MINISTRY OF EDUCATION AND CULTURE
UNIVERSITAS NEGERI SURABAYA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF NATURAL SCIENCES
Ketintang Campus, Jl. Ketintang C12 Building, Surabaya 60231
Phone (031)18296427
Website http://pendidikan-sains.fmipa.unesa.ac.id

Module Name:	*Ekologi* Ecology
Module Level:	Bachelor degree/Undergraduate Programme
Course Code:	8420103033
Abbreviation, if applicable:	
Courses included in the module, if applicable:	Not applicable
Semester/term	V/third year (junior)
Module coordinator(s):	Ahmad Qosyim, S.Si., M.Pd
Lecturer(s):	Prof. Dr. Fida Rahmadiarti, M.Kes. Dra. Herlina Fitrihidajati, M.Si. Dr. Tarsan Purnomo, M.Si. Dr. Hasan Subekti, M.Pd. Ahmad Qosyim, S.Si., M.Pd
Language:	*Bahasa Indonesia* (Indonesian Language)
Classification within the curriculum:	Compulsory / ~~Elective~~
Teaching format/class hours per week during the semester:	3 contact hours of lectures (Indonesia credit semester or *sks**)
Workload:	3 x 50 minutes lectures, 3 x 60 minutes structured activity, 3 x 60 minutes individual activity, 14 weeks per semester, 119 total hours per semester ~ 4.77 ECTS**
Credit point:	3 *sks* (4.77 ECTS)
Requirements:	General Biology (8420103023)
Learning goals/competencies:	**Course Learning Outcomes (CLOs):** After taking this course, students will be able to: 1. Mastering the basic concepts of Ecology science about the principles and concepts of ecosystems 2. Utilizing Information and communications technology (ICT) to communicate ideas, ideas and findings in Ecological concepts 3. Make strategic decisions based on the data and information that has been done, to apply the concepts of theory and practice 4. Able to work independently, work together in collaborative teams **Sub-CLO:** 1. Introduction: Scope of Ecology: Relationship of Ecology with other sciences, Division of Ecology, Units of living things in ecosystems 2. Principles and Concept of Ecosystem: Concept of ecosystem, concept of productivity 3. Principles and Concepts of Energy: Basic concepts of energy, Concept of productivity 4. The process of eating eating: food chains, food webs, relationships

<table>
<tr><td></td><td>of metabolism and individual size, trophic structures and ecological pyramids
5. Principles and Concepts of the biogeochemical cycle: Types and basic patterns of biogeochemistry, sediment cycle, organic nutrient cycle
6. Limiting Factors: Liebig's Minimum Law, Shelford's Law of Tolerance, Physical-Chemical Factors as Limiting factors, Ecological Indicators
7. Community: the concept of community, intra-community classification, diversity of species, patterns in the community, ecotone
8. Population growth, interaction and regulation: Basic concept of population, characteristics of population, population growth, basic concept of population rate, population interaction, environmental carrying capacity
9. Species and Individuals: Concept of species, Habitat, Ecological niche, Speciation and Adaptation
10. Eco-energetics and ecosystem development: Energy flows, dispersion, aggregation, isolation and territoriality, group selection, the concept of climax, ecosystem development
11. Biome: Terrestrial environment, vegetation, types of biomes
12. Conservation History</td></tr>
<tr><td>Content:</td><td>Understand, and communicate the basic concepts of Ecology regarding: understanding and application of the principles and concepts of individuals, populations, communities, ecosystems; vegetation: productivity, succession, environmental factors, biomes, tropical terrestrial vegetation; tolerance range, time-temperature concept, feeding-eating relationships, ecological niches, growth parameters, interaction and regulation, population interaction and regulation, and conservation. Presented in the form of theory and practice.</td></tr>
<tr><td>Attribute Soft skill:</td><td>Discipline, collaboration, responsibility, and argumentation in the natural classroom setting</td></tr>
<tr><td>Study/exam achievements:</td><td>Students are considered to be competent and pass if at least get 40% of the maximum final grade. The final grade (NA) is calculated based on the following weight:

<table>
<tr><th>Assessment Components</th><th>Percentage Contribution</th></tr>
<tr><td>Participation</td><td>20%</td></tr>
<tr><td>Assignment</td><td>30%</td></tr>
<tr><td>Mid-semester test</td><td>20%</td></tr>
<tr><td>Final semester test</td><td>30%</td></tr>
<tr><td>Total</td><td>100%</td></tr>
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<tr><td>Learning Methods</td><td>Constructivism, student-centered approach, project-based learning, lecturing, discussion, and presentation (structured activities), and flip learning</td></tr>
<tr><td>Form of Media:</td><td>LCD, PowerPoint slides, worksheets,</td></tr>
<tr><td>Literature (primary references):</td><td>1. Campbell, N. A. et al. (2008). Biology; Eighth Edition. San Fransisco: Pearson, Benjamin Cummings.
2. Van der Maarel, Eddy. Ed. 2005. Vegetation Ecology. Printed and bound in the United Kingdom. by Blakwell Science Ltd a Black Well Publising Company.</td></tr>
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	3. Myers, Judith H. and Bazely Dawn R. 2003. *Ecology and Control of Introduced Plants*. The Edinburgh Building, Cambrige CB2 2RU, United Kingdom. Cambridge Universty Press. 4. Mayhew, Peter J. 2006. *Discovering Evolutionary Ecology*. Published in the United States; by Oxford University Press Inc., New York. 5. Mackenzie, A. A.S. Bali & S.R. Virdee. 1998. *Instant Note In Ecology*. Singapore: Bios Scientific Publishers Ltd. 6. Spellerberg, lan,F. Longman. 1998. *Conservation Biology*. Singapore Publishers Ltd. 7. Gough, A. (2004). Achieving "Sustainability Education" in Primary Schools as a Result of the Victorian Science in Schools Research Project. *Australian Journal of Environmental Education, Vol. 20*(2). 8. Gough, A., & Sharpley, B. (2005). *Education for a sustainable future: A National Environmental Education Statement for Australia school.* Diambil dari http://www.environment.gov.au/education/publications/pubs/national-action -plan.pdf
Notes:	***1 *sks* in learning process = three contact hours that consist of: (a) scheduled instruction in a classroom or laboratory (50 minutes); (b) structured activity (60 minutes); and (c) individual activity (60 minutes)** according to the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 44 Year 2015 jo. the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 50 Year 2018.
	****1 sks = 1,59 ECTS**