	Universitas Negeri Surabaya **Faculty of Mathematics and Natural Sciences** **Undergraduate Chemistry Study Program**						**Document Code**

SEMESTER LEARNING PLAN

Courses		CODE		Course Family		Credit Weight				SEMESTER	Compilation Date
Analytical Chemistry I: Qualitative Analysis		4720102039				T=2	P=0	ECTS=3.18		2	July 18, 2024
AUTHORIZATION		**SP Developer**			**Course Cluster Coordinator**				**Study Program Coordinator**		
		....			....				Dr. Amaria, M.Si.		

Learning model	**Project Based Learning**
Program Learning Outcomes (PLO)	**PLO study program that is charged to the course**
	Program Objectives (PO)
	PLO-PO Matrix
	P.O
	PO Matrix at the end of each learning stage (Sub-PO)
	P.O / Week 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Short Course Description	Study of the qualitative analysis of chemical compounds in terms of the types of constituent components consisting of cations and anions. The material presented is in the form of supporting theory, experimental techniques, systematic analysis consisting of preliminary analysis, cation analysis and anion analysis. Supporting laboratory activities include identifying cations and anions in a compound, so that students are able to master related concepts, are skilled in using tools, are able to work together and be responsible and can communicate their knowledge and skills scientifically.
References	**Main :**

1. Sawyer, Heineman, and Beebe. 1984.Chemistry Experimentsfor Instrumental Methods. New York: John Wiley & Sons
2. Svehla, G, 1979.Vogel 19s Text Book ofMacro and Semimicro Qualitative Inorganic Analysis. Fifth ed. London: Longman Group Limited
3. Sorum, Clarence Harvey, and Lagowski, J. J. 1977.Introduction to Semimicro QualitativeAnalysis. United State of America: Prentice-Hall Inc4. Briggs, J. G. R. 2000. Chemistry for GCE 18O 19 LevelPractical Workbook. Singapore: Pearson Education Asia Pte Ltd
4. Poedjiastoeti, S. , Monica, M. , Sukarmin, dan Rusmini. 2016. Kimia Analisis Kualitatif. Surabaya: Unipress

Supporters:

Supporting lecturer	Prof. Dr. Hj. Sri Poedjiastoeti, M.Si. Dr. Maria Monica Sianita Basukiwardojo, M.Si. Dr. Sukarmin, M.Pd. Rusmini, S.Pd., M.Si.

Week-	Final abilities of each learning stage (Sub-PO)	Evaluation		Help Learning, Learning methods, Student Assignments, [Estimated time]		Learning materials [References]	Assessment Weight (%)
		Indicator	Criteria & Form	Offline (offline)	Online (online)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

			Criteria:				
1	Understanding Supporting Theories	Applying supporting theory to qualitative analysis	**Criteria:** 1.The assessment was carried out on the following aspects. 2.1. Participation in the level of lecture attendance, activeness (weight 2) 3.2. Assignments consist of assignments in class and in the laboratory/practicum (weight 3).	Discussion, Presentation and Practice Questions 2 X 50			0%
2	Understanding Supporting Theories	Applying supporting theory to qualitative analysis	**Criteria:** 1.The assessment was carried out on the following aspects. 2.1. Participation in the level of lecture attendance, activeness (weight 2) 3.2. Assignments consist of assignments in class and in the laboratory/practicum (weight 3).	Discussion, Presentation and Practice Questions 2 X 50			0%
3	Understand and be skilled in carrying out qualitative analysis experimental techniques	Applying qualitative analysis experimental techniques	**Criteria:** 1.The assessment was carried out on the following aspects. 2.1. Participation in the level of lecture attendance, activeness (weight 2) 3.2. Assignments consist of assignments in class and in the laboratory/practicum (weight 3).	Modeling, Demonstration, Assignment 2 X 50			0%
4	Understanding Qualitative Analysis Experimental Techniques	Applying qualitative analysis experimental techniques	**Criteria:** 1.The assessment was carried out on the following aspects. 2.1. Participation in the level of lecture attendance, activeness (weight 2) 3.2. Assignments consist of assignments in class and in the laboratory/practicum (weight 3).	Modeling, Demonstration, Assignment 2 X 50			0%
5	Understanding Preliminary Analysis	Apply preliminary analysis	**Criteria:** 1.The assessment was carried out on the following aspects. 2.1. Participation in the level of lecture attendance, activeness (weight 2) 3.2. Assignments consist of assignments in class and in the laboratory/practicum (weight 3).	Discussion, Demonstration 1 X 50			0%

