

Course Syllabus
MBMB 655 Virus and cell interaction
Academic year 2025

Course ID and Title	MBMB 655 Virus and cell interaction
Course coordinator	Chutima Thepparit, Ph.D. Institute of Molecular Biosciences, Mahidol University Tel: 0-2441-9003 to 7 Ext. 1XXX Email: chutima.thp@mahidol.edu
Instructors:	1. Chutima Thepparit, Ph.D. 2. Asst. Prof. Alita Kongchanakul, Ph.D. 3. Duangnapa kovanich, Ph.D. 4. Promsin Masrinoul, Ph.D. 5. Ampa Suksatu, Ph.D.
Credits:	2 (2-0-4)
Curriculum:	Master of Science Program in Molecular and Integrative Biosciences (elective course) Doctor of Philosophy Program in Molecular and Integrative Biosciences (elective course)
Semester offering:	Second semester
Pre-requisites:	None

Course learning outcomes (CLOs):

By the end of the course, students should be able to:

1. Demonstrate scientific integrity, and responsibility
2. Demonstrate core principles and comprehensive knowledge of fundamentals in virology and virus-host interaction
3. Formulate research questions or creative problems with integration of fundamental principles and knowledge in a manner appropriate to the virus-cell interactions and immunity discipline.
4. Demonstrate critical thinking, teamwork, and interpersonal skills
5. Effectively communicate scientific concepts and findings through discussions and presentations.

Alignment of Teaching and Assessment Methods to Course Learning Outcomes:

Course Learning Outcomes	Teaching Method	Assessment Method
1. Demonstrate scientific integrity, and responsibility	1. Discussion 2. Lab report 3. Assignment	1. Discussion performance 2. Assignment submission 4. Assignment 5. Plagiarism detection
2. Demonstrate core principles and comprehensive knowledge of fundamentals in virology and virus-host interaction	1. Lecture 2. Assignment	1. Assignment 2. Examination
3. Formulate research questions or creative problems with integration of fundamental principles and knowledge in a manner appropriate to the virus-cell interactions and immunity discipline.	1. Lecture 2. Discussion 3. Assignment	1. Discussion performance 2. Assignment 3. Examination
4. Demonstrate critical thinking, teamwork, and interpersonal skills	1. Discussion 2. Group activities	1. Discussion performance 2. Performance in group activities
5. Effectively communicate scientific concepts and findings through discussions and presentations	1. Discussion 2. Presentation	1. Discussion performance 2. Presentation performance

Course description:

Introduction to virology, Virus replication: attachment and entry, Virus replication and expression: RNA viruses, DNA viruses, reverse transcription and integration, Virus-host interactome, Cellular responses to viral infection (innate immunity and adaptive immunity), Introduction to vaccinology, Vaccine design, and development

Course Schedule (Tentative):

(Classroom XXX and Lab Classroom XXX)

	Activities	Description	Time	Instructors and Assistants
Day 1				
	Lecture	- Course orientation and introduction to virus and host interaction	9.00 – 12.00	CT
Day 2				
	Lecture	- Virus replication and expression; attachment, entry, and general life cycle	9.00 – 12.00	CT
Day 3				
	Lecture	- Virus replication and expression: DNA and RNA viruses	9.00 – 12.00	PM
Day 4				
	Lecture	- Virus replication and expression: reverse transcription and integration	9.00 – 12.00	Ampa
Day 5				
	Lecture	- Virus-host interactome	9.00 – 12.00	DK

	Activities	Description	Time	Instructors and Assistants
Day 6				
	Exam		9.00 – 12.00	
Day 7				
	Lecture	- Cellular responses to viral infection I	9.00 -12.00	AK
Day 8				
	Lecture	- Cellular responses to viral infection II	9.00 -12.00	AK

Day 9				
	Lecture	- Introduction to vaccinology	9.00 – 12.00	PM
Day 10				
	Lecture	- Vaccine design and development	9.00 – 12.00	PM
Day 11				
	Assignment presentation, discussion, reflection, and after-action review	<ul style="list-style-type: none"> - To present results achieved in the class. - To discuss the techniques and applications of virus detection and quantification. - To provide students opportunities to describe their learning experiences received from this course and how they can be applied to their future learning. - To collect comments, and suggestions from students for further improvements of the course. 	9.00 – 12.00	CT/AK/DK/PM

Assessment Criteria:

Assessment method		Performance criteria	Scoring rubric
1	Class attendance & participation (10%)	Attendance and punctuality (5%)	Punctually (4) Seldom late (2-3) Moderately late (1) Frequently late or absent without notification (0) *Attending the class after 5 minutes is determined late
		Participation (5%)	Frequently participates (4) Moderately participates (2-3)

			Seldom participates (1) Never participates (0)
2	Examination and assignment (70%) (in-class/take home assignments, written examination)	Punctual assignment submission (2%)	On-time (4) 1 day late (3) 2 days late (2) 3 days late (1) 4 days late or later (0)
		Organization (5%)	Excellent (4) Above average (3) Average (2) Needs improvement (1)
		Content accuracy (40%)	Excellent (4) Above average (3) Average (2) Needs improvement (1)
		Supporting evidence (10%)	Excellent (4) Above average (3) Average (2) Needs improvement (1)
		Creativity (10%)	Excellent (4) Above average (3) Average (2) Needs improvement (1)
		Grammar and originality (3%)	Excellent (4) Above average (3) Average (2) Needs improvement (1)
3	Presentation (20%)	Organization (2%)	Excellent (4) Above average (3) Average (2) Needs improvement (1)
		Content (10%)	Excellent (4) Above average (3) Average (2)

			Needs improvement (1)
		Subject knowledge/Q&A (5%)	Excellent (4) Above average (3) Average (2) Needs improvement (1)
		Presentation style (3%)	Excellent (4) Above average (3) Average (2) Needs improvement (1)

Student's achievement will be graded using symbols: A, B+, B, C+, C, D+, D and F, based on the criteria as follows:

Percentage range	Grade	Description
80-100	A	Excellent
75-79	B+	Very Good
70-74	B	Good
65-69	C+	Fairly Good
60-64	C	Fair
55-59	D+	Poor
50-54	D	Very Poor
0-49	F	Fail

Date of Revision: XXX 20XX