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

Module name:	Bioinorganic
Module level, if applicable:	Undergraduate
Code:	KMA6226
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	6th
Module coordinator:	Prof. AK Prodjosantoso
Lecturer(s):	Dr. Kun Sri Budiasih
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. Able to explain the role of inorganic elements in the human body CO2. Able to define basic principal of coordination chemistry and coordination chemistry in biology system CO3. Able to describe metal biomolecule with protein ligand CO4. Able to define structure and properties of metal protein and metal enzymes CO5. Able to describe metal biomolecule with non-protein ligand CO6. Able to explain alkaline metal and alkaline-earth metal ion transport CO7. Able to explain transition metal as redox center CO8. Able to explain peroxidase, catalyze, and hemoprotein CO9. Able to do a search and describe the results of their study using their own language regarding the research in bioinorganic chemistry
Content:	This course discusses the function and mechanism metal elements transport in the physiologic system. The lecture improves advance knowledge to apply several basic concepts in coordination chemistry in predicting function and reactivity of biomolecule metal based on its structure.
Study / exam achievements:	The final mark will be weight as follow:

No	CO	Assessment Object	Assessment Technique	Weight
1	CO1, CO2, CO3, CO4, CO5, CO6, CO7, CO8, CO9	Structural assignment: ability to rasionalize and describing	Assignment	15%
		Structural assignment: ability to applying the formula according to context	Assignment	15%
		Structural assignment: ability to collaborate, analyze, rasionalize, and communicate	Assignment	15%
		Individual assignment: skill to collect literacy, understanding, and describing	Assignment	15%
		Mid term exam	Written test	20%
		Final exam	Written test	20%
		Total		100%

Forms of media:	Board, LCD Projector, handouts, PPT slides, and stationaries
Reference:	A. Wolfgang Kaim, Brigitte Schwederski, Axel Klein, Bioinorganic Chemistry: Inorganic Elements in the Chemistry of Life, An Introduction and Guide, 2nd ed., Wiley

A. Wolfgang Kaim, Brigitte Schwederski, Axel Klein, Bioinorganic Chemistry: Inorganic Elements in the Chemistry of Life, An Introduction and Guide, 2nd ed., Wiley

B. Ben Woods et al., 2019, Highly luminescent metallacages featuring bispyridyl ligands functionalised with BODIPY for imaging in cancer cells, *J. Inorg. Biochem*, 199, 110781

C. C.M.Teles et al., 2019, Novel anticancer Pd^{II} complexes: The effect of the conjugation of transferrin binding peptide and the nature of halogen coordinated on antitumor activity, *J. Inorg. Biochem*, 110754

D. Lippard, S.J., Berg, J.M. (1994), *Principles of Bioinorganic Chemistry*, 3rd Edition, University Science Books

E. Kaim, W., Schwedesrski, B., Klein, A. (2005), *Bioinorganic Chemistry: Inorganic Elements in The Chemistry of Life*, 2nd edition, Wiley

F. Santosa, S.J. (2003), *Kimia Bioanorganik*, Gama 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									✓	
CO9					✓					