



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:	Applied Microbiology
Module level, if applicable:	Undergraduate
Code:	BIM6295
Sub-heading,if applicable:	-
Classes,if applicable:	-
Semester:	Even
Module coordinator:	Anna Rakhmawati, M.Si
Lecturer(s):	Anna Rakhmawati, M.Si and Dr. Bernadetta Octavia
Language:	Bahasa Indonesia
Classification within the curriculum:	Elective Course
Teaching format / class hours per week during the semester:	100 minutes lectures, 120 minutes structured activities, and 120 minutes individual studyper week
Work load:	Total workload is 91 hours per semester which consists of 100 minuteslectures, 120 minutes structured activities, and 120 minutes individual study per weekfor 16 weeks.
Credit points:	2 SKS (3 ECTS)
Prerequisites course(s):	Mikrobiologi; Mikologi
Perogram Learning Outcomes:	4. Comprehensively mastering Biology (core biology) to solve problems in the field of Biology (problem-solving) and to underlie the concepts of related sciences 6. Being adaptive, creative, innovative in applying the concepts of Biology and other related fields 9. Being able to work and create jobs/being an entrepreneur in the field of Biology 11. Possessing scientific skills to support the ability to speak in local, national, and international forums
Course Outcomes	Mahasiswa mampu CO 1. Identifikasi konsep dasar Mikrobiologi terapan dan keterkaitannya dengan ilmu yang lain CO 2. Menerapkan peran mikroba di berbagai bidang industri CO 3. Menjelaskan tentang penerapan mikrobiologi pangan CO 4. Mengelaborasi peran mikroba di lingkungan CO 5. Menganalisis peran mikroba dalam siklus biogeokimia CO 6. Menjelaskan potensi mikroba pada bioremediasi CO 7. Mendeskripsikan mikrobiota dalam tubuh organisme CO 8. Mengelaborasi pengendalian mikrobia dan resistensi

	terhadap penyakit CO 9. Mengembangkan mikrobiologi untuk wirausaha CO 10. mempresentasikan <i>group project</i> seputar mikrobiologi terapan															
Content:	Matakuliah ini bertujuan agar mahasiswa memiliki kemampuan memahami dan menjelaskan konsep mikrobiologi terapan dan menjelaskan peranan mikroorganisme yang terkait dengan kehidupan sehari-hari.															
Study/exam achievements:	The final mark will be weight as follow: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">No</th> <th style="width: 20%;">CO</th> <th style="width: 30%;">Assessment Object</th> <th style="width: 25%;">Assessment Technique</th> <th style="width: 20%;">Weight</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>CO1 to CO10</td> <td>Observed attitudes , knowledge, and skills</td> <td>Survey, test, rubrics and manuals</td> <td>100%</td> </tr> <tr> <td colspan="4" style="text-align: right;">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Technique	Weight	1	CO1 to CO10	Observed attitudes , knowledge, and skills	Survey, test, rubrics and manuals	100%	Total				100%
No	CO	Assessment Object	Assessment Technique	Weight												
1	CO1 to CO10	Observed attitudes , knowledge, and skills	Survey, test, rubrics and manuals	100%												
Total				100%												
Forms of media:	Real objects, multimedia															
Reference:	<p>A. Budiyanto, A.K. 2002. <i>Mikrobiologi terapan</i>. UMM Press. Malang</p> <p>B. Glazer. A.N. and Nikaido. H., 2007. <i>Microbial Biotechnology Fundamentals of Applied Microbiology</i>. Cambridge University Press. UK</p> <p>C. Supardi, I dan Sukamto. 1999. <i>Mikrobiologi dalam pengolahan dan keamanan pangan</i>. Penerbit alumni. Bandung</p> <p>D. Pete Marian (editor). 2011. <i>Advances in Applied Biotechnology</i>. Intech. Croatia</p> <p>E. Waites, M.J., N.L. Morgan, J.S. Rockey, and G. Higton. 2001. <i>Industrial Microbiology: an introduction</i>, Blackwell Science, UK</p>															

PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11
CO1				✓							
CO2				✓		✓			✓		
CO3				✓		✓					
CO4				✓		✓					
CO5				✓		✓					
CO6				✓		✓					
CO7				✓		✓					
CO8				✓		✓					
CO9				✓		✓			✓		
CO10				✓		✓					✓