

Course Syllabus

MBMB 521 Current Topics in Molecular and Integrative Biosciences

ชมชม ๕๒๑ หัวข้อปัจจุบันทางด้านชีววิทยาระดับโมเลกุลและเชิงบูรณาการ

MBMB 621 Advanced Current Topics in Molecular and Integrative Biosciences

ชมชม ๖๒๑ หัวข้อปัจจุบันขั้นสูงทางด้านชีววิทยาระดับโมเลกุลและเชิงบูรณาการ

Program: M.Sc. and PhD. In Molecular and Integrative Bioscience

Semester: 1/2026

Number of Credits: 1 (1-0-2)

Course Coordinators: **Asst. Prof. Dr. Duangrudee Tanramluk**
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Number of Credits: 1 (1-0-2)

Instructors:

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Course Description:

Interpretation of scientific literature; critical review; discussion of recent publications; advanced knowledge and technology in molecular and integrative biosciences

การวิเคราะห์วารสารวิชาการ การวิเคราะห์บทความปริทัศน์ การวิพากษ์บทความปัจจุบัน ความรู้และเทคโนโลยีขั้นสูงในงานวิจัยสาขาชีววิทยาศาสตร์ระดับโมเลกุลและเชิงบูรณาการ

Course Summary

This course provides an in-depth exploration of current research topics and trends in molecular and integrative bioscience. Through lectures, discussions, and seminars, students will engage with cutting-edge research, methodologies, and interdisciplinary approaches within the field. Emphasis will be placed on critical analysis, scientific communication, and the integration of diverse perspectives in molecular bioscience.

Course Learning Outcomes:

CLO1 Demonstrate a detailed understanding of the principles of Molecular and Integrative Bioscience

CLO2 Analyze scientific literature based on Molecular and Integrative Bioscience principles and theories

CLO3 Comply with the ethical standards of conduct in academic and research work, including proper referencing and avoiding plagiarism.

CLO4 Summarize and articulate scientific literature in an interactive manner.

Alignment of teaching and assessment methods to course learning outcome:

Course learning outcome	Pedagogical approach	Learning activities	Assessment methods
1. Demonstrate a detailed understanding of the principles of Molecular and Integrative Bioscience	Combination of active learning, project-based learning, and mastery learning	(1) Lecture (2) Case studies with learned experience (3) Group assignment and presentation	(1) Reports (2) Presentations (3) In-class interaction and participation
2. Analyze scientific literature based on Molecular and Integrative Bioscience principles and theories		(1) Lecture (2) Brainstorming (3) Group discussion (4) Individual assignment	(1) Reports/assignment (2) Presentation (3) Discussion participation (4) Q & A
3. Comply with the ethical standards of conduct in academic work, including proper referencing and avoiding plagiarism.		1. Discussion (about scientific integrity, responsibility, and safety practice) 2. Assignment 3. Report Writing	(1) Attendance (presence, absence, on-time?) (2) Task submission (on-time?) (3) Lab report writing (plagiarism?)
4. Summarize and articulate scientific literature in an interactive manner		(1) Group activities during class	(1) Presentation (2) In-class interaction and participation

Resources:

- Textbooks and scientific literature within the past 5 years
- Online databases and research repositories
- Library and online facilities and equipment

Timetables (Room A401)

Week	Date	Week/Room	Topic Examples	Teaching Staff
1	5 August 2026	10.00 – 11.00 am	Orientation	Duangrudee
2	19 August 2026	10.00 – 11.00 am	Paper Discussion & Presentation	Soraya
3	26 August 2026	10.00 – 11.00 am	Paper Discussion & Presentation	Jiraporn
4	9 September 2026	10.00 – 11.00 am	Paper Discussion & Presentation	Ittipat
5	16 September 2026	10.00 – 11.00 am	Paper Discussion & Presentation	Natee
6	23 September 2026	10.00 – 11.00 am	Paper Discussion & Presentation	Kanokporn
7	30 September 2026	10.00 – 11.00 am	Paper Discussion & Presentation	Promsin
8	7 October 2026	10.00 – 11.00 am	Paper Discussion & Presentation	Sarin
9	21 October 2026	10.00 – 11.00 am	Paper Discussion & Presentation	Duncan
10	28 October 2026	10.00 – 11.00 am	Paper Discussion & Presentation	Chalongrat
11	4 November 2026	10.00 – 11.00 am	Paper Discussion & Presentation	Duangnapa
12	11 November 2026	10.00 – 11.00 am	Paper Discussion & Presentation	Poochit
13	18 November 2026	10.00 – 11.00 am	Paper Discussion & Presentation	Panadda
14	25 November 2026	10.00 – 11.00 am	Paper Discussion & Presentation	Siraprapa
15	2 December 2026	10.00 – 11.00 am	Paper Discussion & Presentation	Duangrudee

CLOs and PLOs Mapping

MBMB 621	ผลลัพธ์การเรียนรู้ระดับหลักสูตร (PLOs)			
	PLO1	PLO2	PLO3	PLO4
CLO1 Demonstrate a detailed understanding of the principles of molecular biology	●			
CLO2 Analyze scientific literature based on molecular biology principles and theories		●		
CLO3 Comply with the ethical standards of conduct in academic work, including proper referencing and avoiding plagiarism.			●	
CLO4 Summarize and articulate scientific literature in an interactive manner.				●

Program Learning Outcomes (Master of Science Program)

At the completion of the program, students will be able to:

PLO1 Conceptualize, integrate, and apply fundamental knowledge of theory and practice in Molecular and Integrative Biosciences (**Knowledge**).

