



UNIVERSITAS NEGERI YOGYAKARTA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF CHEMISTRY
1 Colombo Street Yogyakarta 55281
Phone (0274) 565411, Ext. 1398, Fax (0274)548203
Website: <http://kimia.fmipa.uny.ac.id>, E-mail: kimia@uny.ac.id

Bachelor of Science in Chemistry

MODULE HANDBOOK

Module name:	Environmental Chemistry
Module level, if applicable:	Undergraduate
Code:	KIM6215
Sub-heading, if applicable:	-
Classes, if applicable:	2
Semester:	3 rd
Module coordinator:	Prof. A. K. Prodjosantoso, Ph.D.
Lecturer(s):	1. Prof. A.K. Prodjosantoso, Ph.D. 2. Regina Tutik Padmaningrum, M.Si.
Language:	Bahasa Indonesia, English
Classification within the curriculum:	Compulsory Course
Teaching format / class hours per week during the semester:	100 minutes lectures, 120 structured activities and 120 individual study per week
Workload:	Total workload of the activity is 90,67 hours per semester which consists of 100 minutes lectures, 120 structured activities and 120 individual study per week for 16 weeks
Credit points:	2 SKS (3 ECTS)
Prerequisites course(s):	-
Course Outcomes	After taking this course, the students have ability to: CO1. Students are able to describe the basic concepts of various sources, reactions, transportation, effects and the presence of chemical species in the air, water and soil environment, and also the influence of human activities on these processes. CO2. Students understand the ways to prevent and overcome the various problems caused by chemicals in the environment CO3. Students can apply ways to prevent and overcome the occurrence of various problems caused by chemicals in the environment in daily life. CO4. Students are able to compile and present written and oral reports in solving environmental problems CO5. Students are able to complete their assignments well and on time
Content:	This course provides experience for students to analyze chemical concepts related to the interaction of chemicals with the biotic, abiotic, and social environments. Lecture material is focused on the sources, reactions, transportation, effects and fate of chemical species in the air, water and soil environment, and also the influence of human activities on these processes. Lectures are carried out with discussions, demonstrations, and assignments that provide students with

	experience in solving environmental problems.																											
Study/ exam achievements:	<p>The final mark will be weight as follow:</p> <table border="1"> <thead> <tr> <th>No</th> <th>CO</th> <th>Assessment Object</th> <th>Assessment Technique</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td rowspan="5">1</td> <td rowspan="5">CO1, CO2, CO3, CO4, CO5</td> <td>Individual assignment</td> <td>Assignment</td> <td>15%</td> </tr> <tr> <td>Structural assignment</td> <td>Assignment</td> <td>15%</td> </tr> <tr> <td>Presentation</td> <td>Observation</td> <td>15%</td> </tr> <tr> <td>Mid-term exam</td> <td>Written test</td> <td>25%</td> </tr> <tr> <td>Final exam</td> <td>Written test</td> <td>30%</td> </tr> <tr> <td colspan="4">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Technique	Weight	1	CO1, CO2, CO3, CO4, CO5	Individual assignment	Assignment	15%	Structural assignment	Assignment	15%	Presentation	Observation	15%	Mid-term exam	Written test	25%	Final exam	Written test	30%	Total				100%
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		Final exam	Written test	30%																								
Total				100%																								
Forms of media:	Board, LCD Projector, handouts, PPT slides, laboratory kits, and stationaries																											
Reference:	<ol style="list-style-type: none"> 1. Ayana Elizabeth Johnson, Katharine K. Wilkinson, 2020, All We Can Save: Truth, Courage, and Solutions for the Climate Crisis, One World 2. Gary W. vanLoon and Stephen J. Duffy, 2018, Environmental Chemistry: A global perspective, 4th ed., Oxford University Press 3. Balla, D., Voutsas, D. & Samara, C. 2018, Study of polar organic compounds in airborne particulate matter of a coastal urban city. <i>Environ Sci Pollut Res</i> 25, 12191–12205 4. Katsoyiannis, I.A., Voutsas, D., 2018, Sustainable environmental chemistry and technology with focus on the Mediterranean area. <i>Environ Sci Pollut Res</i> 25, 12189–12190 5. A.K. Prodjosantoso dan Regina Tutik Padmaningrum (2011). <i>Kimia Lingkungan: Teori, Eksperimen, dan Aplikasinya</i>, Yogyakarta: Kanisius 6. James Girard, (2010). <i>Principles of Environmental Chemistry</i>, Sudbury: Jones & Bartlett Learning 7. Srikandi Fardiaz, Polusi Udara dan Air, Yogyakarta: Kanisius 8. Achmad Sukaesih, Kimia Lingkungan, Yogyakarta: Andi Offset 9. John W. Moore & Elizabeth A. Moore, (1976), <i>Environmental Chemistry</i>, New York: Academic Press 																											

PLO and CO mapping

CO	PLO										
	Attitude	Generic Skills			Knowledge				Specific Skills		
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	
CO1					√						
CO2								√			
CO3								√			
CO4										√	
CO5							√				