SCBC322 Course Syllabus

Module B: Cell and molecular medicine

SCBC 322: Laboratory Rotation in Cell and Molecular Medicine 3 (1-4-4)

Short term research projects, laboratory techniques related to biochemical research, introduction to research methodologies in biochemical research

Prerequisite: None

Date & time: Tuesday (8:30-12:30)

Course coordinator: Dr. Nattawadee Panyain

Course Objectives: This course aims to provide knowledge and abilities as follows:

1. How to search for research background in cell and molecular medicine from various scientific databases.
2. How to plan and design basic experiments in cell and molecular medicine.
3. Basic principle of techniques used in cell and molecular medicine research
4. How to properly use basic equipment used in cell and molecular medicine research
5. Experience of working and collaborating with team members

Course outline and Timeline

Date	Topic	Hours		Instructor
		Lecture	Lab	
Dec 26th 2026	Introduction (online)	1	-	NP
Jan 12th - Feb 13th 2026	**Lab rotation 1** and presentation	1	25	BC staffs
Feb 16th - Mar 20th 2026	**Lab rotation 2** and presentation	1	25	BC staffs
Mar 23rd - May 1st 2026	**Lab rotation 3** and presentation	1	25	BC staffs
	Total	4	75	

*Week 16 is the Songkran holiday week (April 13th - April 17th, 2026).

Deadline of the lab selection

Date	Topic	Report to
Jan 5th 2026	Deadline for lab rotation 1 selection	NP
Feb 2nd 2026	Deadline for lab rotation 2 selection	NP
Mar 9th 2026	Deadline for lab rotation 3 selection	NP

Deadline of the report submission (1 week after the lab rotation ends)

Date	Topic	Report to
Feb 20th 2026	Deadline for lab report 1	NP
Mar 27th 2026	Deadline for lab report 2	NP
May 8th 2026	Deadline for lab report 3	NP

- Students are required to take 3 lab rotations (mandatory rotation - meaning that students are required to rotate through 3 different labs).
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- It is the student's responsibility to contact the PI for the lab availability in each rotation slot.

Teaching Methods

Students learn and acquire knowledge by

1. Choosing a project from research abstracts provided by BC staffs
2. Reading materials assigned by their project advisors
3. Performing literature review
4. Performing research experiments
5. Communication with their peers in the laboratory
6. Discussing results/research literatures with their advisors
7. Analyzing and summarizing the results
8. Presenting their research work
9. Writing a scientific report

Teaching Media

1. Project abstracts
2. Review and research articles
3. PowerPoint presentation

Measurement and Evaluation of Student Achievement

Students are evaluated based on their performance on

Lab performance in rotation 1	20%
An oral presentation for rotation 1	5%
A written report for rotation 1 (evaluated by NP)	8%
Lab performance in rotation 2	20%
An oral presentation for rotation 2	5%
A written report for rotation 2 (evaluated by NP)	8%
Lab performance in rotation 3	20%
An oral presentation for rotation 3	5%
A written report for rotation 3 (evaluated by NP)	8%
Class participation (orientation)	1%
Total	100%

Grading System:

Grade	Score (X)
A	$X \geq 85$
B+	$85 > X \geq 80$
B	$80 > X \geq 75$
C+	$75 > X \geq 70$
C	$70 > X \geq 65$
D+	$65 > X \geq 60$
D	$60 > X \geq 55$
F	$X < 55$

Course Evaluation

1. Evaluate students' achievement as described in "Measurement and Evaluation of Student Achievement."
2. Evaluate students' satisfaction towards teaching and learning of the course using a questionnaire.

References

1. Sambrook J, Fritsch EF, Maniatis T. Molecular Cloning: A Laboratory Manual. 2nd Ed. New York: Cold Spring Harbor Laboratory, Cold Spring Habor Laboratory Press; 1989.

2. Ninfa AJ, Ballou DP. Fundamental Laboratory Approaches for Biochemistry and Biotechnology. Fitzgerald Science Press; 1998.

Instructors

Staffs from the Department of Biochemistry
Faculty of Science, Mahidol University

Course Coordinator

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