SEMESTER COURSE PLAN

RESEARCH METHODOLOGY COURSES
(23H06130102)

TEACHING TEAM

Prof. Dr. Eng. Amiruddin, S.Si, M.Si.
197205151997021002

Drs. Erfan, M.Si.
196709032001121001

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

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

Vision

Become a program Reliable studies in the field of geophysics to produce superior graduates and mastering science, technology, arts and culture based on BMI in 2030.

Vision Strategy

Misson

Based on the Vision above, the Geophysics Study Program has a mission:

1. Improving the quality of education to produce graduates who are competitive, able to work independently and in groups in implementing and developing BMI science and technology;

2. Carrying out research to produce reliable and competitive scientific work oriented towards the scientific development of solid geophysics, marine geophysics, geoinformatics and hydro-meteorology;

3. Disseminate the results of applied research, action studies and appropriate technology packages in synergistic and accelerated productive activities to improve the quality of life of the community.

Graduate Profiles

Educators in the Field of Geophysics; meteorologist; geomaths; oceanographer; exploration geophysicist; seismologist ; geophysical entrepreneur.

PLO charged to courses

CPL-6 (P3) - Mastering the principles and methods of exploration geophysics in the analysis and interpretation of Geophysical measurement data;

CPL-7 (P4) - Master the principles and current issues of natural disasters and how to mitigate disaster risks

CPL-8 (KU1) - Able to apply logical, critical, systematic and innovative thinking in developing or applying geophysical science by considering human values, and able to analyze and communicate case studies and research results using geophysical tools through scientific reports, international presentations and article publications, as well as uploading them on the university website.

CPL-10 (KU3) - Able to make the right decisions in solving problems, verifying information, and analyzing data in the field of applied geophysics—especially in land use studies and environmental studies—by using modern geophysical analysis and computing tools based on the results of information and data analysis, to carry out the process of evaluating, documenting, and rediscovering data to ensure validity and prevent plagiarism

CPL-13 (KK3) - Able to formulate alternative solutions to solve disaster mitigation problems by taking into account public safety, social and environmental factors

CPL-14 (KK4) - Able to investigate potential natural resources and utilize appropriate information and computing technology-based instruments to carry out natural resource exploration and natural disaster mitigation activities

Course Learning Outcomes (CLO)

CPMK-1: Able to prepare proposals to research reports equivalent to a thesis. (CPL6 dan CPL7)

CPMK-2: Able to prepare manuscripts in international scientific journals for publication of research results (CPL8, CPL10, CPL13 dan CPL14)

Sub-CLO

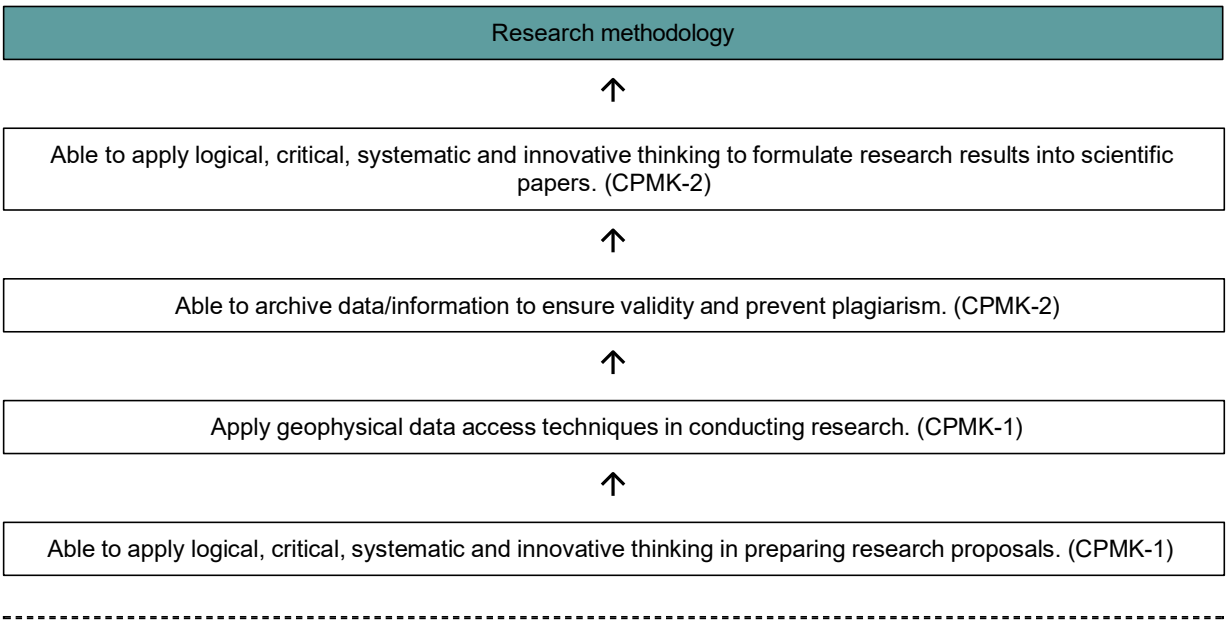
Sub CPMK-1: Able to apply logical, critical, systematic and innovative thinking in preparing research proposals. (CPMK-1)

