

Course Syllabus

MBMB 500 Graduate School Essentials for M.Sc. Students in Molecular and Integrative Biosciences

Academic year 2025

Course ID and Title MBMB 500 Graduate School Essentials for M.Sc. Students in Molecular and Integrative Biosciences

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Credits:	2 (2-0-4)
Curriculum:	Master of Science Program in Molecular and integrative biosciences (required course)
Semester offering:	First semester
Pre-requisites:	None

Course learning outcomes (CLOs) and their alignment with PLOs:

CLOs By the end of the course, student should be able to:	PLO1	PLO2	PLO3	PLO4
1. Identify research topics in molecular and integrative biosciences for a Master's thesis	✓			
2. Utilize academic resources and information technology to locate scholarly materials, including journal articles, books, and intellectual property		✓	✓	
3. Understand graduate-level research standards, methodologies, ethics, chemical safety, and biosafety		✓	✓	
4. Demonstrate advanced communication and interpersonal skills at the Master's level			✓	✓

Course description

Scientific methods; research ethics, chemical safety, biosafety; biometry; databases search; literature search; intellectual property; academic writing; academic presentation; research disciplines in molecular and integrative biosciences

Alignment of Teaching and Assessment Methods to Course Learning Outcomes:

Course Learning Outcomes	Teaching Method	Assessment Method
1. Identify research topics in molecular and integrative biosciences for a Master's thesis	1. Lecture 2. Discussion	1. Participation 2. Discussion
2. Utilize academic resources and information technology to locate scholarly materials, including journal articles, books, and intellectual property	1. Lecture 2. Discussion	1. Q&A 2. Discussion 3. Quiz 4. Assignment/presentation
3. Understand graduate-level research standards, methodologies, ethics, chemical safety, and biosafety	1. Lecture 2. Discussion	1. Q&A 2. Discussion 3. Quiz 4. Assignment/presentation
4. Demonstrate advanced communication and interpersonal skills at the Master's level	1. Lecture 2. Discussion	1. Q&A 2. Discussion 3. Quiz 4. Assignment/presentation

Course Schedule, learning activity and assessment:

	Activities	Description	Assessment methods	Scores	Time
Day 1	Topic 1: Scientific methods and research ethics (Chalongrat Noree)				
1	Lecture, discussion	Scientific methods Research ethics	1. Q&A 2. Discussion 3. Quiz 4. Assignment/presentation	10%	9.00-11.00
Day 2	Topic 2: Chemical safety and biosafety (Chutima Thepparit)				
1	Lecture, discussion	Chemical safety Biosafety	1. Q&A 2. Discussion 3. Quiz 4. Assignment/presentation	10%	13.00-15.00
Day 3	Topic 3: Introduction to biometry (Ittipat Meewan)				
1	Lecture, discussion	Statistics for research Biostatistics	1. Q&A 2. Discussion 3. Quiz 4. Assignment/presentation	10%	9.00-11.00
Day 4	Topic 4: Databases and literature search; (Natee Jearawiriyapaisarn);				
1	Lecture, discussion	Intro to academic resources Databases Literature search	1. Q&A 2. Discussion 3. Quiz 4. Assignment/presentation	10%	13.00-15.00
Day 5	Topic 5: Academic presentation (1/2) (Sirirat Kumarn)				
1	Lecture, discussion	Academic presentation (1/2)	1. Q&A 2. Discussion 3. Quiz	5%	10.00-11.00

	Activities	Description	Assessment methods	Scores	Time
			4. Assignment/presentation		
Day 6	Topic 6: intellectual property				
1	Lecture, discussion, quiz	Intellectual property	1. Q&A 2. Discussion 3. Quiz 4. Assignment/presentation	10%	13.00-15.00
Day 7	Topic 5: Academic presentation (2/2) (Sirirat Kumarn)				
1	Lecture, discussion	Academic presentation (2/2)	1. Q&A 2. Discussion 3. Quiz 4. Assignment/presentation	5%	10.00-11.00
Day 8-15	Topic 7: Research disciplines in molecular and cellular biosciences				
1	Lecture, discussion	Introduction to research disciplines in molecular and cellular biosciences	Participation	40%	9.00-16.00
Day 15	Course reflection and AAR				
1	Student's Reflection	To provide students opportunities to describe their learning experiences received from this course and how it can be applied to their future learning.	-	-	9.00-12.00
2	After Action Review	To collect comments, suggestions from students for further improvements of the course.	-	-	9.00-12.00

Note: Some changes might be applied as appropriate.

Assessment Criteria:

Assessment method	Performance criteria	Scoring rubric
Participation	Engagement level of learner	Active engage (4) Fairly active (2-3) Inactive (1)
Quiz	Correctness level	Raw scores will be adjusted to be in a range of % indicated above
Discussion	Participation (20%)	Active (4) Fairly active (2-3) Inactive (1)
	Interpersonal and interpersonal skill (leadership, teamwork, responsibility, patience, communication, positive attitude, active listening, critical thinking) (20%)	Excellent (4) Good (3) Fair (2) Underperform (1)
	Demonstrate critical and high-order thinking skills (60%)	Excellent (4) Good (3) Fair (2) Underperform (1)
Presentation	Background and Research Question: Did the presenter provide an understanding of background and clearly present the research question? Provide adequate information? (20%)	Excellent (4) Good (3) Fair (2) Underperform (1)
	Quality of the Slide: Was the slide well-organized, insightful, and attractive? (10%)	Excellent (4) Good (3) Fair (2) Underperform (1)
	Spelling & Grammar: Correct spelling and grammar? (10%)	Excellent (4) Good (3) Fair (2) Underperform (1)

Assessment method	Performance criteria	Scoring rubric
	Quality of the presenter: Storytelling skill. Is narration engaging? (20%)	Excellent (4) Good (3) Fair (2) Underperform (1)
	Interpersonal and interpersonal skill (communication, positive attitude, active listening, scientific presentation) (40%)	Excellent (4) Good (3) Fair (2) Underperform (1)

Student's achievement will be graded using symbols: S and U, based on the criteria as follows:

Percentage range	Grade	Description
60-100	S	Satisfactory
0-59	U	Unsatisfactory

Date of revision: 2025-01-06