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

Module name:	Toxicology
Module level, if applicable:	Undergraduate
Code:	KMA 6235
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	6th
Module coordinator:	Prof. Dr. Nurfina Aznam, Apt.S.U
Lecturer(s):	Prof. Dr. Nurfina Aznam, Apt.S.U
Language:	Bahasa Indonesia
Classification within the curriculum:	Elective Course
Teaching format / class hours per week during the semester:	Lectures: 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. explain the concepts of toxicology CO2. explain the toxicology benchmarks CO3. describe the factors that affect toxicity CO4. explain the toxic biotransformation CO5. explain the types of enzymatic metabolic reactions CO6. explain about types of toxicology CO7. describe the use of toxicology
Content:	This course studies about the direction of toxicology, general principles and toxicology mindset, acute dose - chronic dose and dose response relationship, type of subject situation, toxicity, absorption, distribution, excretion, reactions that occur by hydrolysis oxidation reduction conjugation in air contaminants air contaminants and drugs, various kinds of toxicology, the use of toxicology.
Study / exam achievements:	The final mark will be weight as follow:

No	CO	Assessment Object	Assessment Technique	Weight
1	CO1, CO2, CO3, CO4, CO5,	Attitude and activity	Observation	10%
		Structural assignment: ability to	Assignment, Presentation, discussion	20%

		CO6, CO7	rasionalize and describing		
			Structural assignment: ability to applying the formula according to context		
			Structural assignment: ability to collaborate, analyze, rasionalize, and communicate		
			Individual assignment: skill to collect literacy, understanding, and describing	Assignment	10%
			Mid term exam	Written test	30%
			Final exam	Written test	30%
				Total	100%
Forms of media:	Board, LCD Projector, Video, handouts, PPT slides, and stationaries				
Reference:	A. Gerard Marshall Raj and Ramasamy Raveendran. 2019. Introduction to Basics of Pharmacology and Toxicology: Volume 1: General and Molecular Pharmacology: Principles of Drug Action. 2019. 1st ed. Springer. B. Y. Zhang, T. Dong, W. Hu, X. Wang, B. Xu, Z. Lin, T. Hofer, P. Stefanoff, Y. Chen, X. Wang, Y. Xia. 2019. Association between exposure to a mixture of phenols, pesticides, and phthalates and obesity: comparison of three statistical models. Environ. Int., 123, pp. 325-336. C. F. Zhao, G. Jiang, P. Wei, H. Wang, S. Ru. 2018. Bisphenol S exposure impairs glucose homeostasis in male zebrafish (Danio rerio) Ecotoxicol. Environ. Saf., 147, pp. 794-802. D. Casarett, L.J., John D., 1975, Toxicology-The Basic Science of Poisons, Macmillan Publising Co., Inc., New York. E. Loomis, T.A., 1978, Essentials of Toxicology, 3rdEd,. Lea & Febiger, Philadelphia. F. Hodgson, E., 2010, A Textbook of Modern Toxicology, fourth edition, A John Wiley & Sons, Inc. Publication G. Hayes, W and Krunger, C., 2014, Hayes' Principles and Methods of Toxicology, 6th edition, CRC, 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							✓			
CO6									✓	
CO7									✓	
CO8									✓	