SEMESTER LEARNING PLAN

BASIC BIOLOGY COURSES
(23H04110102)

TEACHING TEAM

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STUDI PROGRAM OF MATHEMATICS - S1
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
HASANUDDIN UNIVERSITY
MAKASSAR
2025

STUDY PROGRAM OF MATEMATIKA - S1
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
HASANUDDIN UNIVERSITY

Vision

The scientific vision is to become a study program with an international reputation in the development of mathematics based on the Indonesian maritime continent by 2030

Vision Strategy

Misson

To fulfill the above vision, the Undergraduate Mathematics Study Program has four missions, namely:

- Organizing innovative and effective mathematics learning to improve the quality and creativity of students in order to compete nationally and internationally.
- Improving a research culture that produces internationally reputable publications.
- Playing an active role in community service activities and collaborating with other academic institutions, government, business, media and society.
- Carry out governance in the Mathematics Study Program that is effective, efficient and transparent based on IT and ISO 9001:2015 standards to achieve the tridharma goals.

Graduate Profiles

Gagal diterjemahkan

PLO charged to courses

CPL-8 (S1) - The students have integrity that highly values the supreme divinity, social responsibility, and professional ethics

CPL-9 (S2) - The students are able to adapt and develop self-abilities, both in mathematics and other relevant areas of science in their professional lives

CPL-1 (ILO 1) - Students are able to demonstrate an advanced understanding of basic pure and simple applied mathematics.

CPL-5 (KK1) - The students are able to construct mathematical modelling with relatively new ideas and present the results orally and in writing

Course Learning Outcomes (CLO)

CPMK-1: Students are able to analyze the basic concepts of organisms, cell function structures, classification and interaction of organisms with the environment (CPL9)

CPMK-2: Students are able to analyze systems in living things and biotechnology concepts and their relationships with applied sciences (CPL9)

Sub-CLO

Sub CPMK-1: Students are able to analyze the basic concepts of organisms, the classification and interaction of organisms with their environment and biological relations with other disciplines (CPMK-1)

Sub CPMK-2: Students are able to analyze the structure of cell organelles and cell metabolism (CPMK-1)

Sub CPMK-3: Students are able to analyze systems in organisms (CPMK-2)

Sub CPMK-4: Students are able to create basic knowledge in the field of biotechnology. (CPMK-2)

Learning Analytics

Basic Biology

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Students are able to create basic knowledge in the field of biotechnology. (CPMK-2)

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Students are able to analyze systems in organisms (CPMK-2)

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Students are able to analyze the structure of cell organelles and cell metabolism (CPMK-1)

↑

Students are able to analyze the basic concepts of organisms, the classification and interaction of organisms with their environment and biological relations with other disciplines (CPMK-1)

HASANUDDIN UNIVERSITY
FAKULTY OF MATHEMATICS AND NATURAL SCIENCES
STUDY PROGRAM OF MATHEMATICS - S1
SEMESTER LEARNING PLAN

Course	Code	Cource Group	Credits	SEMESTER	Compilation Date
Basic Biology	23H04110102	MKWU	2	1	1 Agustus 2025

AUTHORITY	SLP Developer Lecturer	Coordinator	Head of Study Program
	Dr. Ambeng, M.Si.	Dr. Ambeng, M.Si.	Dr. Firman, S.Si.,M.Si.

Learning Outcomes Course	**SLOs that are imposed on the course**	
	SLO-8:	Mahasiswa memiliki integritas yang sangat menghargai keilahian tertinggi, tanggung jawab sosial, dan etika profesional
	SLO-9:	Mahasiswa dapat beradaptasi dan mengembangkan kemampuan diri, baik dalam matematika dan bidang ilmu lain yang relevan dalam kehidupan profesional mereka, dengan budaya belajar sepanjang hayat
	SLO-1:	Mahasiwa memiliki pemahaman yang relatif mendalam dalam matematika murni dan matematika terapan sederhana.
	SLO-5:	Mahasiswa dapat membangun pemodelan matematika dengan ideide yang relatif baru dan mempresentasikan hasil dengan jelas secara lisan dan tertulis
	SLO ⇒ Course Learning Outcomes	
	After completing this course, it is expected:	
	SLO-9	**CLO-1:** Students are able to analyze the basic concepts of organisms, cell function structures, classification and interaction of organisms with the environment
		CLO-2: Students are able to analyze systems in living things and biotechnology concepts and their relationships with applied sciences
	CLO ⇒ Sub-CLO	
	CLO-1	**Sub-CLO-1:**Students are able to analyze the basic concepts of organisms, the classification and interaction of organisms with their environment and biological relations with other disciplines
		Sub-CLO-2: Students are able to analyze the structure of cell organelles and cell metabolism
	CLO-2	**Sub-CLO-3:**Students are able to analyze systems in organisms
		Sub-CLO-4: Students are able to create basic knowledge in the field of biotechnology.
	Correlation between SLOs/CLOs to Sub-CLOs	