Sub CPMK-2: Apply geophysical data access techniques in conducting research. (CPMK-1)

Sub CPMK-3: Able to archive data/information to ensure validity and prevent plagiarism. (CPMK-2)

Sub CPMK-4: Able to apply logical, critical, systematic and innovative thinking to formulate research results into scientific papers. (CPMK-2)

Learning Analytics



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

Course	Code	Cource Group	Credits	SEMESTER	Compilation Date
Research methodology	23H06130102		2	5	1 Juli 2025

AUTHORITY	SLP Developer Lecturer	Coordinator	Head of Study Program
	Prof. Dr. Eng. Amiruddin, S.Si, M.Si., Drs. Erfan, M.Si.	Prof. Dr. Eng. Amiruddin, S.Si, M.Si.	Dr. Muhammad Alimuddin, Eng.

Learning Outcomes Course	**SLOs that are imposed on the course**	
	SLO-6:	Menguasai prinsip dan metode geofisika eksplorasi dalam analisis dan interpretasi data pengukuran Geofisika;
	SLO-7:	Menguasai prinsip dan issue terkini bencana alam dan bagaimana memitigasi resiko bencana
	SLO-8:	Mampu menerapkan pemikiran logis, kritis, sistematis, dan inovatif dalam mengembangkan atau menerapkan ilmu geofisika dengan mempertimbangkan nilai-nilai kemanusiaan, serta mampu menganalisis dan mengkomunikasikan studi kasus dan hasil penelitian menggunakan perangkat geofisika melalui laporan ilmiah, presentasi internasional, dan publikasi artikel, serta mengunggahnya pada laman universitas.
	SLO-10:	Mampu mengambil keputusan yang tepat dalam memecahkan masalah, memverifikasi informasi, dan menganalisis data pada bidang geofisika terapan—khususnya dalam kajian tata guna lahan dan studi lingkungan—dengan menggunakan perangkat analisis dan komputasi geofisika modern berdasarkan hasil analisis informasi dan data, untuk melaksanakan proses evaluasi, pendokumentasian, serta penemuan kembali data guna menjamin validitas dan mencegah plagiasi
	SLO-13:	Mampu merumuskan alternatif solusi untuk menyelesaikan masalah mitigasi bencana dengan memperhatikan faktor-faktor keselamatan publik, sosial dan lingkungan
	SLO-14:	Mampu menyelidiki potensial sumberdaya alam dan memanfaatkan instrumen yang berbasis teknologi informasi dan komputasi yang sesuai untuk melakukan aktivitas eksplorasi SDA dan Mitigasi Bencana Alam
	SLO ⇒ Course Learning Outcomes	
	After completing this course, it is expected:	
	SLO-6	**CLO-1:** Able to prepare proposals to research reports equivalent to a thesis.
	SLO-7	**CLO-1:** Able to prepare proposals to research reports equivalent to a thesis.
	SLO-8	**CLO-2:** Able to prepare manuscripts in international scientific journals for publication of research results
	SLO-10	**CLO-2:** Able to prepare manuscripts in international scientific journals for publication of research results
	SLO-13	**CLO-2:** Able to prepare manuscripts in international scientific journals for publication of research results

SLO-14	**CLO-2:** Able to prepare manuscripts in international scientific journals for publication of research results
CLO ⇒ Sub-CLO	
CLO-1	**Sub-CLO-1:**Able to apply logical, critical, systematic and innovative thinking in preparing research proposals.
	Sub-CLO-2: Apply geophysical data access techniques in conducting research.
CLO-2	**Sub-CLO-3:**Able to archive data/information to ensure validity and prevent plagiarism.
	Sub-CLO-4: Able to apply logical, critical, systematic and innovative thinking to formulate research results into scientific papers.

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					
				Project/Case Study	Summative Test	Summative Test			
SLO-7	CLO-1	SUB-CLO-1	participation and participation	50	0	8.82	58.82		
SLO-7	CLO-1	SUB-CLO-2	participation	0	10	1.76	11.76		
SLO-14	CLO-2	SUB-CLO-3	participation	25	0	4.41	29.41		
				75	25	25	100		

Course Description	This course is offered in the third year for Geophysics Study Program students. This course discusses the systematic steps used to plan, carry out and analyze research. Research methods depend on the type of research being conducted and the research questions to be answered.
Learning Materials/Subjects	1. Operational concepts and definitions (What do you want to express and how to measure it) 2. Problem formulation and hypothesis (What relationship do you want to know, and future prediction results) 3. Conceptual framework (Concepts used and their relationship to each other, and their measurement) 4. Create a definition 5. Definition type 6. Opposition/proposition/hypothesis (Temporary accusation regarding the formulation of the problem raised) 7. Theory construction (Theory consists of several hypotheses whose validity has been tested) 8. Writing research proposals

