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

Capita Selecta

Semester 7 / 2 credits / MFG

4627 Geophysics

By

Ade

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Universitas Gadjah Mada Faculty of Mathematics and Natural Sciences

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Gadjah Mada University
Faculty of Mathematics and Natural Sciences
S1 Geophysics Study Program

SEMESTER LEARNING PROGRAM AND ACTIVITY PLAN (RPKPS)

Course Code	Course Name	Weight (credit)	Semester	Course Status	Prerequisite Courses
MFG 4627	Capita Selecta	2	7	Choice	-

Graduate Learning Outcomes (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-6	**Managerial skills and self-development**: Graduates are able to update their competencies, namely by life-long learning in line with the latest geophysical conditions to compete nationally and internationally by upholding UGM values (Pancasila: Divinity, Humanity, Unity, Peoplehood, Justice, and Science: universality, objectivity, freedom, respect for reality and truth).
Course Learning Outcomes (CPMK)	**After studying and completing this course, course participants are able to:**	
	CPMK-1	Able to identify an actual problem (CPL-1)
	CPMK-2	Able to explain the classification methods of a problem and make an evaluation (CPL-1)
	CPMK-3	Able to formulate, design, and make problem solving plans using Geophysics (CPL-6)

CPL mapping with CPMK

	CPMK-1	CPMK-2	CPMK-3
CPL-1	20	20	
CPL-6			60

Course Brief Description: This course is expected to broaden students' horizons in the latest science and technology through deepening various special topics and current interesting issues by organizing special lectures, guest lectures, field camps, special practicums, etc.

Study Material /Learning Materials

CMPK	Learning Materials	Pemb Method	Time allocation
CMPK-1	Discussion of material to be selected and mutually agreed upon in accordance with the topic or current issues of	CBL –SCL Mixed	100 minutes
CMPK-1	Detailed discussion of actual issues related to the topic and will be discussed further	CBL –SCL Mixed	100 minutes
CMPK-1 CMPK-2	Identify and classify the problems discussed and conduct problem-solving evaluations	CBL –SCL Mixed	5 x 100 minutes
CMPK-1 CMPK-2 CMPK-3	Discussion of agreed topics along with problems that arise and their correlation with Geophysics to find solutions	CBL –SCL Mixed	100 minutes
CMPK-3	Designing problem solving using Geophysical science and its relationship with society	CBL –SCL Mixed	6 x 100 minutes

Selected SCL learning method: *Case Based Learning*
Student Center Learning

Assessment Methods and Alignment with CPMK	

Assessment Techniques	Percentage	CPMK1	CPMK2	CPMK3
Participatory Activities*)				
Project Results/Case Study Results/PBL				
Assignment		5	5	20
Quiz				10
UTS		15	15	
UAS				30
Total		**20**	**20**	**60**

List of Learning Resources and	Adjust lecture material, can be sourced from mass media, books, or other sources
Name of Lecturer Pengampu (*Team*	1. Dr. rer nat Ade Anggraini 2. Drs. Imam Suyanto, M.Si.

Authorization	Drafting Date	Course Coordinator	Coordinator of Expertise	Head of Study Program
		Dr. rer nat Ade Anggraini	Dr. rer.nat. Ade Anggraini, M.T.	Dr. Sudarmaji, M.Si.

Weekly Learning Activity Plan (RKPM)

Week To-	Sub-CPMK (Final Planned Capability)	Assessment Methods			Study Materials (Learning Materials)	Learning Forms and Methods	Learning Time Load	Student Learning Experience	Media/Learning Objects	External Libraries and Learning
		Indicators	Technique	Weight (%)						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1 CPMK1	Able to know the history of *data science,* artificial intelligence, and its companion technology	UTS exam question completion	Written exam	-	Study Material (BK) 1	Online/offline face-to-face meetings	2 x 50 minutes	Discussion of the history of data science, artificial intelligence, and its companion technologies.	Google Classroom, presentation files, elok.ugm.ac.id	1 & 4
		Completion of CBA1 and CBA2 tasks	CBA	10.00						
2 CPMK1	Able to know and use Python programming language for *data science purposes*	Completion of UTS CBA1 to CBA5 pre and post tasks	CBA	5.00	BK 2	Asynchronous lectures	2 x 50 minutes	Watch learning videos and practice using Python programming language based on Jupyter notebooks that have been given.	YouTube, Google Classroom, Jupyter Notebook	1 & 5
3 CPMK2 up to CPMK	Able to know the basic methodology of *data science*	UTS exam question completion	Written exam	-	BK 2 - BK 7	Synchronous meetings	2 x 50 minutes	Discussion of *data science methodology*	Google Classroom, presentation files,	1 & 4
4 CPMK2	Able to know, formulate, and design statistical data analysis.	UTS exam question completion	Written exam	-	BK 3	Online/offline synchronous meetings, exercises and tasks in the form of jupyter	2 x 50 minutes	Discussion and exercise on statistical data review, and assignment.	Google Classroom, presentation files, elok.ugm.ac.id	4 & 5
		CBA3 task completion	CBA	3.75						

