COURSE PORTFOLIO

Study Program	:	MATHEMATICS - S1
Semester	:	ODD 2024/2025
Course Code	:	23H01131403
Course Name	:	Biological Mathematics
Coordinator	:	Prof. Dr. Syamsuddin Toaha, M.Sc.
Lecturer Team Member	:	Prof. Dr. Syamsuddin Toaha, M.Sc., Prof. Dr. Kasbawati, S.Si., M.Si.

Implementation of Learning

Description of the implementation of the lecture, the suitability of what was planned in the RPS with what was done:

Number and percentage of lecturer and student attendance
(data source: monitoring the attendance of lecturers and students)

	Lecturer Attendance			Student Attendance
Biological Mathematics	Prof. Dr. Syamsuddin Toaha, M.Sc. Prof. Dr. Kasbawati, S.Si., M.Si. Total Meeting : 16 times.	: :	8 times 8 times	Number of students: 45 persons Presence ≥ 80% : 44 persons (97.78 %) Presence < 80% : 1 person (2.22 %)

Materials/practicum provided

1. Dimensional analysis in mathematical physiology (Dimensional analysis in mathematical physiology)
2. Mathematics of Diffusion (The mathematics of diffusion)
3. Pharmacokinetics (Drug distribution in pharmacology)
4. Mathematical Models in Epidemiology (Mathematical modeling in epidemiology)
5. Harvesting (Mathematical Model of Harvesting)
6. Leslie Matrix: Age Structure Model (Mathematical Model with Age Structured: Leslie Matrix)
7. Harvesting with Age Structure (Mathematical Model of Harvesting with Age Structured)
8. Forest harvesting model

The learning methods implemented

Meeting 1

Lecture: Collaborative learning (Collaborative Learning)

TM: 1x3x50 minutes; PT: 1x3x60; BM: 1x3x50;

2-3 Meetings

Lecture: Case Study (Case Study),Learning collaborative (Collaborative Learning)

TM: 2x3x50 minutes; PT: 2x3x60; BM: 2x3x50;

4-5 Meetings

Lecture: Case Study (Case Study),Learning collaborative (Collaborative Learning)

TM: 2x3x50 minutes; PT: 2x3x60; BM: 2x3x50;

6-8 Meetings

Lecture: Case Study (Case Study),Learning collaborative (Collaborative Learning)

TM: 2x3x50 minutes; PT: 2x3x60; BM: 2x3x50;

9-11 Meeting

Lecture: Case Study (Case Study),Learning collaborative (Collaborative Learning)

TM: 2x3x50 minutes; PT: 2x3x60; BM: 2x3x50;

12-13 Meeting

Lecture: Case Study (Case Study),Learning collaborative (Collaborative Learning)

TM: 2x3x50 minutes; PT: 2x3x60; BM: 2x3x50;

14-15 Meeting

Lecture: Case Study (Case Study),Learning collaborative (Collaborative Learning)

TM: 2x3x50 minutes; PT: 2x3x60; BM: 2x3x50;

Meeting 16

Lecture: Collaborative learning (Collaborative Learning)

TM: 1x3x50 minutes; PT: 1x3x60; BM: 1x3x50;

The assessment method implemented

1. Case Studies
2. Group task
3. Independent Assignment

Supplementary information (if available)

None

2. Learning Outcomes

Measurement results of CLO

Assessment and Evaluation of Student Achievement of CLO[a]

