



# UNIVERSITAS NEGERI YOGYAKARTA

## FACULTY OF MATHEMATICS AND SCIENCE DEPARTMENT OF BIOLOGY EDUCATION

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### Bachelor of Science in Biology

### MODULE HANDBOOK

Module name:	Immunology
Module level, if applicable:	Undergraduate
Code:	BIO6233
Sub-heading,if applicable:	-
Classes,if applicable:	-
Semester:	Even
Module coordinator:	Dr. Heru Nurcahyo
Lecturer(s):	Tri Harjana, M.P
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory Course
Teaching format / class hours per week during the semester:	100 minutes lectures, 120 minutes structured activities, and 120 minutes individual study per week
Work load:	Total workload is 91 hours per semester which consists of 100 minutes lectures, 120 minutes structured activities, and 120 minutes individual study per week for 16 weeks.
Credit points:	2 SKS (3 ECTS)
Prerequisites course(s):	General Biology
Program Learning Outcomes:	<p>4. Comprehensively mastering Biology (core biology) to solve problems in the field of Biology (problem-solving) and to underlie the concepts of related sciences</p> <p>6. Being adaptive, creative, innovative in applying the concepts of Biology and other related fields</p> <p>9. Being able to work and create jobs/being an entrepreneur in the field of Biology</p> <p>11. Possessing scientific skills to support the ability to speak in local, national, and international forums</p>
Course Outcomes	<p>After taking this course, the students have ability to:</p> <p>CO1. Identify the concept of Immunology and understanding the Immune System how it works</p> <p>CO2. Understand the concept of the structure and function of the antigen</p> <p>CO3. Elaborate the recent development of System Immune issues</p> <p>CO4. Analyze the structure and function of Cell B dan Cell T</p> <p>CO5. Apply clonal selection theory on a biosynthesis antibody</p> <p>CO6. Elaborate molecular structure of Immunoglobulin (Ig)</p> <p>CO7. Explain the response Immune including natural and acquired immune response</p>

	<p>CO8. Explain the concept, source and effect of recombinant vaccination</p> <p>CO9. Apply the concept of antigen binding site (ABS) and its implication</p> <p>CO10. Elaborate the concept of structure and function of molecule Immunoglobulin (Ig) and its implication</p> <p>CO11. Describe the definition, stages and roles of auto immune disease analyses</p> <p>CO12. Communicate the result of monoklonal antibody (MoAb) study</p>															
Content:	This course discusses the awareness of Immunology problems, interaction between biophysical environment and its function in sustainable development, wasteless technology, new paradigm on environment management and short term solution for 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>1</td> <td>CO1 to CO12</td> <td>Observed attitudes, knowledge, and skills</td> <td>Survey, test, rubrics and manuals</td> <td>100%</td> </tr> <tr> <td colspan="4">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Technique	Weight	1	CO1 to CO12	Observed attitudes, knowledge, and skills	Survey, test, rubrics and manuals	100%	Total				100%
No	CO	Assessment Object	Assessment Technique	Weight												
1	CO1 to CO12	Observed attitudes, knowledge, and skills	Survey, test, rubrics and manuals	100%												
Total				100%												
Forms of media:	Real objects, model, multimedia															
References:	<p>A. Brosnan, Deborah M. &amp; Hopson Janet L.(1990). <i>Essentials of Biology</i>. New York: Mcgraw-Hill Publishing Company</p> <p>B. Campbell, N.A., Reece, J.B. &amp; Mitchell, L.G. (2000). <i>Biologi Edisi kelima, jilid III (Terjemahan)</i>. Jakarta: Penerbit Erlangga. Buku asli diterbitkan tahun 1999.</p> <p>C. Guyton, Arthur C. &amp; Hall, John E. (1996). <i>Fisiologi Kedokteran</i>. (Terjemahan oleh Irawati Setiawan). Jakarta: Penerbit EGC. Buku asli diterbitkan tahun 1996.</p> <p>D. Junqueira Luis C. &amp; Carneiro Jose. (1980). <i>Histologi Dasar Edisi 3</i>. (Terjemahan oleh Adji Dharma). Jakarta: Penerbit EGC. Buku asli diterbitkan tahun 1980.</p> <p>E. Miller, K. R. &amp; Levine, J. (1993). <i>Biology</i>. United States of America: Prentice Hall.</p> <p>F. Way, Jane &amp; Travers. (1996). <i>Immunobiology The Immun System In Health And Disease</i>. New York: Current Biology Ltd.</p>															

### PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11
CO1				✓							
CO2				✓							
CO3				✓							
CO4				✓							