SLOs that are charged on the Course	CPMK	SUB CPMK	Form of Assessment*					Weight	Value	Student Score
			Formative	Sumative						
				Gagal diterjemahkan	Gagal diterjemahkan	Written Exam	Gagal diterjemahkan	Written Exam			
SLO-9	CLO-1	SUB-CLO-1		18	0	0	0	0	18		
SLO-9	CLO-1	SUB-CLO-2	Able to analyze 7 concepts/theories about the basic units of life	0	25	25	0	0	50		
SLO-9	CLO-2	SUB-CLO-4	Able to analyze 6 concepts/theories about the basics of biotechnology	0	0	0	7	25	32		
				18	25	25	7	25	100		

Course Description	Brief description of basic biology courses covering basic biological concepts, basic units of life, metabolism, cell division, inheritance of traits, reproduction in organisms, coordination systems in organisms, and homeostasis as well as knowledge of ecology, classification and basics in biotechnology.
Learning Materials/Subjects	1. Introduction 2. Basic concepts biology 3. Classification Living Creatures 4. Ecology 5. Basic units life 6. Cell division & inheritance of traits 7. Cell metabolism (Anabolism). 8. Cell metabolism (Catabolism). 9. System plant reproduction 10. System animal reproduction. 11. System Plant coordination 12. System Animal coordination 13. Homeostasis: circulation & excretion. 14. Basics biotechnology.
	Main References
	Gagal diterjemahkan
	Additional References

Reference	1. Barrett, J, M., 1986. Biology. Prentice-Hall, Englewood Cliffs, New Jersey. 2. Odum, E, P., 1998. Basics of Ecology third edition. UGM Press: Yogyakarta. 3. Rompas, Y., Rampe, H.L., and Rumondor, M.J. 2011. Structure of Epidermal Cells and Stomata of Leaves in Some Orchidaceae Plants. Bioslogos Journal. 1(1): 13-19. 4. Novitasari, R. 2017. Cellular Respiration Process in Plants. Proceedings of the National Seminar on Biology and Biology Education. UNY: FMIPA Biology. 5. Wolf, J.B., Smith, A. C.F., and Lorenz, A. 2022. Mendel's laws of heredity on his 200th birthday: What have we learned by considering exceptions? Heredity. 129: 1-3. 6. Pereira, A. M., and Coimbra, S. 2019.Advances in plant reproduction: from gametes to seeds. Journal of Experimental Botany. 70(11): 2933-2936. 7. Moore, S.G. and Hasier, J.F., 2017. A 100-Year Review: Reproductive Technologies in Dairy Science. Journal of Diary Science. 100(12): 10314-10331. 8. Afrilianti, C., Sataral, M., Eljonnahdi, and Fahri, F. 2019. Description and Habitat of Mycalesis Perseus Fabricius, 1775 (Rhopalocera: Nymphalidae) Cosmopolitan Species in Mountains Tompotika, Sulawesi. Journal of Science and Technology. 8(2): 134-137. 9. Kusmana, C., and Hikmat, A. 2015. Flora Biodiversity in Indonesia. Journal of Natural Resources and Environmental Management. 5(2): 187-198. 10. Mauerhofer, L.M., Pappenreiter, P.,Paulik, C., Selfert, A. H., Bernacchi, S., and Rittmann, S.K.M.R. 2019. Methods for quantification of growth and productivity in anaerobic Microbiology and Biotechnology. Folla Microbiol. 64: 321-260.
Teaching Team	Dr. Ambeng, M.Si.
Course requirement	

