2fl. Padtayapatana	Introduction to computational biology and class logistics	
2		2	21-Aug	13.00-14.30	218, 2fl. Padtayapatana	Statistics and computational thinking I	
		3	24-Aug	13.00-14.30	308/11, 3fl. Aor Por Ror	Statistics and computational thinking II	Problem set 1
3	Genomics	4	28-Aug	13.00-14.30	218, 2fl. Padtayapatana	Principles and applications of DNA sequencing	
		5	31-Aug	13.00-14.30	217, 2fl. Padtayapatana	DNA sequencing data processing strategies	
4		6	4-Sep	13.00-14.30	218, 2fl. Padtayapatana	Sequence alignment and homology	Problem set 2
		7	7-Sep	13.00-14.30	217, 2fl. Padtayapatana	Phylogenetics and molecular evolution	
5		8	11-Sep	13.00-14.30	218, 2fl. Padtayapatana	Metagenomics	
	Transcriptomics	9	14-Sep	13.00-14.30	217, 2fl. Padtayapatana	Transcriptomics technology	
6		10	18-Sep	13.00-14.30	218, 2fl. Padtayapatana	Tabular gene expression data analysis with Excel	Problem set 3
		11	21-Sep	13.00-14.30	217, 2fl. Padtayapatana	RNA-seq data processing strategies	
7		12	25-Sep	13.00-14.30	218, 2fl. Padtayapatana	Differential expression analysis with R	
		13	28-Sep	13.00-14.30	217, 2fl. Padtayapatana	Functional enrichment analysis with online tools	Problem set 4
8	Single-cell	14	2-Oct	13.00-14.30	218, 2fl. Padtayapatana	Single-cell omics	
		15	5-Oct	13.00-14.30	217, 2fl. Padtayapatana	Single-cell transcriptomics analysis on Google Colab	
9	Advanced topics	16	9-Oct	13.00-14.30	218, 2fl. Padtayapatana	Principles of proteomics with mass spectrometry	
		17	12-Oct	13.00-14.30	217, 2fl. Padtayapatana	Protein database search with MaxQuant	Problem set 5
10		18	16-Oct	13.00-14.30	218, 2fl. Padtayapatana	Biological networks	
		19	19-Oct	13.00-14.30	217, 2fl. Padtayapatana	Visualizing biological networks with CytoScape	Problem set 6
11		20	26-Oct	13.00-14.30	217, 2fl. Padtayapatana	Probing chromatin conformation	
12		21	30-Oct	13.00-14.30	218, 2fl. Padtayapatana	Dynamics modeling for systems biology	
		22	2-Nov	13.00-14.30	217, 2fl. Padtayapatana	Useful online resources and databases	Problem set 7
13	Python programming	23	6-Nov	13.00-14.30	218, 2fl. Padtayapatana	Python programming	
		24	9-Nov	13.00-14.30	217, 2fl. Padtayapatana	Data handling with pandas and numpy	Problem set 8
14		25	13-Nov	13.00-14.30	218, 2fl. Padtayapatana	Data visualization with matplotlib and seaborn	
		26	16-Nov	13.00-14.30	217, 2fl. Padtayapatana	Statistical inference with scipy	Problem set 9
15	Machine learning	27	20-Nov	13.00-14.30	218, 2fl. Padtayapatana	Principles of machine learning	
		28	23-Nov	13.00-14.30	217, 2fl. Padtayapatana	Dimensionality reduction and clustering	Problem set 10
16		29	27-Nov	13.00-14.30	218, 2fl. Padtayapatana	Building predictive models	
		30	30-Nov	13.00-14.30	217, 2fl. Padtayapatana	Introduction to deep learning in life sciences	Post-course evaluation

Blue text indicate session where you need to bring your laptop computer

Background color coding indicate different classroom locations