LOs that are charged to the Course	CLO	Assessment Form	Weight	Average student score (0-100)
KK1	CLO-1	Independent Assignment	5.00 %	62.08
KK1	CLO-1	Independent Assignment	10.00 %	72.24
KK1	CLO-1	Case Studies	10.00 %	6.31
KK1	CLO-2	Case Studies	30.00 %	21.93
KK1	CLO-2	Independent Assignment	5.00 %	58.45
KK1	CLO-2	Group task	20.00 %	12.83
KK1	CLO-2	Case Studies	5.00 %	62.02
KK1	CLO-3	Group task	20.00 %	12.83
KK1	CLO-3	Independent Assignment	5.00 %	58.45
KK1	CLO-3	Case Studies	10.00 %	5.89
KK1	CLO-3	Case Studies	5.00 %	62.02
KK1	CLO-4	Group task	20.00 %	12.83
KK1	CLO-4	Case Studies	5.00 %	62.02
KK1	CLO-4	Case Studies	10.00 %	5.89
KK1	CLO-4	Case Studies	30.00 %	21.93
KK1	CLO-4	Independent Assignment	5.00 %	63.33
KK1	CLO-5	Case Studies	10.00 %	5.48
KK2	CLO-1	Case Studies	10.00 %	6.31
KK2	CLO-1	Independent Assignment	10.00 %	72.24
KK2	CLO-1	Independent Assignment	5.00 %	62.08
KK2	CLO-2	Group task	20.00 %	12.83
KK2	CLO-2	Case Studies	30.00 %	21.93
KK2	CLO-2	Case Studies	5.00 %	62.02
KK2	CLO-2	Independent Assignment	5.00 %	58.45
KK2	CLO-3	Group task	20.00 %	12.83
KK2	CLO-3	Case Studies	10.00 %	5.89
KK2	CLO-3	Case Studies	5.00 %	62.02
KK2	CLO-3	Independent Assignment	5.00 %	58.45
KK2	CLO-4	Group task	20.00 %	12.83
KK2	CLO-4	Case Studies	30.00 %	21.93
KK2	CLO-4	Independent Assignment	5.00 %	63.33
KK2	CLO-4	Case Studies	10.00 %	5.89
KK2	CLO-4	Case Studies	5.00 %	62.02
KK2	CLO-5	Case Studies	10.00 %	5.48
KK3	CLO-4	Case Studies	10.00 %	5.89
KK3	CLO-4	Independent Assignment	5.00 %	63.33
KK3	CLO-4	Case Studies	5.00 %	62.02
KK3	CLO-4	Group task	20.00 %	12.83
KK3	CLO-4	Case Studies	30.00 %	21.93

LOs that are charged to the Course	CLO	Assessment Form	Weight	Average student score (0-100)
KK3	CLO-5	Case Studies	10.00 %	5.48

a: result criteria: very satisfactory if the average score is ≥ 80; satisfactory if the average score is 70 - 79.9; unsatisfactory if the average score is < 70.

Percentage of students who achieved a very satisfactory CLO score [b]

(data source: student scores per assessment according to CLOs)

CLO	% of students who achieved a CLO score of at least 80
CLO-1	64.44%
CLO-2	8.89%
CLO-3	0.00%
CLO-4	13.33%
CLO-5	31.11%

b: result criteria: very satisfactory if ≥80% of students score ≥80; satisfactory if 70%-79.9% of students score ≥80; less satisfactory if < 70% of students score ≥80.

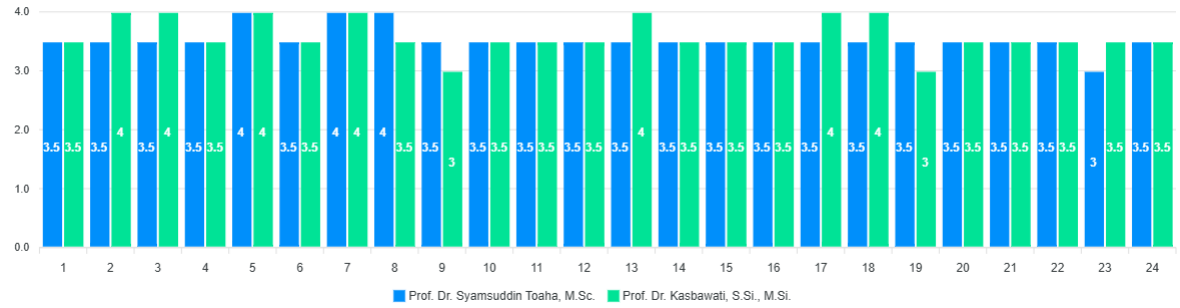
Course Grade

Course Grade	Number and Percentage of Students
A	0 (0.0%)
A-	4 (8.9%)
B+	7 (15.6%)
B	14 (31.1%)
B-	7 (15.6%)
C+	1 (2.2%)
C	1 (2.2%)
D	0 (0.0%)
E	8 (17.8%)

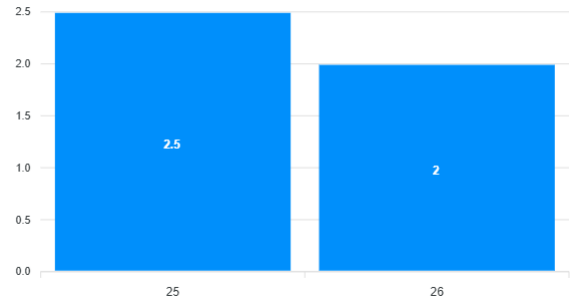
3. Learning evaluation (survey) results

(data source: items / narratives of the results of the MK evaluation questionnaire by students)