Week	**Sub CPMK (End-of-stage learning ability)**	**Penilaian (*Assesment*)**		**Learning Forms and Methods [time estimate]**		**Content**	**Weight of Assessment (%)**
		Indicator	**Techniques & Criteria**	**Offline**	**Online**		
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1-4	Students are able to analyze the basic concepts of organisms, the classification and interaction of organisms with their environment and biological relations with other disciplines (CPMK-1)	**Formative:** 1. Analyze the scope of activities and materials in the Basic Biology course. 2. Able to analyze material about biological definitions. 3. Able to analyze the role of biology and its relationship with other scientific disciplines 4. Able to analyze the characteristics of life **Sumative:** Gagal diterjemahkan	**Formative Criteria:** **Sumative Criteria:** Collaborative Learning (CoL) (18) **Assessment Technique:** Non Test	**Studying:** Case Study (Case Study) {1x(2 x 50")}	**Studying:** Self-Directed Learning [(1+1)x(2x60")]	• College Contract, Group Formation, and Introductory Material • Main Reference: numbers 1 and 2 • Supporting References : numbers 2 and 3	18

5-8	Students are able to analyze the structure of cell organelles and cell metabolism (CPMK-1)	**Formative:** 1 . Able to analyze the development of cell theory 2. Able to evaluate differences in basic cell structure and function 3. Able to analyze prokaryotic cells 4. Able to analyze eukaryotic cells **Sumative:** Gagal diterjemahkan	**Formative Criteria:** Able to analyze 7 concepts/theories about the basic units of life **Sumative Criteria:** Case Study (CS) (25) Written Exam (25) **Assessment Technique:** Test and Non-Test	**Studying:** Self-Directed Learning {1x(2 x 50")}	**Studying:** Self-Directed Learning [(1+1)x(2x60")]	• Reference Main: numbers 1 and 2 • Reference Supporters: numbers 2 and 3	50
9-13	Students are able to analyze systems in organisms (CPMK-2)	**Formative:** Gagal diterjemahkan **Sumative:** Gagal diterjemahkan	**Formative Criteria:** **Sumative Criteria:** **Assessment Technique:** Non Test			Gagal diterjemahkan	0
14-16	Students are able to create basic knowledge in the field of biotechnology. (CPMK-2)	**Formative:** 1 . Able to analyze the basics of biotechnology 2. Can analyze the definition of biotechnology 3. Able to analyze the relationship between biotechnology and other scientific disciplines 3. Able to analyze a brief history of the development of biotechnology 4. Able to evaluate types of biotechnology 5. Able to be creative in the role of biotechnology **Sumative:** Gagal diterjemahkan	**Formative Criteria:** Able to analyze 6 concepts/theories about the basics of biotechnology **Sumative Criteria:** Pjbl (Project Base Learning) (7) Written Exam (25) **Assessment Technique:** Test and Non-Test	**Studying:** Group discussion (Small Group Discussion), Project-Based Learning (Project-based Learning) (2 x 50")	**Studying:** Self-Directed Learning [(1+1)x(2x60")]	• Primary Reference: number 1 and 4 • Supporting References : number 10	32

	100

Matrix of SLO, CLO, and Assessment Method

SLO / CLO	CLO-1	CLO-2
CPL-1 (ILO 1)		
CPL-5 (KK1)		
CPL-8 (S1)		
CPL-9 (S2)	data not found (Weight 18%) data not found (Weight 25%) Written Exam (Weight 25%)	data not found (Weight 7%) Written Exam (Weight 25%)

Evaluation Type and Assessment Weight

Type	Assessment Weight
Collaborative Learning (CoL)	18
Case Study (CS)	25
Written Exam	25
Pjbl (Project Base Learning)	7
Written Exam	25
Total	100

Assessment and Evaluation of Student Achievement of CLOs

SLOs that are charged on the Course	CLO	SUB CLO	Form of Assessment*					Weight	Value	Student Score
			Formative	Sumative						
				Gagal diterjemahkan	Gagal diterjemahkan	Written Exam	Gagal diterjemahkan	Written Exam			
SLO-9	CLO-1	SUB-CLO-1		18	0	0	0	0	18		
SLO-9	CLO-1	SUB-CLO-2	Able to analyze 7 concepts/theories about the basic units of life	0	25	25	0	0	50		
SLO-9	CLO-2	SUB-CLO-4	Able to analyze 6 concepts/theories about the basics of biotechnology	0	0	0	7	25	32		
				18	25	25	7	25	100		