UNIVERSITAS NEGERI YOGYAKARTA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF CHEMISTRY EDUCATION
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Bachelor of Education in Chemistry **MODULE HANDBOOK**

Module name:	**Basic of Analytical Chemistry**
Module level, if applicable:	Undergraduate
Code:	KIM 6411
Sub-heading, if applicable:	-
Classes, if applicable:	2
Semester:	2nd
Module coordinator:	Sunarto, M.Si
Lecturer(s):	Drs. Sunarto, M.Si.; Erfan Priyambodo, S.Pd.Si.,M.Si.; Dra. Regina Tutik Patmaningrum, M.Si.
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory Course
Teaching format / class hours per week during the semester:	• Lectures: 150 minutes lectures, 180 minutes structured activities and 180 minutes individual study per week • Laboratory Work: 170 minutes includes the laboratory work and it's report per week.
Workload:	Total workload of the activity is hours per semester which consist of 150 minutes lectures, 180 minutes structured activities and 180 minutes individual study per week, and 170 minutes include laboratory work and it's report.
Credit points:	3SKS (4.92 ECTS) lectures, and 1SKS (1,64 ECTS) laboratory Work
Prerequisites course(s):	-
Course outcomes:	After taking this course, the students are expected to be able to: CO1. explain the basic concepts of quantitative and qualitative analysis techniques, CO2. understand the basics of classifying anions, cations, equilibrium and redox reactions CO3. identify sample components and determine the amount with volumetric analysis techniques, CO4. applying the concept of knowledge in reading analytical dataCO2. to apply the theories and concepts of inorganic chemistry in overcoming problems of daily life, especially in managing and utilizing metal elements
Content:	This course serves two purposes. The first purpose is to provide the students with a background in statistical principles to be a good user of statistical analysis. We will learn how to describe data effectively, how to run a simple regression, statistical inference**,** hypothesis testing, and how to interpret the results. The second purpose of this course is to provide them with the basic knowledge in probability theories, such as expected values or probability distributions, which are necessary in understanding other courses in science education research.

<table>
<tr><td>Study / exam achievements:</td><td>Attitude assessment is carried out at each meeting by observation and/or self-assessment techniques using the assumption that basically every student has a good attitude. The student is marked very good or not good attitude if they show it significantly compared to other students in general. The result of attitude assessment is not taken into account in the final grades, but as one of the requirements to pass the course. Students will pass from this course if at least have a good attitude. The final mark will be weight as follow:
<table>
<tr><th>No</th><th>CO</th><th>Assessment Object</th><th>Assessment Technique</th><th>Weight</th></tr>
<tr><td>1</td><td>CO1,
CO2,
CO3,
CO4.</td><td>Labwork
Mid-term exam
Final Exam</td><td>Presentation / written test</td><td>45%
30%
25%</td></tr>
<tr><td colspan="4">Total</td><td>100%</td></tr>
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<tr><td>Forms of media:</td><td>Board, LCD Projector, Laptop/Computer, Labwork Tools and Material</td></tr>
<tr><td>References:</td><td>

Wilde, B. 2018. Analytical Chemistry: Quantitative and Qualitative Analysis: NY Research Press
Christian, G. D. 2007. Analytical Chemistry 6th Ed: Wiley India Pvt.
Skoog, D. A. & Holler, F. J. 2000. Analytical Chemistry: an Introduction: Cengage Learning.
Larry G. Hargis. 1988. Analytical Chemistry Principle and Techniques. London: Practice Hall International Edition.
Sorum C.H. 1977. Introduction to Semimicro Qualitative Analysis. Fifth Edition. USA: Prentice Hall, INC
Bassett, at all. (Revisers). 1978. Vogel's Text Book of Quantitative Inorganic Analysis. Including Elementary Instrumental Analysis. Fourth Ed. London and New York: Longman.
Daniel C. Harris. 1987. Quantitative Chemical Analysis. New York: Freeman & Co.
Day, R.A, Underwood, A.L. 1989. Analisis Kimia Kuantitatif. Edisi 5. Jakarta : Erlangga
Garry D. Christian. 1977. Analytical Chemistry. New York : John Willey & Sons
Khopkar. S.M. 1990. Konsep Dasar Kimia Analitik. Cetakan I. Jakarta : UI Press.
Roekmini Sadli Soepa. 1980. Kimia Analisa I. Bandung : Departemen Kimia ITB

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PLO and CO mapping

	PLO					
	Attitude		Knowledge	Specific Skill	General Skill	
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
CO1			√			
CO2			√			
CO3				√		
CO4						√