PLO2 Exercise cognitive and practical skills essential for conducting research in the field of Molecular and Integrative Biosciences (**Skills**).

PLO3 Adhere to ethical standards and integrity in both personal and professional practices (**Ethics**).

PLO4 Possess academic and research communication, leadership and adaptability (**Character**).

Program Learning Outcomes (Doctor of Philosophy Program)

At the completion of the program, students will be able to:

PLO1 Evaluate and integrate novel ideas to synthesize complex knowledge systems within the field of Molecular and Integrative Biosciences (**Knowledge**).

PLO2 Create and internationally publish high-quality research in Molecular and Integrative Biosciences (**Skills**).

PLO3 Adhere to and advise best practices for ethics and integrity in both personal and professional practices (**Ethics**).

PLO4 Possess academic and research communication, leadership and adaptability in diverse, interdisciplinary, and international environments (**Characters**).

Rubrics for Assessing Program Learning Outcomes (PLOs)

MSc Students

Assessment Criteria		Description (in Details)	Scoring Rubric
1	Discussion (40%)	• Organization and line of thoughts (10%) • Originality (10%) • Participation (10%) • Performance (10%)	• Outstanding (4) • Good (3) • Fair (2) • Need to be improved (1)
2	Assignment (20%)	• Depth of knowledge (4%) • Analysis (4%) • Interpretation (2%) • Reference and resources (5%) • No plagiarism (5%)	• Outstanding (4) • Good (3) • Fair (2) • Need to be improved (1)
3	Responsibility (10%)	• Report format and typing errors (5%) • On-time submission (5%)	• Highly expressed (4) • Fairly expressed (2-3) • Not shown (1)
4	Punctuality (10%)		• Early (4) • On-time (3) • Late (1-2) • Absent (0)
5	Presentation (20%)	Engaged and compelling communication skills (7%)	• Outstanding (4) • Good (3) • Fair (2) • Need to be improved (1)
		Professional and interpersonal characters (responsibility, teamwork, and leadership) (6%)	• Outstanding (4) • Good (3) • Fair (2) • Need to be improved (1)
		Creative thinking skills (7%)	• Excellent (4) • Good (3) • Fair (2) • Need to be improved (1)

Rubrics for Assessing Program Learning Outcomes (PLOs)

PhD Students

Assessment Criteria		Description (in Details)	Scoring Rubric
1	Punctuality and Responsibility (20%)	Showing up in the class (10%) On-time submission (10%)	- On-time (4) - Late (2-3) - Very late (1)
2	Assignment (20%)	No plagiarism (5%)	- Complete (4) ~ 80% complete (3) ~ 60% complete (2) < 50% complete (1)
		Depth of knowledge (4%)	- Excellent (4) - Good (3) - Fair (2) - Need to be improved (1)
		Article analysis and interpretation (4%)	- Excellent (4) - Good (3) - Fair (2) - Need to be improved (1)
		English and writing skills (1%)	- Excellent (4) - Good (3) - Fair (2) - Need to be improved (1)
		Report format and typing errors (1%)	- Excellent (4) - Good (3) - Fair (2) - Need to be improved (1)
		Reference and resources (5%)	- Excellent (4) - Good (3) - Fair (2) - Need to be improved (1)
3	Discussion Performance (40%)	Synthesis and thought leader (20%)	- Active (4) - Fairly active (2-3) - Inactive (1)
		Organization and line of thoughts (10%)	- Excellent (4) - Good (3) - Fair (2) - Need to be improved (1)
		Originality (10%)	- Highly expressed (4) - Fairly expressed (2-3)

Assessment Criteria		Description (in Details)	Scoring Rubric
			• Not shown (1)
4	Presentation (20%)	Clarity (7%)	• Excellent (4) • Good (3) • Fair (2) • Need to be improved (1)
		Integrative and high-order thinking skills (7%)	• Highly expressed (4) • Fairly expressed (2-3) • Not shown (1)
		Engaged and compelling communication skills (3%)	• Excellent (4) • Good (3) • Fair (2) • Need to be improved (1)
		Professional and interpersonal characters (responsibility, teamwork, and leadership) (3%)	• Excellent (4) • Good (3) • Fair (2) • Need to be improved (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: 7/7/2026