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
Course coordinator	Asst. Prof. Poochit Nonejuie, Ph.D. Institute of Molecular Biosciences, Mahidol University Tel: 0-2441-9003 Email: Poochit.non@mahidol.edu
Instructors:	Asst. Prof. Poochit Nonejuie, Ph.D.
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. Gain a comprehensive understanding of the academic standards, rigor, and expectations unique to graduate studies, including research methodologies, research ethics, chemical safety and biosafety	✓		✓	
2. Become familiar with academic resources available to graduate students and demonstrate the ability to use information technology to locate relevant academic resources including; scholarly journal articles, books and intellectual properties	✓	✓		
3. Demonstrate Master of Science level reading, writing, oral communication and relevant interpersonal skills	✓	✓	✓	✓
4. Identify various research topics in the areas of molecular and integrative biosciences and related disciplines for the Master of Science's thesis	✓			

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

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. Gain a comprehensive understanding of the academic standards, rigor, and expectations unique to graduate studies, including research methodologies, research ethics, chemical safety and biosafety	1. Lecture 2. Discussion	1. Q&A during lecture 2. Discussion performance 3. Quiz / short exercise 4. Assignment
2. Become familiar with academic resources available to graduate students and demonstrate the ability to use information technology to locate relevant academic resources including; scholarly journal articles, books and intellectual properties	1. Lecture 2. Discussion	1. Q&A during lecture 2. Discussion performance 3. Quiz / short exercise 4. Assignment
3. Demonstrate Master of Science level reading, writing, oral communication and relevant interpersonal skills	1. Lecture 2. Discussion	1. Q&A during lecture 2. Discussion performance 3. Quiz / short exercise 4. Assignment
4. Identify various research topics in the areas of molecular and integrative biosciences and related disciplines for the Master of Science's thesis	1. Lecture 2. Discussion	1. Q&A during lecture 2. Discussion performance

Course Schedule, learning activity and assessment:

	Activities	Description	Assessment methods	Scores	Time
Day 1	Topic 1: Scientific methods and research ethics				
1	Lecture, discussion, quiz	Scientific methods	1. Q&A during lecture 2. Quiz / short exercise	40%	9.00-11.00
2	Lecture, discussion, quiz	Research ethics	1. Q&A during lecture 2. Quiz / short exercise	40%	11.00-12.00
3	Participation, discussion		Participation Discussion performance	20%	9.00-12.00
Day 1	Topic 2: Chemical safety and biosafety				
1	Lecture, discussion, quiz	Chemical safety	1. Q&A during lecture 2. Quiz / short exercise	40%	13.00-14.00
2	Lecture, discussion, quiz	Biosafety	1. Q&A during lecture 2. Quiz / short exercise	40%	14.00-15.00
3	Participation, discussion		Participation Discussion performance	20%	13.00-15.00
Day 2	Topic 3: Introduction to biometry				

1	Lecture, discussion, quiz	Statistics for research	1. Q&A during lecture 2. Quiz / short exercise	40%	9.00-10.00
2	Lecture, discussion, quiz	Biostatistics	1. Q&A during lecture 2. Quiz / short exercise	40%	10.00-11.00
3	Participation, discussion		Participation Discussion performance	20%	9.00-11.00
Day 2	Topic 4: Databases and literature search;				
1	Lecture, discussion, quiz	Intro to academic resources Databases	1. Q&A during lecture 2. Quiz / short exercise	40%	13.00-14.00
2	Lecture, discussion, quiz	Literature search	1. Q&A during lecture 2. Quiz / short exercise	40%	14.00-15.00
3	Participation, discussion		Participation Discussion performance	20%	13.00-15.00
Day 3	Topic 5: Academic writing and presentation				
1	Lecture, discussion, quiz	Academic writing	1. Q&A during lecture 2. Quiz / short exercise	40%	9.00-10.00

2	Lecture, discussion, quiz, presentation	Academic presentation	1. Q&A during lecture 2. Quiz / short exercise 3. Presentation	40%	10.00-11.00
3	Participation, discussion		Participation Discussion performance	20%	9.00-11.00
Day 3	Topic 6: intellectual property				
1	Lecture, discussion, quiz	Intellectual property	1. Q&A during lecture 2. Quiz / short exercise	80%	13.00-15.00
2	Participation, discussion		Participation Discussion performance	20%	13.00-15.00
Day 4-11	Topic 7: Research disciplines in molecular and cellular biosciences				
1	Lecture, Participation discussion	Introduction to research disciplines in molecular and cellular biosciences	Participation	100%	9.00-16.00
Day 12	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	-	-	9.00-12.00

		further improvements of the course.			

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)

Assessment method	Performance criteria	Scoring rubric
		Fair (2) Underperform (1)
	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: XXXXXXX