

Schedule for 2310656

Integrated Techniques in Protein Biochemistry (3 credits)

First semester (2020)

Time: Lect: MO 13.00 - 16.00, TU 09.00 - 16.00 // Room: 503

Time: Lab: MO 13.00 - 16.00, TU 09.00 - 16.00 // Room: 603

Co-ordinator:

Kuakarun

Topic	Lect (hr)	Lab (hr)	Date	1st Instructor	2nd Instructor	3rd Instructor
1. Basic techniques in Biochemistry						
Orientation & Check in		0.5	Aug 10, 1 pm - 1.30 pm			
LECT 1.1 Lab safety & Data treatment	1.5		Aug 10, 1.30 pm - 3 pm	Saowarath		
LECT 1.2 Calculation for reagent preparation, pipette and water		1	Aug 10, 3 pm - 4 pm	Rath		
LECT 1.3 Centrifugation	1.5		Aug 11, 9 pm - 10.30 am	Alisa		
LECT 1.4 pH and buffer	1.5		Aug 11, 10.30 am - 12 am	Rath		
LAB 1.1 pH and buffer		3	Aug 11, 1 pm - 4 pm	Rath	Surasak	
LECT 1.5 Spectrophotometer	2		Aug 17, 1 pm - 3 pm	Manchumas		
LAB 1.2 Spectrophotometer		4	Aug 17, 3 pm - 4 pm, Aug 18, 9 am -12 am	Manchumas	Supaart	
LECT 1.7 Computational analysis of protein structures	1		Aug 18, 1 pm - 2 pm	Surasak		
LAB 1.3 Computational analysis of protein structures		3	Aug 18, 2 pm - 5 pm	Surasak	Kuakarun	
Examination: to be announced						
2. Gene Expression and regulation						
LECT 2.1 Cell culture and sterilization techniques	1.5		Aug 24, 1 am - 2.30 am	Manchumas		
LECT 2.2 Principles of gene induction e.g. lac operon	1.5		Aug 24, 2.30 pm - 4 pm	Manchumas		
LAB 2.1 Reagent and medium preparation		6	Aug 25, 9 am - 4 pm	Manchumas	Vichien	

LAB 2.2 The effect of different effectors and antibiotics on the production of b-galactosidase		6	Sep 1, 9 am - 4 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	Sep 7, 1 pm - 4 pm	Manchumas	Vichien	
3. Enzyme expression, purification, characterization, and kinetics						
LECT 3.1 Concept of isolation and purification of enzymes	3		Aug 31, 1 pm - 4 pm (*)	Alisa		
LECT 3.2 Chromatography I	3		Sep 8, 9 am - 12 am	Supaart		
- TLC						
LAB 3.1 Lab brief (overview)		1	Sep 8, 1 pm - 2 pm	Kuakarun	Vichien	Pawinee
LAB 3.2 Medium preparation		2	Sep 8, 2 pm - 4 pm	Vichien	Pawinee	
LAB 3.3 Reagent preparation for column and culture inoculation		3	Sep 14, 1 pm - 4 pm	Vichien	Pawinee	
LAB 3.4 Protein expression, column packing and cell harvest		6	Sep 15, 9 am - 4 pm	Vichien	Pawinee	
LECT 3.3 Lyophilization, UF and dialysis	1.5		Sep 21, 1 pm - 2.30 pm	Kittikhun		
LECT 3.4 SDS-PAGE and Western blotting	1.5		Sep 21, 2.30 pm - 4 pm	Vichien		
LAB 3.5 Enzyme isolation, enzyme purification I		6	Sep 22, 9 am - 4 pm	Vichien	Pawinee	
LAB 3.6 Enzyme purification II		4.5	Sep 22, 9 am - 12 am, 2.30 pm - 4 pm	Vichien	Pawinee	
LECT 3.5 Concept of Enzyme kinetics assay	1.5		Sep 22, 1 pm - 2.30 pm	Kuakarun		
LAB 3.7 SDS-PAGE and Western blotting		6	Sep 29, 9 am-4 pm	Kuakarun	Vichien	
Examination: Oct ----						
LECT 3.6 Chromatography (Part II)	3		Sep 28, 1 pm - 4 pm	Supaart		
- HPLC & FPLC						

- GC -MS (Demonstration)						
LAB 3.7 Discussion I (Protein Purification, SDS-PAGE, Western blot)		3	Oct 12, 1 pm - 4 pm	Kuakarun	Pawinee	
LAB 3.8 Enzyme kinetics		9	Oct 19, 1 pm - 4 pm Oct 20, 9 am - 4 pm	Kuakarun	Pawinee	
LAB 3.9 Discussion II (Kinetics)		3	Oct 26, 1 pm - 4 pm	Kuakarun	Pawinee	
LAB 3.10 Product determination		6	Oct 27, 9 am - 4 pm			
LAB 3.11 HPLC analysis		3	Nov 2, 1 pm - 4 pm	Kuakarun	Pawinee	
LAB 3.12 Discussion III, Wrap-up		6	Nov 3, 9 am - 4 pm	Kuakarun	Pawinee	TA
LAB 3.13		3	Nov 9, 9 am - 12 pm	Kuakarun	Pawinee	
· Course evaluation						
· Reagent and chemical waste treatment						
· LAB check – out						
LAB Practical Exam		6	Nov 17, 9 am - 4 pm	Kuakarun	Pawinee	
Examination: to be announced						