5 CPMK2	Able to know, formulate, and design visual data analysis	UTS exam question completion	Written exam	-	BK 3	Online/offline synchronous meetings, exercises and tasks in the form of jupyter	2 x 50 minutes	Discussions and exercises on visual data analysis, and assignment.	Google Classroom, presentation files, elok.ugm.ac.id	4 & 5
		CBA3 task completion	CBA	3.75						
6 CPMK3	Able to know, formulate, and design data cleaning and transformation	UTS exam question completion	Written exam	-	BK 4	Online/offline synchronous meetings, exercises and tasks in the form of jupyter	2 x 50 minutes	Discussions and exercises on data cleaning and transformation, as well as assignment.	Google Classroom, presentation files, elok.ugm.ac.id	5 & 6
		CBA4 task completion	CBA	3.75						
7 CPMK3	Able to know, formulate, and design feature engineering	UTS exam question completion	Written exam	-	BK 4	Online/offline synchronous meetings, exercises and tasks in the form of jupyter	2 x 50 minutes	Discussions and exercises on feature engineering, as well as assignment.	Google Classroom, presentation files, elok.ugm.ac.id	5 & 6
		CBA4 task completion	CBA	3.75						
8 CPMK1 up to CPMK3	Able to get a minimum score of 75%	UTS exam question completion	Written exam	25.00	BK 1 to BK 4	Written exam	2 x 50 minutes	Working on UTS questions	Google classroom, elok.ugm.ac.id	
9 CPMK4	Able to know, formulate, and design classification models	Completion of UAS exam questions	Written exam	-	BK 5	Online/offline synchronous meetings, exercises and tasks in the form of jupyter	2 x 50 minutes	Discussion and exercise on classification methods, as well as assignment.	Google Classroom, presentation files, elok.ugm.ac.id	2 & 3
		Completion of CBA task 5	CBA	-	BK 5					
10 CPMK4	Able to know, formulate, and design regression models	Completion of UAS exam questions	Written exam	-	BK 5	Online/offline synchronous meetings, exercises and tasks in the form of jupyter	2 x 50 minutes	Discussion and exercise on regression methods, as well as assignment.	Google Classroom, presentation files, elok.ugm.ac.id	2 & 3
		Completion of CBA task 5	CBA	-	BK 5					
11 CPMK4	Able to know, formulate, and	Completion of UAS exam questions	Written exam	-	BK 5	Online/offline synchronous meetings,	2 x 50 minutes	Discussion and exercise on clustering	Google Classroom, files	2 & 3

	Design a clustering model	Completion of CBA task 5	CBA	-	BK 5	Exercises and tasks in the form of Jupyter		and assignment.	presentation, elok.ugm.ac.id	
12 CPMK5	Able to know, formulate, and design ANN models	Completion of UAS exam questions	Written exam	-	BK 6	Online/offline synchronous meetings, exercises and tasks in the form of jupyter	2 x 50 minutes	Discussion and exercise on the ANN method.	Google Classroom, presentation files, elok.ugm.ac.id	4
13 CPMK5	Able to know, formulate, and design Deep learning models	Completion of UAS exam questions	Written exam	-	BK 6	Online/offline synchronous meetings, exercises and tasks in the form of jupyter	2 x 50 minutes	Discussions and exercises on *Deep learning methods*.	Google Classroom, presentation files, elok.ugm.ac.id	4
14 CPMK6	Able to know, formulate, and design *machine learning model evaluations*	Completion of UAS exam questions	Written exam	-	BK 7	Online/offline synchronous meetings, exercises and tasks in the form of jupyter	2 x 50 minutes	Discussions and exercises on *machine learning* model evaluation and assignment.	Google Classroom, presentation files, elok.ugm.ac.id	5 & 6
15 CPMK1 up to CPMK6	Able to design, compare, and deliver in the form of reports and presentations	Data science *project presentation*	Presentations and reports in the form of scripts and presentation files	25.00	BK 1 up to BK 7	Online/offline synchronous meetings	2 x 50 minutes	Presentation of data science *project results* and reporting in the form of presentation files and source code.	Google Classroom, presentation files, elok.ugm.ac.id	
16 CPMK4 up to CPMK6	Able to get a minimum score of 75%	Completion of UAS exam questions	Written exam	25.00	BK 5 to BK 7	Written exam	2 x 50 minutes	Working on UAS questions	Google classroom, elok.ugm.ac.id	