PROGRAM PLAN AND SEMESTER LEARNING ACTIVITIES (RPKPS) SCHOOL YEAR 2021/2022

Geophysical Geostatistics

MFG 4711/ 3 credits

Mentoring Team:

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UNIVERSITAS GADJAH MADA FACULTY OF MATHEMATICS AND NATURAL SCIENCES 2021

	Gadjah Mada University Faculty of Mathematics and Natural Sciences Department of Physics / S1 Geophysics Study Program Academic Year 2021/2022	**Document Code:** ....

SEMESTER LEARNING PROGRAM AND ACTIVITY PLAN (RPKPS)

Course Code	Course Name	Weight (credit)		Semester	Course Status	Prerequisite Courses
MFG 4711	*Geostatistics*	*T :*	*P: -*	*Even*	*Mandatory*	*Computational Methods (MFG-1102)*

Course Brief Description	One of the programs in the implementation of Quality Assurance of the learning process at Gadjah Mada University is to gradually write a Semester Learning Activity Program Plan (RPKPS). This is a preparation material for lecturers to teach certain courses, which aims to arouse students' independent learning motivation, based on five pillars of the learning process that need to be considered, namely: real problems, related to other disciplines, international insight, utilizing information technology, and innovative / creative. Geostatistics courses are new, as a substitute for compulsory courses, namely "Statistical Methods", which are very general in nature and are taught by Lecturers of the Department of Mathematics.The contents of this RPKPS mainly are: Brief description of courses, learning objectives, number of hours and distribution of learning materials (face-to-face, assignments, etc.), Weekly learning activity plans, evaluation of learning outcomes, teaching materials or materials, and the main appendix in the form of impressions for presentations in the form of MS Power Point. In addition, additional materials are also attached for lecturers, such as examples of exam questions, and so on.

Learning Outcomes n Graduates (CPL) Charged to MK	**CPL-1**	**Good Attitude**: Graduates are honest, disciplined, curious, critical, confident, independent, emotionally mature, cooperative, and trustworthy. Uphold norms, values, morals, religion, general ethics and professional ethics, and actively play a role in the global movement of sustainable development and behave professionally
	CPL-2	**Mastery of knowledge:** Graduates are able to apply basic science (mathematics, physics, chemistry, biology, geology), and geophysics in general and their relationship with other sciences such as geology, geodesy, geochemistry, geography, computing and information technology
	CPL5	**Synthesis and Evaluation Skills** : Graduates are able to interpret geophysical data in the form of solving advanced and reverse problems (inverse problems) in an integrated manner that have ambiguous characters, carry out interpretation by making models and / or solving simple forward and reverse problems and are skilled in the use of computers both for the purposes of solving geophysical problems and for communication and internet access

Learning Outcomes n Courses (CPMK)	**After completing the learning of this course, students are expected to be able to:**	
	CPMK-1	Students have good motivation in studying geostatistics [CPL-1]
	CPMK-2	Students are able to understand the basic principles of discriptive statistics [CPL-2]
	CPMK-3	Students are able to understand the consequences of statistical assumptions on geophysical data / variables as spatial variables (regionalized) and their application to earth data (krigging, reservoir simulation, modeling.dll) [CPL-5]

CPL mapping with CPMK					
			CPMK1	CPMK2	CPMK3
		CPL-1			
		CPL-2			
		CPL-5			

CPMK link with Learning Material and Form, as well as Time Allocation		Learning Materials	Forms of Learning	Time Allocation
	CPMK-1	Introduction, Gestatistika, Basics of statistics	TCL - SCL mixed	2 Hours
	CPMK-2	Frequency Distribution	TCL - SCL mixed	2 Hours
	CPMK-2	Middle Size. Dispersion size	TCL - SCL mixed	2 Hours
	CPMK-2	Odds or Probabilities	TCL - SCL mixed	2 Hours
	CPMK-2	Random Variables.	TCL - SCL mixed	2 Hours
	CPMK-2	Probability distribution of random variables	TCL - SCL mixed	2 Hours
	CPMK-2	Statistical sampling distribution	TCL - SCL mixed	2 Hours
	UTS/Project Task Results/Case Analysis			
	CPMK-3	Inferential Statistics	TCL - SCL mixed	2 Hours
	CPMK-3	Spatial correlation	TCL - SCL mixed	2 Hours
	CPMK-3	Spatial correlation	TCL - SCL mixed	2 Hours
	CPMK-3	Collection and processing of geostatistical data	TCL - SCL mixed	2 Hours
	CPMK-3	Kriging	TCL - SCL mixed	2 Hours
	CPMK-3	Kriging	TCL - SCL mixed	2 Hours
	CPMK-3	Stochastic simulation.	TCL - SCL mixed	2 Hours
	UAS/ Project Task Results/ Case Analysis			

Learning Methods	TCL - SCL mixed
Student Learning Experience	Take lectures, discussions, and take tests
Access Learning Media/ LMS and Percentage	LCD, Presentation slides, Laptop, Zoom Meeting and Google meet

Offline &; Online						
Assessment Methods and Alignment with CPMK	**Assessment Techniques**	**Assessment Percentage**	**Criteria/ Indicators**	**CPMK-1**	**CPMK-2**	**CPMK -3**
	Participatory Activities[*)]	**10**	**Liveliness**			
	***Project Results/*Case Study Results/PBL Results**[*)]					
	Cognitive					
	Assignment	**25**	**Task grades**			
	Quiz	**5**	**Quiz value**			
	UTS	**30**	**UTS scores**			
	UAS	**30**	**UAS value**			
	Total	**100**				
	[*)] can also be obtained from UTS or UAS which is the result of participatory activities or *project* / case study results. In accordance with IKU 7, **the percentage of** participatory activities and project results/case studies/PBL results is at least 50%.					

Reference List	- Waluyo, 2013, Geostatistics Textbook, Geophysics Study Program, FMIPA, Universitas Gadjah Mada. - McKillup, S., &; Dyar, M. (2010). Frontmatter. In *Geostatistics Explained: An Introductory Guide for Earth Scientists* (pp. I-IV). Cambridge: Cambridge University Press. - Sarma, D.D., 2009, Geostatistics with Applications in Earth Sciences., Copublished by Springer, P.O. Box 17, 3300 AA Dordrecht, The Netherlands with Capital Publishing Company, New Delhi, India. - Pyrcz, M.J., and Deutsch, C.V., 2014, Geostatistical reservoir modeling, Oxford University Press, 198 Madison Avenue, New York, NY 10016 - Munadi, S, 2005, Introduction to Geostastics, Postgraduate Program in Physics Specialization of Reservoir Geophysics, University of Indonesia.
Name of Lecturer (*Team Teaching*)	Dr. rer.nat.Ari Setiawan, Dr. Sudarmaji.MSi

Authorization	**Drafting Date**	**Course Coordinator**	**Coordinator of Expertise (if applicable)**	**Head of Study Program**
	September 7 2022	Dr. Sudarmaji.MSi		Dr. Sudarmaji, MSi