

### Module Descriptions

Module designation	Basic of Analytical Chemistry
Semester(s) in which the module is taught	1 <sup>st</sup> semester/First Year
Person responsible for the module	Dr. Rusmini S.Pd., M.Si
Language	Bahasa Indonesia (Regular Class) Bahasa Inggris (Internasional Class)
Relation to curriculum	Compulsory course
Teaching methods	Case method with practicum laboratory 3 workhours per week (3 x 170 minutes per week)
Workload (incl. contact hours, self-study hours)	1 CU for a bachelor's degree equals 170 minutes (50 minutes face-to-face, 60 minutes structured, 60 minutes independent learning) per week × 14 weeks, excluding mid and end-term exams. = 39.67 work hours per semester = 1.587 ECTS.
Credit points	3 Credit Units (CU) = 4.77 ECTS
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<ol style="list-style-type: none"> <li>1. Students are able to explain the basic principles of qualitative and quantitative analysis, including the theory of cation-anion identification, gravimetry, and volumetric analysis (acid-base, precipitation, complexation, and redox).</li> <li>2. Students are able to analyze cations and anions in samples using appropriate procedures.</li> <li>3. Students are able to apply the principles of neutralization, complexation, precipitation, and redox titration in everyday life.</li> <li>4. Students are able to systematically carry out qualitative and quantitative analysis procedures according to scientific principles.</li> </ol>
Content	This course examines the basic theories of qualitative and quantitative analysis that support the process and evaluation of results; qualitative analysis that includes systematic identification of cations and anions; quantitative analysis that includes gravimetric and volumetric analysis (acid-base, precipitation, complexation, redox).
Examination forms	Essay and Oral Presentation
Study and examination requirements	Student assessments include: Participatory Activities 55% Practical Assessment 20% Tests 25%

Reading list	<ol style="list-style-type: none"><li>1. Sorum, Clarence Harvey, and Lagowski, J. J. 1977. <i>Introduction to Semimicro Qualitative Analysis</i>. United State of America: Prentice-Hall Inc</li><li>2. Svehla, G, 1979. <i>Vogel's Text Book of Macro and Semimicro Qualitative Inorganic Analysis. Fifth ed.</i> London: Longman Group Limited</li><li>3. Sawyer, Heineman, and Beebe.1984. <i>Chemistry Experiments for Instrumental Methods</i>. New York: John Wiley &amp; Sons</li><li>4. Day, Jr, R.A., dan Underwood, A.L., 2002. <i>Quantitative Analysis</i>. Sixth Ed. (Alih bahasa: Sopyan, I.). Jakarta: Penerbit Erlangga.</li><li>5. Poedjiastoeti, S., Monica, M., Sukarmin, dan Rusmini. 2016. <i>Kimia Analisis Kualitatif</i>. Surabaya: Unipress</li></ol>
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