

COURSE PORTFOLIO

Transition Metals and Complex Coordinations Academic Year – 2020/2021

- PLO 1 Able to apply religious attitudes, demonstrate an internalizing academic and human values
- PLO 2 Able to demonstrate excellence, honesty, competitiveness, leadership, and possessing social sensitivity to society and the environment
- PLO 3 Able to demonstrate performance independently or as part of a team professionally and measurably by applying interdisciplinary knowledge and skill, critical, and creative thinking in the context of being a lifelong learner
- PLO 4 Able to communicate ideas, scientific research results clearly in oral or written format to scientists and the wider community
- PLO 5 Able to Integrating mathematical and basic concepts of science to solve problems in chemistry
- PLO 6 Able to master the knowledge of chemistry (organic chemistry, inorganic, analytical, physical, and biochemical)
- PLO 7 Able to understand concepts and applications in the field of biosciences and materials chemistry to solve problems in the field of chemistry and its applications
- PLO 8 Able to understand operational knowledge about functions, how to operate chemical instruments, and analysis of data and information from these instruments
- PLO 9 Able to understand work safety, ethics, environmental issues, and policies related to the chemical field
- PLO 10 Able to carry out laboratory and research work by paying attention to the safety and security of laboratory work and applying responsible scientific behavior.
- PLO 11 Able to obtain, process, interpret, and evaluate scientific data and produce conclusions by considering scientific and technological aspects and scientific ethics.
- PLO 12 Able to solve science and technology problems in chemistry independently based on relevant scientific methodologies and present it as a scientific work.

Course Outcome (CO):

CO 1.	Analyzing Theory and Development of coordination chemistry
CO 2.	Apply theory to explain the bonding and molecular shape of complex compounds
CO 3.	Analyze the structure of complex compounds
CO 4.	Understand the nomenclature of complex compounds
CO 5.	Analyze the stability of complex compounds
CO 6.	Analyze the kinetics and mechanisms of coordination chemical reactions

CO 7.	Analyzing the benefit of coordination chemistry
CO 8.	Analyzing the development of research on complex compounds

Lecturers:

1. Dr. Setia Budi, M.Sc.

Mapping Course Learning Outcome (CO) and Program Learning Outcome (PLO)

Program Learning Outcome / Course Outcome	PLO 3. Able to demonstrate performance independently or as part of a team professionally and measurably by applying interdisciplinary knowledge and skill, critical, and creative thinking in the context of being a lifelong learner	PLO 6. Able to master the knowledge of chemistry (organic chemistry, inorganic, analytical, physical, and biochemical)
CO 1. Analyzing Theory and Development of coordination chemistry	• (Assignment)	
CO 2. Apply theory to explain the bonding and molecular shape of complex compounds	• (Assignment)	
CO 3. Analyze the structure of complex compounds	• (Assignment)	
CO 4. Understand the nomenclature of complex compounds		• (Midterm Exam)
CO 5. Analyze the stability of complex compounds	• (Assignment)	
CO 6. Analyze the kinetics and mechanisms of coordination chemical reactions	• (Assignment)	
CO 7. Analyzing the benefit of coordination chemistry	• (Assignment)	
CO 8. Analyzing the development of research on complex compounds		• (Assignment, Final Exam)

Forms of Assessment

Group/Individuals Assignment	= 30%
Midterm examination	= 40%
Final examination	= 40%

Total = 100%

	PLO 3 Critical Thinking	PLO 6 Problem Solving
Group/Individuals Assignment	50%	50%
Midterm examination	40%	60%
Final examination	40%	60%

Outcomes Assessment

No	Nama	Tugas	UTS	UAS	Nilai Akhir	
1	A	100	35	38	55,70	B-
2	B	100	55	35	60,50	B-
3	C	100	50	33	58,20	B-
4	D	100	37	34	54,70	B-
5	E	100	35	35	54,50	B-
6	F	100	55	50	66,50	B-
7	G	100	40	35	56,00	B-
8	H	100	70	35	65,00	B-
9	I	100	40	34	55,60	B-
10	J	100	50	35	59,00	B-
11	K	100	77	36	67,50	B-
12	L	100	72	50	71,60	B
13	M	100	67	57	72,90	B
14	N	100	50	37	59,80	B-
15	O	100	70	34	64,60	B-
16	P	100	70	35	65,00	B-

17	Q	100	42	20	50,60	B-
18	R	100	57	35	61,10	B-
19	S	100	60	75	78,00	B+
20	T	100	60	75	78,00	B+
21	U	90	67	55	69,10	B-
22	V	100	55	65	72,50	B
23	W	100	72	68	78,80	B+
24	X	100	60	35	62,00	B-
25	Y	100	80	35	68,00	B-
26	Z	100	52	65	71,60	B
27	AA	100	30	15	45,00	B-
28	AB	90	55	35	57,50	B-
29	AC	100	60	50	68,00	B-
30	AD	100	47	43	61,30	B-
31	AF	100	50	34	58,60	B-
32	AG	100	35	45	58,50	B-