Reference	**Main References**
	1. Kothari, CR, 2004, Research Methodology: Methods and Techniques, Second Revised Edition, New Age International Publishers 2. Siyoto S. & Sodik A., 2015, Basic Research Methodology, Media Literacy Publishing, Yogyakarta.
	Additional References
	3. Hardani, Auliya N., Andriani H., Fardani, R., Ustiawaty J., Utami E., Sukmana D., & Istiqomah R., 2020, Research Methods BookQualitative & Quantitative, CV. Science Library.
Teaching Team	Prof. Dr. Eng. Amiruddin, S.Si, M.Si., Drs. Erfan, 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	Able to apply logical, critical, systematic and innovative thinking in preparing research proposals. (CPMK-1)	**Formative:** Accuracy in analyzing and explaining and create Sumative: -	**Formative Criteria:** participation dinilai dengan rubrik 1 **Sumative Criteria:** Project/Case Study (15) dinilai dengan rubrik 1 **Assessment Technique:** Non Test	**Studying:** Group discussion (Small Group Discussion), Case Study (Case Study) None		Concepts and definitions operational (What you want style="font-size: var(--bs-body-font-size); font-weight: var(--bs-body-font-weight); text-align: var(--bs-body-text-align);">and how measure it), Form problem and hypothesis (What relationship what you want to know, and prediction result to front), Body conceptual is used and relationship to each other, measurement) Create definition, Type definition	15

5-8	Apply geophysical data access techniques in conducting research. (CPMK-1)	**Formative:** Precision in analyzing and describe conclusion **Sumative:** -	**Formative Criteria:** participation dinilai dengan rubrik 1 **Sumative Criteria:** Summative Test (10) dinilai dengan rubrik 1 **Assessment Technique:** Non Test	**Studying:** Group discussion (Small Group Discussion), Case Study (Case Study) None		Create proposition/hipothesis, (Accusation formulation problem raised), (Theory consists of somehypothesis that tested validity)	10
9-12	Able to archive data/information to ensure validity and prevent plagiarism. (CPMK-2)	**Formative:** Precision in analyzing and describe conclusion **Sumative:** -	**Formative Criteria:** participation dinilai dengan rubrik 1 **Sumative Criteria:** Project/Case Study (25) dinilai dengan rubrik 1 **Assessment Technique:** Non Test	**Studying:** Group discussion (Small Group Discussion), Case Study (Case Study) None		Writing a proposal research	25

13-16	Able to apply logical, critical, systematic and innovative thinking in preparing research proposals. (CPMK-1)	**Formative:** Precision in analyzing and describe conclusion **Sumative:** -	**Formative Criteria:** participation dinilai dengan rubrik 1 **Sumative Criteria:** Project/Case Study (35) dinilai dengan rubrik 1 **Assessment Technique:** Non Test	**Studying:** Group discussion (Small Group Discussion), Case Study (Case Study) None		Thesis writing,Completions, Convert thesis to 35	
16	Written Examination						15
							100

Matrix of SLO, CLO, and Assessment Method

SLO / CLO	CLO-1	CLO-2
CPL-6 (P3)	Project/Case Study (Weight 50%) Summative Test (Weight 10%)	
CPL-7 (P4)	Project/Case Study (Weight 50%) Summative Test (Weight 10%)	
CPL-8 (KU1)		Project/Case Study (Weight 25%)
CPL-10 (KU3)		Project/Case Study (Weight 25%)
CPL-13 (KK3)		Project/Case Study (Weight 25%)
CPL-14 (KK4)		Project/Case Study (Weight 25%)

Evaluation Type and Assessment Weight

Type	Assessment Weight
Project/Case Study	75
Summative Test	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					
				Project/Case Study	Summative Test	Summative Test			
SLO-7	CLO-1	SUB-CLO-1	participation and participation	50	0	8.82	58.82		
SLO-7	CLO-1	SUB-CLO-2	participation	0	10	1.76	11.76		
SLO-14	CLO-2	SUB-CLO-3	participation	25	0	4.41	29.41		
				75	25	25	100		

Lampiran Rubrik 1 | Rubrik Holistik

Tabel 6. 1 Rubrik Holistik

Grade Capaian	Skor	Uraian
Sangat Baik	≥ 85	Memperlihatkan pemahaman yang lengkap tentang permasalahan. Semua metode dan persyaratan tentang tugas terdapat dalam jawaban
Baik	71 - 84	Memperlihatkan cukup pemahaman tentang permasalahan. Semua persyaratan tentang tugas terdapat dalam jawaban
Cukup Baik	61 - 70	Memperlihatkan hanya sebagian pemahaman tentang permasalahan. Kebanyakan persyaratan tentang tugas terdapat dalam jawaban
Kurang	51 - 60	Memperlihatkan sedikit pemahaman tentang permasalahan. Banyak persyaratan tugas yang tidak ada
Sangat kurang	< 51	Memperlihatkan tidak ada pemahaman tentang permasalahan