

# BME361 Advanced Experimental Biomedical Laboratory Proficiency

**Level:** 3

**Credit Units:** 5 Credit Units

**Language:** ENGLISH

**Presentation Pattern:** EVERY JAN

## Synopsis:

BME361 Advanced Experimental Biomedical Laboratory Proficiency, which continues from BME261 Experimental Biomedical Laboratory Skills, is a practical and real-life problem orientated course utilising up-to-date technology to equip students with the necessary thinking, bioinformatics and experimental skills. Students learn the experimental skills to perform protein expression and induction, analysis of protein expression, protein purification and extraction. Students are guided to submit and write a research article targeted for publication.

## Topics:

- Planning for protein expression
- Protein induction
- Protein harvesting in prokaryotes
- Analysis of protein expression
- Protein loading and sample preparation
- Staining of gel
- Protein extraction
- Protein purification
- Protein characterization
- Protein functional analysis
- Preparation of manuscript
- Project wrap up

## Learning Outcome:

- Illustrate protein refolding, protein structure and bioinformatics analysis
- Analyze SDS PAGE
- Examine the basics of protein-protein interaction
- Prepare protein purification using affinity chromatography, basic cell culture, passaging, counting, typsinization, cryopreservation, sonication and extraction of prokaryotic inclusion bodies
  - Set up cell culture for thawing, counting, seeding and express proteins in bacteria
  - Discuss results and prepare good manuscripts and reports

## Assessment Strategies (Evening Class):

Components	Description	Weightage Allocation (%)
Overall Continuous Assessment	PARTICIPATION 1	10
	LAB REPORT 1	20

Overall Examinable Components	ECA	70
<b>Total</b>		<b>100</b>