Calculation of Weight per PLO

Form of Assessment	Weight	Weight per PLO		Total	Total Weight	
		PLO 3	PLO 6		PLO 3	PLO 6
Assignment	0.30	0.50	0.50	1.00	0,15	0,15
Midterm Exam	0.40	0.40	0.60	1.00	0,12	0,18
Final Exam	0.40	0.40	0.60	1.00	0,16	0,24
Total	1.00	1.60	2.40	1.00	0,43	0,57

Example of PLO Calculation

No	Name	Assignment	Midterm Exam	Final Exam	Final Score and Grade	
1	W	100	72	68	78.80	A-

No	Name	PLO 3	PLO 6
1	W	$((100*0.15) + 72*0.12) + (68*0.16) / 0.43 = 80.28$	$((100*0.15) + 72*0.18) + (68*0.24) / 0.57 = 77.68$

PLO Assessment Rubric

PLO	Performance Criteria	Excellent (E)	Good (G)	Satisfy (S)	Fail (F)
3	Demonstrate performance independently or as part of a team professionally and measurably by applying interdisciplinary knowledge and skill, critical, and creative thinking in the context of being a lifelong learner	Students are able to demonstrate performance independently or as part of a team professionally and measurably by applying interdisciplinary knowledge and skill, critical, and creative thinking in the context of being a lifelong learner, at with a score of at least 80.	Students are able to demonstrate performance independently or as part of a team professionally and measurably by applying interdisciplinary knowledge and skill, critical, and creative thinking in the context of being a lifelong learner with a score of at least 70 and less than 80..	Students are able to demonstrate performance independently or as part of a team professionally and measurably by applying interdisciplinary knowledge and skill, critical, and creative thinking in the context of being a lifelong learner with a score of at least 70 and less than 80.	Students are able to demonstrate performance independently or as part of a team professionally and measurably by applying interdisciplinary knowledge and skill, critical, and creative thinking in the context of being a lifelong learner with a score of less than 60.
6	Able to master the knowledge of chemistry (organic chemistry, inorganic, analytical, physical, and biochemical)	Students are able to master the knowledge of chemistry (organic chemistry, inorganic, analytical, physical, and biochemical) at with a score of at least 80.	Students are able to master the knowledge of chemistry (organic chemistry, inorganic, analytical, physical, and biochemical) with a score of at least 70 and less than 80.	Students are able to master the knowledge of chemistry (organic chemistry, inorganic, analytical, physical, and biochemical) with a score of at least 70 and less than 80.	Students are able to master the knowledge of chemistry (organic chemistry, inorganic, analytical, physical, and biochemical) with a score of less than 60.

Example of PLO Predicates for Each Student

No	Name	PLO 3	PLO 6
1	W	80.28 Excellent	77.68 Good

PLO Predicates for All Students

No.	Name	Assignment	Midterm Exam	Final Exam	Grade	PLO 3	PLO 6	PLO 3	PLO 6
1	A	100	35	38	B-	58,79	53,37	F	F
2	B	100	55	35	B-	63,26	58,42	S	F
3	C	100	50	33	B-	61,12	56,00	S	F
4	D	100	37	34	B-	57,86	52,32	F	F
5	E	100	35	35	B-	57,67	52,11	F	F
6	F	100	55	50	B-	68,84	64,74	S	S
7	G	100	40	35	B-	59,07	53,68	F	F
8	H	100	70	35	B-	67,44	63,16	S	S
9	I	100	40	34	B-	58,70	53,26	F	F
10	J	100	50	35	B-	61,86	56,84	S	F
11	K	100	77	36	B-	69,77	65,79	S	S
12	L	100	72	50	B	73,58	70,11	G	G
13	M	100	67	57	B	74,79	71,47	G	G
14	N	100	50	37	B-	62,60	57,68	S	F
15	O	100	70	34	B-	67,07	62,74	S	S
16	P	100	70	35	B-	67,44	63,16	S	S

17	Q	100	42	20	B-
18	R	100	57	35	B-
19	S	100	60	75	B+
20	T	100	60	75	B+
21	U	90	67	55	B-
22	V	100	55	65	B
23	W	100	72	68	B+
24	X	100	60	35	B-
25	Y	100	80	35	B-
26	Z	100	52	65	B
27	AA	100	30	15	B-
28	AB	90	55	35	B-
29	AC	100	60	50	B-
30	AD	100	47	43	B-
31	AF	100	50	34	B-
32	AG	100	35	45	B-

54,05	48,00	F	F
63,81	59,05	S	F
79,53	76,84	G	G
79,53	76,84	G	G
70,56	68,00	G	S
74,42	71,05	G	G
80,28	77,68	E	G
64,65	60,00	S	S
70,23	66,32	G	S
73,58	70,11	G	G
48,84	42,11	F	F
59,77	55,79	F	F
70,23	66,32	G	S
64,00	59,26	S	F
61,49	56,42	S	F
61,40	56,32	S	F

Distribution of PLO Achievements

		PLO 3	PLO 6
%	E	3,125 %	0 %
%	G	28,125 %	21,875 %
%	S	43,75 %	28,125 %
%	F	25 %	50 %
		100%	100%

Achievement Percentage of PLO