6	Understanding the Systematic Analysis of Cations in General and Group I	Apply systematic analysis of cations in general and group I	**Criteria:** 1.The assessment was carried out on the following aspects. 2.1. Participation in the level of lecture attendance, activeness (weight 2) 3.2. Assignments consist of assignments in class and in the laboratory/practicum (weight 3).	Discussion, Demonstration, Presentation 1 X 50				0%
7	Identifying Group II Cation Analysis	Apply group II cation analysis	**Criteria:** 1.The assessment was carried out on the following aspects. 2.1. Participation in the level of lecture attendance, activeness (weight 2) 3.2. Assignments consist of assignments in class and in the laboratory/practicum (weight 3).	Discussion, Demonstration, Presentation 1 X 50				0%
8	uts	meeting indicators 1-7	**Criteria:** 1. UTS to access meeting indicators 1 -7 (weight 2)	2 X 50 test				0%
9	Skilled in analyzing cations	Preliminary analysis, group I and II cations in the sample	**Criteria:** 1.The assessment was carried out on the following aspects. 2.1. Participation in the level of lecture attendance, activeness (weight 2) 3.2. Assignments consist of assignments in class and in the laboratory/practicum (weight 3).	Practical analysis of group I and II cations in 2 X 50 samples				0%
10	Identifying Group III Cation Analysis	Apply group III cation analysis	**Criteria:** 1.The assessment was carried out on the following aspects. 2.1. Participation in the level of lecture attendance, activeness (weight 2) 3.2. Assignments consist of assignments in class and in the laboratory/practicum (weight 3).	Discussion, Demonstration, Presentation 1 X 50				0%
11	Identifying Group IV and V Cation Analysis	Applying group IV and V cation analysis	**Criteria:** 1.The assessment was carried out on the following aspects. 2.1. Participation in the level of lecture attendance, activeness (weight 2) 3.2. Assignments consist of assignments in class and in the laboratory/practicum (weight 3).	Discussion, Demonstration, Presentation 1 X 50				0%

12	Able to carry out cation analysis	Skilled in analyzing group III, IV and V cations	**Criteria:** 1.The assessment was carried out on the following aspects. 2.1. Participation in the level of lecture attendance, activeness (weight 2) 3.2. Assignments consist of assignments in class and in the laboratory/practicum (weight 3).	Practical analysis of group III, IV and V cations in 2 X 50 samples			0%
13	Identifying Anion Analysis	Applying anion analysis	**Criteria:** 1.The assessment was carried out on the following aspects. 2.1. Participation in the level of lecture attendance, activeness (weight 2) 3.2. Assignments consist of assignments in class and in the laboratory/practicum (weight 3).	Discussion, Demonstration, Presentation 1 X 50			0%
14	Identifying Anion Analysis	Applying anion analysis	**Criteria:** 1.The assessment was carried out on the following aspects. 2.1. Participation in the level of lecture attendance, activeness (weight 2) 3.2. Assignments consist of assignments in class and in the laboratory/practicum (weight 3).	Discussion, Demonstration, Presentation 1 X 50			0%
15	Able to carry out cation and anion analysis	Skilled in analyzing group I - V cations and anions	**Criteria:** 1.The assessment was carried out on the following aspects. 2.1. Participation in the level of lecture attendance, activeness (weight 2) 3.2. Assignments consist of assignments in class and in the laboratory/practicum (weight 3).	Practical analysis of cations in 2 X 50 compound samples			0%
16	UAS	all meeting indicators 8-15	**Criteria:** UAS to access all indicators (weight 3).	2 X 50 test			0%

<u>**Evaluation Percentage Recap**</u>**: Project Based Learning**

No	Evaluation	Percentage
		0%

Notes
1. **Learning Outcomes of Study Program Graduates (PLO - Study Program)** are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
2. **The PLO imposed on courses** are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.

3. **Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
4. **Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
5. **Indicators for assessing** ability in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
6. **Assessment Criteria** are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
7. **Forms of assessment:** test and non-test.
8. **Forms of learning:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
9. **Learning Methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
10. **Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
11. **The assessment weight** is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
12. TM=Face to face, PT=Structured assignments, BM=Independent study.