



**THE MODULE HANDBOOK**  
**DOCTOR BIOLOGY STUDY PROGRAM**  
**FACULTY OF BIOLOGY**

**SELECTED TOPIC FOR DISSERTATIONS**

**Microbial Ecology**

<b>Course code</b>	BIDB203124
<b>Course level</b>	Doctoral Program
<b>Semester/ term</b>	Odd/even
<b>Course coordinator</b>	Prof. Dr. Endah Retnaningrum, S.Si., M.Eng.
<b>Lecture(s)</b>	Prof. Dr. Endah Retnaningrum, S.Si., M.Eng.
<b>Language</b>	Indonesian/English
<b>Classification within the Curriculum</b>	Compulsory
<b>Teaching format/ class hours per week during the semester</b>	This course is planned to have 14 teaching weeks and 2 weeks of examination.
<b>Workload</b>	90 hours
<b>Credits</b>	2-0 credits / 3.6 ECTS
<b>Requirements</b>	Receiving approval from the Supervisory Team.
<b>Program Learning Outcome</b>	<p>CPL 2.1. Upon completing this program, the graduates demonstrate an understanding of the scientific philosophy of biology which is related in depth to structure, function, diversity, reproduction, evolution and engineering of biological systems.</p> <p>CPL 2.2. After attending this program, graduates demonstrate an understanding of substantial and leading theory in the field of biology/biological resources in order to support education for sustainable development</p> <p>CPL 3.1. After completing this program, the graduates will be able to discover or develop new scientific theories/concepts/ideas in biology</p>
<b>Course Learning Outcome</b>	<p>BIDB203124.1 By the end of this course, students gain knowledge and understanding of the adaptation, development, and succession of microorganism populations within ecosystems.</p> <p>BIDB203124.2 By the end of this course, students will be able to analyze the diversity and dynamics of microorganism populations in various ecosystems</p> <p>BIDB203124.3 By the end of this course, students will be able to manage, lead, and develop research on</p>



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	microorganism-organism interactions and intercellular communication among microorganisms BIDB203124.4 By the end of this course, students will be able to human life challenges through the application of microbial populations in various ecosystems
<b>Course Description</b>	This course covers the adaptation, development, and succession of microorganism populations within ecosystems, as well as the diversity and dynamics of these populations in various ecosystems. It also explores interactions between microorganisms and other organisms, and intercellular communication among microorganisms. Recent research on the application of microbial populations in diverse ecosystems is integrated into each topic, enabling students to analyze and solve relevant problems
<b>Assessments</b>	The assessment for Selected Topic for Dissertations (Microbial Ecology) is based on two main components, with the respective criteria and weights: A. Participatory Activity (40%) <ul style="list-style-type: none"><li>• Mid-Term Exam (30%)</li><li>• Participation (10%)</li></ul> B. Project (60%) <ul style="list-style-type: none"><li>• Structured Assignment/Task (10%)</li><li>• Final-Term Exam (30%)</li><li>• Project Result/Case Study/Project Based Learning result (20%)</li></ul>
<b>Study Media and Literature</b>	<b>Main</b> 1. Barton, L. L., Diana E. Northup, D. E. 2011. Microbial Ecology. John Wiley & Sons, 2011 <b>Additional</b> 1. Tate, R. L. 2020. Soil Microbiology. John Wiley & Sons, 2. Ashok Kumar Chauhan, A. K., Varma, A. 2006. Microbes: Health and Environment. Anshan Publishers Scientific Publishers