

Schedule for 2310656
 Integrated Techniques in Protein Biochemistry (3 credits)
 First semester (2019)

Time: Lect: MO 13.00 - 16.00, TU 09.00 - 16.00, Room: 519 SC10

Time: Lab: MO 13.00 - 16.00, TU 09.00 - 16.00 Room: 603 SCI10

Co-ordinator:
 Kunlaya,
 Kuakarun

Topic	Lect (hr)	Lab (hr)	Date	1st Instructor	2nd Instructor	3rd Instructor
1. Basic techniques in Biochemistry						
Orientation & Check in		0.5	Tuesday, August 13, 9 am - 9.30 am	Kunlaya		
LECT 1.1 Lab safety & Data treatment	1.5		Tuesday, August 13, 9.30 am - 11 am	Saowarath		
LECT 1.2 Calculation for reagent preparation, pipette and water		1.5	Tuesday, August 13, 1 pm - 2.30 pm	Rath		
LECT 1.3 Centrifugation	2.5		Tuesday, August 13, 2.30 pm - 5 pm	Alisa		
LECT 1.4 pH and buffer	1		Monday, August 19, 1 pm - 2 pm	Rath		
LAB 1.1 pH and buffer		4	Monday, August 19, 2 pm - 4 pm	Rath	Surasak	
LECT 1.5 Spectrophotometer	2		Tuesday, August 20, 9 am - 11 am	Manchumas		
LAB 1.2 Spectrophotometer		5	Tuesday, August 20, 11 am - 4 pm	Manchumas	Supaart	
LECT 1.7 Computational analysis of protein structures	1		Monday, August 26, 1 pm - 2 pm	Surasak		
LAB 1.3 Computational analysis of protein structures		3	Monday, August 26, 2 pm - 5 pm	Surasak	Kuakarun	
Examination: to be announced						
2. Gene Expression and regulation						
LECT 1.6 Cell culture and sterilization techniques	1.5		Tuesday, August 27, 9 am - 10.30 am	Manchumas		
LECT 2.1 Principles of gene induction e.g. lac operon	1.5		Tuesday, August 27, 10.30 am - 12 pm	Manchumas		
LAB 2.1 Reagent and medium preparation		3	Tuesday, August 27, 1 pm - 4 pm	Manchumas	Kuakarun	
LAB 2.2 The effect of different effectors and antibiotics on the production of b-galactosidase				Manchumas	Kuakarun	
2.2.1 Catabolite repression		3	Monday, September 2, 1 pm - 4 pm	Manchumas	Kuakarun	

2.2.2 Effect of chloramphenical, steptomycin and ampicillin in protein synthesis		6	Tuesday, September 3, 9 am - 4 pm	Manchumas	Kuakarun	
Examination: to be announced						
3. Enzyme expression, purification, characterization, and kinetics						
LECT 3.1 Concept of isolation and purification of enzymes	3		Monday, September 9, 1 am - 4 pm	Alisa		
LECT 3.2 Chromatography I	3		Tuesday, September 10, 9 am - 12 pm	Supaart		
- TLC						
LAB 3.1 Lab brief (overview)		1	Tuesday, September 10, 1 pm - 2 pm	Kunlaya	Kuakarun	
LAB 3.2 Medium preparation		2	Tuesday, September 10, 2 pm - 4 pm	Kunlaya	Kuakarun	
LAB 3.3 Reagent preparation for column and culture inoculation		3	Monday, September 16, 1 pm - 4 pm	Kunlaya	Kuakarun	
LAB 3.4 Protein expression, column packing and cell harvest		6	Tuesday, September 17, 9 am - 4 pm	Kunlaya	Kuakarun	
LAB 3.5 Enzyme isolation, enzyme purification I		3	Monday, September 23, 1 pm - 4 pm	Kunlaya	Kuakarun	
LECT 3.3 Lyophilization, UF and dialysis	1.5		Tuesday, September 24, 9 am - 10.30 am	Kanoktip		
LAB 3.6 Enzyme purification II		4.5	Tuesday, September 24, 10.30 am - 4 pm	Kunlaya	Kuakarun	
LECT 3.4 SDS-PAGE and western blotting	1.5		Tuesday, October 1, 9 am-10.30 am	Kunlaya		
LECT 3.4 Concept of Enzyme kinetics assay	1.5		Tuesday, October 1, 10.30 am-12 pm	Kuakarun		
LAB 3.7 SDS-PAGE and western blotting		3	Tuesday, October 1, 1 pm-4 pm	Kunlaya	Kuakarun	
Examination: Oct 7-11 , 2019 (To be announced)						
LECT 3.4 Chromatography (Part II)	3		Tuesday, October 15, 9 am - 12 pm	Supaart		
- HPLC & FPLC						
- GC -MS (Demonstration)						
LAB 3.7 SDS-PAGE, western,blotting, and discussion I		3	Tuesday, October 15, 1 pm - 4 pm	Kunlaya	Kuakarun	
LAB 3.8 Enzyme kinetics		3	Monday, October 21, 1 pm - 4 pm	Kunlaya	Vichien	
LAB 3.9 Enzyme kinetics and Data analysis I		9	Tuesday, October 22, 9 am - 4 pm, Monday October 28, 1 pm - 4 pm	Kunlaya	Vichien	
LAB 3.10 Product determination and data analysis II		3	Tuesday, October 29, 9 am - 12 pm	Kunlaya	Vichien	
LAB 3.11 HPLC analysis of products		6	Tuesday, October 29, 1 pm - 4 pm	Kunlaya	Vichien	TA
			Monday, November 4, 9 am - 12 pm			
LAB 3.12 Discussion II, Wrap-up		6	Tuesday, November 5, 9 am - 4 pm	Kunlaya	Kuakarun	
LAB 3.13		3	Monday, November 11, 9 am - 12 pm	Kunlaya	Kuakarun	

· Course evaluation						
· Reagent and chemical waste treatment						
· LAB check – out						
LAB Practical Exam		6	Tuesday, November 12, 9 am - 4 pm	Kunlaya	Kuakarun	
Examination: to be announced						

Performance