Schedule for 2310656						
Integrated Techniques in Protein Biochemistry (3 credits)						
First semester (2024)						
Time: Lab: ~~MO 13.00 - 17.00, TU 9.00 - 17.00~~ // Room: 603				Co-ordinator: Kuakarun, Pawinee		
WE: 1 - 4 pm, TH: 9 am - 4 pm.						
Topic	Lect (hr)	Lab (hr)	Date	1st Instructor	2nd Instructor	Room
1. Basic techniques in Biochemistry						
Orientation & Check in		0.5	Aug 7, 1 - 1.30 pm	Kuakarun	Pawinee	
LECT 1.1 Lab safety & Data treatment	1.5		Aug 7, 1.30 - 3 pm	Saowarath		
LECT 1.2 Calculation for reagent preparation, pipette and water	1		Aug 7, 3 - 4 pm	Rath		
LECT 1.3 Centrifugation	1		Aug 8, 9 - 10 am	Alisa		
LECT 1.4 pH and buffer	1.5		Aug 8, 10 - 11.30 am	Rath		
LAB 1.1 pH and buffer		3	Aug 8, 1 - 4 pm	Rath	Pawinee	
LECT 1.5 Spectrophotometer	2		Aug 14, 1 - 3 pm	Manchumas		
LAB 1.2 Spectrophotometer		4	Aug 14, 3 - 4 pm & Aug 15, 9 am - 12 pm	Manchumas	Supaart	
LECT 1.7 Computational analysis of protein structures	1		Aug 15, 1 - 2 pm	Thanyada		
LAB 1.3 Computational analysis of protein structures		3	Aug 15, 2 - 4 pm (extend to 5 pm)	Thanyada	Kuakarun	
2. Gene Expression and regulation						
LECT 2.1 Cell culture and sterilization techniques	1.5		Aug 21, 1 - 2.30 pm	Manchumas		
LECT 2.2 Principles of gene induction e.g. lac operon	1.5		Aug 21, 2.30 - 4 pm	Manchumas		
LAB 2.1 Reagent and medium preparation		6	Aug 22, 9 am - 4 pm	Manchumas	Karan	

LAB 2.2 The effect of different effectors and antibiotics on the production of b-galactosidase		6	Aug 28, 1 - 4 pm, Aug 29, 9 am - 12 pm	Manchumas	Karan	
2.2.1 Catabolite repression						
2.2.2 Effect of chloramphenical, steptomycin and ampicillin in protein synthesis						
LAB 2.3 Discussion		3	Sep 4, 1 - 4 pm	Manchumas	Karan	
3. Enzyme expression, purification, characterization, and kinetics						
LECT 3.1 Concept of isolation and purification of enzymes	1.5		Sep 5, 9 - 10.30 am	Alisa		
LECT 3.2 Chromatography I	3		Sep 5, 1 - 4 pm	Supaart		
LECT 3.3 Chromatography II	3		Sep 11, 1 - 4 pm	Supaart		
- HPLC & FPLC (Demonstration)						
- GC –MS (Demonstration)						
- TLC						
Mid-term examination: สอบ 23 - 27 Sep 2024 (25 ก.ย. 2567 เวลา 13:00-16:00 น.)						
2 - 4 Oct 2024 No class due to the commencement day						
LAB 3.1 Lab brief (overview)		1	Oct 9, 1 - 2 pm	Kuakarun	Karan	
LAB 3.2 Medium preparation		3	Oct 9, 2 - 4 pm (extend to 5 pm)	Karan	Pawinee	
LAB 3.3 Reagent preparation for column and culture inoculation		3	Oct 10, 9 am - 12 pm	Karan	Pawinee	
LECT 3.4 Lyophilization, UF and dialysis	1.5		Oct 10, 1 - 2.30 pm	Kittikhun (ตามเดิม)		
LECT 3.5 SDS-PAGE and Western blotting	1.5		Oct 10, 2.30 - 4 pm	Kuakarun		
LAB 3.4 Protein expression, column packing and cell harvest		7	Oct 16, 1 - 4 pm (extend to 5 pm) & Oct 17, 9 am - 12 pm	Karan	Pawinee	
LAB 3.5 Enzyme isolation, enzyme purification		12	Oct 31, 9 am - 12 pm	Karan	Pawinee	
LECT 3.6 Concept of Enzyme kinetics assay	1.5		Oct 31, 1 - 2.30 pm	Kuakarun		

LAB 3.7 SDS-PAGE and Western blotting		7	Nov 6, 1 - 4 pm (extend to 5 pm) & Nov 7, 9 am - 12 pm	Kuakarun	Karan	
LAB 3.8 Lab & Discussion I (Protein Purification, SDS-PAGE, Western blot)		3	Nov 13, 1 - 4 pm	Kuakarun	Pawinee	
LAB 3.9 Enzyme kinetics		11	Nov 14, 9 am - 4 pm (extend to 5 pm) & Nov 20, 1 - 4 pm (extend to 5 pm)	Kuakarun	Pawinee	
LAB 3.10 TLC & analysis of HPLC results (provided by TA)/Discussion II & III (Kinetics & Product determination)		3	Nov 21, 9 am - 12 pm (TLC), 1 - 4 pm (extend to 5 pm) (Discussion)	Kuakarun	Pawinee	
LAB Practical Exam		6	Dec 4, 9 am - 4 pm	Kuakarun	Pawinee	
LAB 13.14		3	Dec 6, 9 am - 12 pm	Kuakarun	Pawinee	
· Course evaluation						
· Reagent and chemical waste treatment						
· LAB check – out						
Final-term examination: สอบ 25 Nov - 9 Dec 2024 [26 พ.ย. 2567 เวลา 13:00-16:00 น.]						
Paper Examination	40%					
Lab Practical Examination	20%					
Performance	10%					
Report and Presentation	20%					
Quiz	5%					
Attendance	5%					