



**UNIVERSITAS NEGERI YOGYAKARTA**  
FACULTY OF MATHEMATICS AND NATURAL SCIENCES  
DEPARTMENT OF CHEMISTRY EDUCATION  
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**Bachelor of Education in Chemistry**

**MODULE HANDBOOK**

Module name:	<b>Food Chemistry</b>
Module level, if applicable:	Undergraduate
Code:	KIP 6207
Sub-heading, if applicable:	-
Classes, if applicable:	1
Semester:	Odd
Module coordinator:	Sunarto, M.Si
Lecturer(s):	Dr. Dra. Retno Arianingrum, M.Si.; Drs. Sunarto, M.Si.; <b>Dra. Susila Kristianingrum, M.Si.</b>
Language:	English
Classification within the curriculum:	Elective Course
Teaching format / class hours per week during the semester:	Lectures: 100 minutes lectures, 120 minutes structured activities and 120 minutes individual study per week
Workload:	Total workload of the activity is 136 hours per semester which consist of 100 minutes lectures, 120 minutes structured activities, 120 minutes individual study per week.
Credit points:	2SKS (3.28 ECTS)
Prerequisites course(s):	-
Course Outcomes	After taking this course the students are expected to be able to: CO1. demonstrate an attitude of responsibility and independence in carrying out the given tasks CO2. master basic concepts in in food chemistry, analyze balanced nutritional composition needed by humans, explain chemical changes related to damage to food ingredients and how to prevent them, recognize food additives and their uses, recognize various ways of packaging food, and describe important food ingredients for the body and its effects if consumed in excessive amounts CO3. make appropriate decisions in solving problems related to the composition and processing of food in a collaborative manner
Content:	Through this course students are expected to have an understanding of basic concepts in food chemistry, composition, properties of chemical changes, including browning reactions, damage to food ingredients and their prevention, food additives, packaging, and descriptions of important food ingredients.
Study/exam achievements:	Attitude assessment is carried out at each meeting by

	<p>observation and / or self-assessment techniques using the assumption that basically every student has a good attitude. The student is given a value of very good or not good attitude if they show it significantly compared to other students in general. The result of attitude assessment is not a component of the final grades, but as one of the requirements to pass the course. Students will pass this course if at least they show a good attitude. The final mark will be weighted as follows:</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="3">1</td> <td rowspan="3">CO1, CO2, CO3.</td> <td>Performance Individual and Group Assignment</td> <td>Observation Presentation / written assignment</td> <td>15% 55%</td> </tr> <tr> <td>Final Exam</td> <td>Written test</td> <td>30%</td> </tr> <tr> <td colspan="3">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Technique	Weight	1	CO1, CO2, CO3.	Performance Individual and Group Assignment	Observation Presentation / written assignment	15% 55%	Final Exam	Written test	30%	Total			100%
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		Final Exam	Written test	30%														
		Total			100%													
Forms of media:	Board and Board markers, LCD Projector, Laptop/Computer, Modules, Learning videos, <i>Power Point Slides</i>																	
References:	<p><b>Handbooks:</b></p> <ol style="list-style-type: none"> <li>A. S.S. Nielsen. (2017). <i>Food Analysis</i>. 5<sup>th</sup> ed. e-book springer</li> <li>B. S.S. Nielsen. (2017). <i>Food Analysis Laboratory Manual 3<sup>th</sup> ed. e-book springer.</i></li> <li>C. M.L. Weiner et al. (2017). <i>Food and Chemical Toxicology</i> 107, 208-214.</li> <li>D. H.D. Belitz, W. Grosch, and P. Schieberle. (2009). <i>Food Chemistry</i>. 4<sup>th</sup> ed. e-book springer.</li> <li>E. Anonim. (1981). <i>Daftar Komposisi Bahan Makanan</i>. Jakarta: DepKes RI.</li> <li>F. Anonim. (1995). <i>Daftar Komposisi Zat Gizi Pangan Indonesia</i>. Jakarta: DepKes RI.</li> <li>G. F.G. Winarno. (2002). <i>Kimia Pangan dan Gizi</i>. Jakarta: Gramedia Pustaka Utama</li> <li>H. Kartasapoetra &amp; Marsetyo. (2003). <i>Ilmu Gizi: Korelasi Gizi, Kesehatan, dan Produktivitas Kerja</i>. Jakarta: Rineka Cipta.</li> <li>I. Norman W. Desrosier. (2008). <i>Teknologi Pengawetan Pangan. Terjemahan oleh Muchji Mulijohardjo</i>. Jakarta: UI - Press.</li> <li>J. Setijo Pitojo &amp; Zumiati. (2009). <i>Pewarna Nabati Makanan</i>. Yogyakarta: Kanisius.</li> </ol>																	

### PLO and CO mapping

	PLO					
	Attitude		Knowledge	Specific Skill	General Skill	
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
CO1	√					
CO2			√			
CO3						√