Schedule for 2310656

Integrated Techniques in Protein Biochemistry (3 credits)

Second semester (2022)

Co-ordinator: Kuakarun, Pawinee

Time: Lab: MO 9.00 - 17.00, TU 9.00 - 17.00 // Room: 603

Topic	Lect (hr)	Lab (hr)	Date	1st Instructor	2nd Instructor	3rd Instructor
1. Basic techniques in Biochemistry						
Orientation & Check in		0.5	July 18, 9 - 9.30 am	Kuakarun	Pawinee	
LECT 1.1 Lab safety & Data treatment	1.5		July 18, 9.30 - 11 am	Saowarath		
LECT 1.2 Calculation for reagent preparation, pipette and water	1		July 18, 11 am - 12 pm	Rath		
LECT 1.3 Centrifugation	1		July 18, 1 - 2 pm	Alisa		
LECT 1.4 pH and buffer	1.5		July 18, 2 - 3.30 pm	Rath		
LAB 1.1 pH and buffer		3	July 19, 9 am - 12 pm	Rath	Pawinee	
LECT 1.5 Spectrophotometer	1		July 19, 1 - 2 pm	Manchumas		
LAB 1.2 Spectrophotometer		3	July 19, 2 - 5 pm	Manchumas	Supaart	
LECT 1.7 Computational analysis of protein structures	1		July 25, 9 - 10 am	Thanyada		
LAB 1.3 Computational analysis of protein structures		3	July 25, 10 am - 1 pm	Thanyada	Kuakarun	
2. Gene Expression and regulation						
LECT 2.1 Cell culture and sterilization techniques	1.5		July 25, 2 - 3.30 pm	Manchumas		
LECT 2.2 Principles of gene induction e.g. lac operon	1.5		July 25, 3.30 - 5 pm	Manchumas		
LAB 2.1 Reagent and medium preparation		7	July 26, 9 am - 5 pm	Manchumas	Vichien	
LAB 2.2 The effect of different effectors and antibiotics on the production of b-galactosidase		5	Aug 1, 9 am - 3 pm	Manchumas	Vichien	
2.2.1 Catabolite repression						
2.2.2 Effect of chloramphenical, steptomycin and ampicillin in protein synthesis						
LAB 2.3 Discussion		3	Aug 2, 9 am - 12 pm	Manchumas	Vichien	
Mid-term examination: สอบ 3 - 7 Oct 2022						
3. Enzyme expression, purification, characterization, and kinetics						
LECT 3.1 Concept of isolation and purification of enzymes	1.5		Oct 10, 9 am - 10.15 am	Alisa		
LECT 3.2 Chromatography I	1.5		Oct 10, 10.15 am - 12 pm	Supaart		
LAB 3.1 Lab brief (overview)		1	Oct 10, 1 - 2 pm	Kuakarun	Vichien	Pawinee
LAB 3.2 Medium preparation		3	Oct 10, 2 pm - 5 pm	Karan	Pawinee	
LAB 3.3 Reagent preparation for column and culture inoculation		3	Oct 11, 9 am - 12 pm	Karan	Pawinee	
LECT 3.3 Lyophilization, UF and dialysis	1.5		Oct 11, 1 - 2.30 pm	Kittikhun		
LECT 3.4 SDS-PAGE and Western blotting	1.5		Oct 11, 2.30 am - 4 pm	Kuakarun		
LAB 3.4 Protein expression, column packing and cell harvest		7	Oct 17, 9 am - 5 pm	Karan	Pawinee	
LAB 3.5 Enzyme isolation, enzyme purification I		7	Oct 18, 9 am - 5 pm	Karan	Pawinee	
LECT 3.5 Concept of Enzyme kinetics assay	1.5		Oct 25, 9 am - 10.30 am	Kuakarun		
LAB 3.6 Enzyme purification II		5.5	Oct 25, 10.30 am - 5 pm	Karan	Pawinee	
LAB 3.7 SDS-PAGE and Western blotting		7	Oct 31, 9 - 5 pm	Kuakarun	Vichien	
LECT 3.6 Chromatography (Part II)	3		Nov, 9 - 12 am	Supaart		
- HPLC & FPLC						

- GC –MS (Demonstration)						
- TLC						
LAB 3.8 Lab & Discussion I (Protein Purification, SDS-PAGE, Western blot)		3	Nov, 1 - 5 pm	Kuakarun	Pawinee	
LAB 3.9 Enzyme kinetics		11	Nov 7, 9 am - 5 pm & Nov	Kuakarun	Pawinee	
LAB 3.10 Discussion II (Kinetics)		3	Nov 8, 2 - 5 pm	Kuakarun	Pawinee	
LAB 3.11 Product determination (TLC&HPLC)		7	Nov 14, 9 am - 5 pm	Kuakarun	Pawinee	
LAB 3.12 HPLC analysis		3	Nov 15, 9 am - 12 pm	Kuakarun	Pawinee	
LAB 3.13 Discussion III, Wrap-up		4	Nov 15, 1 - 5 pm	Kuakarun	Pawinee	TA
LAB Practical Exam**		6	Nov 21, 9 am - 4 pm	Kuakarun	Pawinee	
LAB 3.14		3	Nov 22, 9 am - 12 pm	Kuakarun	Pawinee	
· Course evaluation						
· Reagent and chemical waste treatment						
· LAB check – out						
Final examination: สอบ 28 Nov - 13 Dec 2022 [28-Nov-2022, 08:30 - 10:30						

Paper Examination	40%
Lab Practical Examination	20%
Performance	10%
Report and Presentation	20%
Quiz	5%
Attendance	5%