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:	Mathematics and Natural Sciences Insights and Studies
Module level, if applicable:	Undergraduate
Code:	AMF6201
Sub-heading, if applicable:	-
Classes, if applicable:	2
Semester:	4th
Module coordinator:	Agus Salim, M.Si.
Lecturer(s):	1. Agus Salim, M.Si. 2. Nur Fitriyana, M.Pd. 3. Meridewi Primastuti, M.Pd.
Language:	Bahasa Indonesia and English
Classification within the curriculum:	Compulsory Subject
Teaching format / class hours per week during the semester:	100 minutes lectures, 120 structured activities and 120 individual study per week
Workload:	Total workload 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 are expected to be able to: CO1. Show an attitude of responsibility in doing their work independently CO2. Explain natural phenomena between biological, chemical, physical aspects in an integrated manner according to their scientific fields CO3. Analogize natural phenomena and their principles in macro and micro as a means of educating themselves in accordance with scientific philosophy between epistemological and axiological ontologism CO4. Analyze the work of previous scientists based on the steps of scientific method then apply it in the present actual problems CO5. Understand the role of chemistry as a center for other natural sciences CO6. Understand the role of mathematics and sciences in technology research and sciences
Content:	This lecture includes theories about how to integrate various scientific sciences for the benefit of the development of chemistry The course consists of:

<table>
<tr><td></td><td>

Photosynthesis and the Biological Chain
Science Philosophy
Scientific Method
The Role of Chemistry as the Center for Other Natural Sciences
Role of mathematics and sciences in Technology Research and Development

</td></tr>
<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,
CO5,
CO6</td><td>a. Assignments
b. Mid-term Exam
c. Final Exam
d. Participation</td><td>Written task
Project
Presentation
Written test</td><td>20%
40%
20%
20%</td></tr>
<tr><td colspan="4">Total</td><td>100%</td></tr>
</table>
</td></tr>
<tr><td>Forms of media:</td><td>Board, LCD Projector, Laptop/Computer</td></tr>
<tr><td>References:</td><td>Soedojo, P. (2004). Pengantar Sejarah dan Filsafat Ilmu Pengetahuan Alam. Yogyakarta: Gadjah Mada University Press.
Urry, L. A., Cain, M. L., Wasserman, S. A., Minorsky, P. V., & Reece, J. B., (2017). Campbell biology (11th Revised Edition). Pearson
Drown, T. L., Lemay, H. E., Bursten, B. E., Murphy, C., Woodward, P., & Stoizfus, M. E. (2018). Chemistry: The central science (14th edition). Pearson.

Suggested Reading
Okasha, Samir. (2002). Philosophy of Science a very short introduction. New York: Oxford University Press
Jujun S. Suriasumantri. (2007). Filsafat Ilmu Sebuah Pengantar Popular. Jakarta: Pustaka Sinar Harapan
Sukirman (2006). Logika dan Himpunan. Yogyakarta: Hanggar Kreator</td></tr>
</table>

PLO and CO mapping

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

CO5		√								
CO6					√					