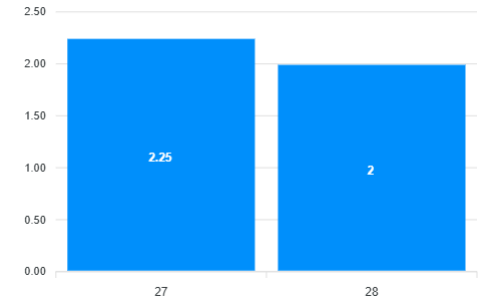
Grafik Kuisioner Pembelajaran Matakuliah Matematika Biologi



Grafik Kuisioner Pembelajaran



Grafik Kuisioner Pembelajaran



Keterangan Nilai

Pertanyaan 1-24:

- 4 : Sangat Setuju/ Sangat Baik
- 3 : Setuju / Baik
- 2 : Ragu-ragu / Cukup
- 1 : Tidak Setuju / Kurang

Pertanyaan 25 dan 26: (WE = Waktu Efektif)

- 5 : WE > 200 menit
- 4 : 180 menit < WE <=200 menit
- 3 : 120 menit < WE <=180 menit
- 2 : 60 menit < WE <=120 menit
- 1 : 1WE <= 60 menit

Pertanyaan 27:

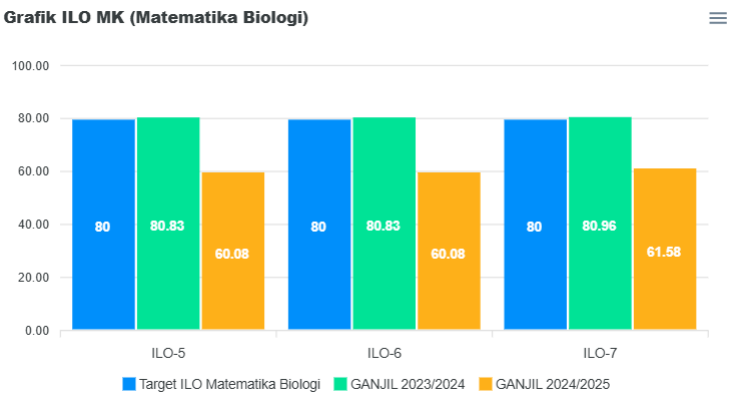
- 3 : Lebih Banyak
- 2 : Sama
- 1 : Lebih Sedikit

Pertanyaan 28:

- 3 : Sama
- 2 : Cukup Sesuai
- 1 : Kurang Sesuai

Informasi Pertanyaan Kuisioner

1. Dosen Menyampaikan Rancangan Pembelajaran Semester (RPS) dan Kontrak Perkuliahan di awal Perkuliahan dengan Jelas
2. Dosen Menjalankan Proses Pembelajaran yang berpusat pada mahasiswa (Student Centered Learning)
3. Dosen Menyiapkan materi Pemebelajaran dan sumber daya pensukung pwmbelajaran (diktat, slide, kasus, tugas, bahan ujian, dsb)
4. Dosen menjelaskan materi dengan baik dan jelas
5. Dosen memberikan materi setiap minggu sesuai dengan Rancangan Pembelajaran Semester (RPS) matakuliah
6. Dosen mempunyai kepedulian dan membantu mahasiswa dalam pemaham penguasaan suatu materi
7. Dosen Memberikan Penilaian dengan jelas dan sesuai dengn kontrak perkuliahan yang telah disepakati
8. Dosen memberikan umpan balik dengan memberikan komentar secara lengkap
9. Saya memahami materi kuliah setelah menyelesaikan perkuliahan ini
10. Matakuliah yang diberikan menstimulasi kemampuan intelektual saya
11. Tingkat kehadiran saya dalam matakuliah ini sangat tinggi (lebih dari 80% pertemuan)
12. Dosen menggunakan lebih dari satu metode penilaian (Assessment Metho
13. Jadwal matakuliah telah diinformasikan di SIM secara jelas sebelum perkuliahan dimulai
14. Dosen memberikan kuliah sesuai dengan jadwal kuliah yang telah ditetapkan
15. Dosen hadir tepat waktu sesuai dengan jadwal kuliah yang telah ditetapk
16. Dosen menyelesaikan perkuliahan tepat waktu sesuai dengan jadwal kuliah yang telah ditetapkan
17. Tersedia buku acuan/modul/ringkasan materi/slide matakuliah untuk semua materi yang diberikan
18. Buku acuan/modul/ringkasan materi/slide matakuliah yang diberikan berr dan uptodate dangan perkembangan yang ada
19. Selama Kualiah daring, fasilitas perkuliahan cukup memadai
20. Saya menggunakan SIKOLA sebagai wadah pembelajaran
21. Layanan Perpustakaan Prodi/Departemen/Fakultas/Universitas sangat me dalam proses pembelajaran
22. Beban sks matakuliah ini sudah sesuai dengan kompetensi yang akan dicapai (Catatan : 1 sks setara dngan 170 menit kegiatan belajar setiap pekan per semester)
23. Saya menggunakan SIKOLA sebagai wadah pembelajaran
24. Layanan Perpustakaan Prodi/Departemen,Universitas sangat membantu proses pembelajaran
25. Rata-rata Waktu Efektif (dalam menit) yang anda habiskan dalam seminggu (di luar jam perkuliahan)untuk menyelesaikan tugas terstrukturpada matakuliah ini
26. Rata-rata Waktu Efektif (dalam menit) yang anda habiskan dalam seminggu (di luar jam perkuliahan) unuk belajar mandiri pada matakuliah ini
27. Dibandingkan dengan matakuliah yang lainnya, jumlah waktu yang anda h khusus untuk matakuliah ini
28. Alokasi waktu yang digunakan untuk menyelesaikan tugas yang diberikan matakuliah ini



Hasil Pengukuran CPL MK Matematika Biologi

4. Analysis and Reflection

Analysis and reflection

Analysis

1. Performance Collapse from Superior Level to Below Standard Level

Data analysis shows a very drastic and systemic collapse in performance. Courses which in the Odd 2023/2024 period showed very superior performance with all CPLs exceeding the target of 80 (average score 81), in the Odd 2024/2025 period fell significantly. The entire CPL is now well below target, with a low score range of 60 to 62.

2. Uniform Decline Pattern in All CPLs

The decline that occurred had a very uniform pattern, where each CPL experienced a decline of around 20 points. This uniformity is an important finding, because it indicates that the cause of the decline is most likely a single factor that has an even impact on all aspects of learning, rather than a problem on a specific topic.

Reflection

1. Indication of Fundamental Changes That Have a Negative Impact

The drastic fall in performance from a very high level reflects the high possibility that fundamental changes have occurred that have a negative impact on course implementation between 2023/2024 and 2024/2025. This reflection directs investigation into systemic factors, such as changes in lecturers, overhaul of the syllabus, or the implementation of a new final evaluation system that has proven to be ineffective.

2. The Need for Emergency Investigation to Find the Root of the Problem

A decrease of 20 points is an emergency condition (red flag) which reflects the need for immediate investigation to find the root of the problem. Follow-up cannot be partial, but must take the form of an in-depth comparative analysis between the two periods. By comparing teaching methods, materials, and evaluation instruments, we can identify the factors causing this collapse and formulate strategies to return courses to their standards of excellence.

5. Follow-up Plan

In response to the sharp and uniform decline in performance in the Mathematics Biology Subject, where CPL attainment fell from above target levels of 80 to around 61, the action plan will focus on in-depth comparative investigations to identify the fundamental causes of this change. This investigation will prioritize analyzing differences between the 2023/2024 and 2024/2025 periods in three crucial aspects: the teaching materials used, and the final evaluation instrument (UTS/UAS) to review any changes in the level of difficulty or coverage of the material. The aim is to quickly find the factors causing the decline and reapply successful elements from the previous year in order to return student achievement to the target standard of 80 in the following semester.

6. Follow-up results on the previous semester's evaluation

Following up on the findings of the previous semester's evaluation for the Mathematics Biology Course, which showed a uniform decline in performance from a superior level (average 81 in Odd 2023/2024) to a below standard level (average 61 in Odd 2024/2025), an investigation has been implemented. Changes to learning methods and evaluation instruments. The validity and harmony of the final assessment is a crucial factor and emphasizes the need to standardize the evaluation process to ensure consistent quality in the future.

Makassar, 15 Oktober 2025

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