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| Module designation                                    | Basics of Environmental Science                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Module level, if applicable                           | Undergraduate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Code, if applicable                                   | PBIOUM6108                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Subtitle, if applicable                               | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Courses, if applicable                                | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Semester(s) in which the module is taught             | Odd semester                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Person responsible for the module                     | Dr. Sueb, M.Kes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Lecturer                                              | Dr. Sueb, M.Kes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Language                                              | Bahasa Indonesia and English                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Relation to curriculum                                | Undergraduate degree program, elective, 5th semester.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Type of teaching, contact hours                       | Undergraduate degree program: cooperative learning, presentation, 2 x 50 = 100 minutes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Workload                                              | 1. Lectures: 2 x 50 = 100 minutes (1.67 hours) per week.<br>2. Exercises and Assignments: 2 x 60 = 120 minutes (2 hours) per week.<br>3. Private study: 2 x 60 = 120 minutes (2 hours) per week.                                                                                                                                                                                                                                                                                                                                                                                                   |
| Credit points                                         | 2 credit points (~3 ECTS-eq)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Requirements according to the examination regulations | A student must have attended at least 80% of the lectures to be eligible for the final examination.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Recommended prerequisites                             | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Module objectives/intended learning outcomes          | After completing this module, a student is expected to:<br>(LO4) Master theoretical concepts and basic biological procedures and manage laboratories in an integrated manner using logical, critical, and systematic thinking.                                                                                                                                                                                                                                                                                                                                                                     |
| Course Learning Outcomes                              | 1. Mastering various concepts of environmental science, environmental issues, and environmental management<br>2. Determining attitudes in applying various principles of environmental science, and various ways of environmental management to produce people who are environmentally aware ( <i>environmental awareness</i> ) and environmentally literate ( <i>environmental literacy</i> )<br>3. Solving various environmental problems through various efforts, including group research which is then communicated through good and communicative class discussion presentations or seminars |

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| Content           | <p>This course covers the following main topics:</p> <ul style="list-style-type: none"> <li>• Environmental W Study</li> <li>• Environmental problems</li> <li>• Population and Problems (Population Dynamics and Human Power)</li> <li>• Population and Population Density Problems,</li> <li>• Ecology: Fundamentals of Environmental Knowledge, Environmental Principles</li> <li>• Natural Resources: Land, Agricultural system</li> <li>• Natural Resources: Forest, Clean Water;</li> <li>• Natural Resources: Beach and Sea</li> <li>• Natural Resources: Minerals and Energy</li> <li>• Pollution: Soil and Water, Pollution: Air and Toxic Solid Waste, Environment and Health, Strategies for Environmental Development.</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                          |
| Learning activity | Week 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Semester Plan elaboration, offline and online course which includes synchronous and asynchronous learning, group division, material distribution, and group discussion in writing preparation for theoretical papers, explanation of project papers, introduction (definition of environmental science), discussion of access procedures to ebooks and journal articles. |
|                   | Week 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>Theory: Environmental worldview (explanation of three environmental insights, namely planetary management, stewardship, and environmental wisdom)</p> <p>Various environmental problems and the relationship between environmental insight and environmental problems.</p>                                                                                            |
|                   | Week 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Theory: Ecology as the basis of environmental science and the application of the principles of sustainability to reduce environmental problems.                                                                                                                                                                                                                          |
|                   | Week 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>Theory: Dynamics of human population.</p> <p>Solutions to population problems (uneven population density and high population growth) and improve the relationship between population and the environment.</p>                                                                                                                                                         |
|                   | Week 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Theory: Natural resource and forest management.                                                                                                                                                                                                                                                                                                                          |
|                   | Week 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>MIDTERM EXAMINATION 1</p> <p>Submission of project plans done by groups who are ready to take field data.</p>                                                                                                                                                                                                                                                         |
|                   | Week 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Theory: Management of clean water resources, drinking water and zam-zam water.                                                                                                                                                                                                                                                                                           |
|                   | Week 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Theory: Management of coastal and marine resources.                                                                                                                                                                                                                                                                                                                      |
|                   | Week 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>Theory: Management of mineral and energy resources.</p> <p>Air pollution</p>                                                                                                                                                                                                                                                                                          |
|                   | Week 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Theory: Soil and water pollution.                                                                                                                                                                                                                                                                                                                                        |

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|                                                             | Week 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Theory : Waste management (discussing various waste management efforts)<br>The relationship between environmental problems and internal health. |
|                                                             | Week 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | MIDTERM EXAMINATION 2<br>Submission of complete project plans                                                                                   |
|                                                             | Week 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Theory: Presentation and discussion of group project paper assignments.                                                                         |
|                                                             | Week 14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Theory: Presentation and discussion of group project paper assignments.                                                                         |
|                                                             | Week 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Theory: Presentation of group project papers                                                                                                    |
|                                                             | Week 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | FINAL EXAMINATION                                                                                                                               |
| Study and examination requirements and forms of examination | Assignment of Theory paper, Assignment of project paper, Midterm examination, Final examination, Performance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                 |
| Media employed                                              | LCD, power point, white board, video and moodle (Sipejar)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                 |
| Reading list                                                | <ol style="list-style-type: none"> <li>1. Cunningham, W.P. &amp; Cunningham, M.A. 2011. Principles of Environmental Science Inquiry and Application. International Edition. Boston: McGraw Hill (ebook).</li> <li>2. Miller, G.T. Jr. &amp; Spoolman, S.J. 2010. Environmental Science. Eight Edition. Australia: Brooks/Cole Thomson Learning (ebook).</li> <li>3. Miller, G.T. Jr. &amp; Spoolman, S.E. 2009. Living in the Environment. Belmont, CA: Brooks/Cole 10 Davis Drive (ebook).</li> <li>4. Frumkin, Howard. 2010. Environmental Health: From Global to Local. San Francisco: John Wiley &amp; Sons (ebook).</li> <li>5. Saravanan, K., Ramachandran dan Baskar. 2005. Principles of Environmental Science. New Delhi: New Age International (ebook).</li> <li>6. United Nations Environment Programme. 2012. 21 Issues for the 21st Century Results of the UNEP Foresight Process on Emerging Environmental Issues. Nairobi: UNEP Publishers (ebook).</li> <li>7. Law No.32 of 2009 on the Protection and Management of the Environment (UUPPLH).</li> <li>8. Various valid laws or government regulations in Indonesia regarding the latest and most up-to-date subject matter (topics).</li> <li>9. Various laws in developed countries related to the latest and most recent subject matter for comparison</li> <li>10. Various international journal articles with the most recent reputation and indexed (up to date) (last 5-10 years) at least 10 pieces</li> <li>11. Various accredited national journal articles.</li> <li>12. Various articles in proceedings (5-10 years) of international/national seminars/conferences</li> </ol> |                                                                                                                                                 |

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| Date of last amendment made | January, 2022 |
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