



UNIVERSITAS NEGERI YOGYAKARTA

FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF SCIENCE EDUCATION

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Bachelor of Education in Science

MODULE HANDBOOK

Module name:	Biophysics
Module level, if applicable:	Undergraduate
Code:	IPA6232
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	6 th
Module coordinator:	Dr. Dadan Rosana, M.Si
Lecturer(s):	Dr. Dadan Rosana, M.Si and Joko Sudomo, M.A.
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory Course
Teaching format / class hours per week during the semester:	100 minutes lectures and 120 minutes structured activities per week.
Workload:	Total workload is 90,67 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 ETCS)
Prerequisites course(s):	-
Targeted learning outcomes:	After careful study of this chapter you should be able to do the following: CO1. understanding biomechanics, biolistics and magnetism, radiobiology, fluids in biological systems, thermodynamics in biological systems and membranes. CO2. applying biomechanical theory, biology, biomagnetics, and radiobiology in living systems, especially in the fields of sports and health, CO3. understand the basic principles of fluid in biological, thermodynamic systems in biological systems and membranes. CO4. analyze the optical concepts, waves and sounds in the

	<p>sensory system, especially vision and hearing</p> <p>CO5. communicate well orally and in writing about the application of physics to biological systems.</p> <p>CO6. caring, responsible, disciplined and able to cooperate in health and environmental related issues related to scientific principles taught in Biophysics courses.</p>																						
Content:	<p>The Biophysics course is a compulsory subject for students majoring in Science Education. This lecture is an application/ application of Physics concepts into the field of Biology. In this course, facilitated by lecturers, students will study biomechanics, biolistics and biomagnets, radiobiology, fluids in biological systems, thermodynamics in biological systems, energy in cells and membranes, and physics in human sensory devices. Expected competencies are to have adequate insight and master knowledge about biophysics, and can be in accordance with the development of science and technology. Lectures are delivered through methods: lectures, questions and answers, discussions, simulations and experiments with problem solving approaches. Evaluations are carried out through tests and non-tests. To support their understanding, students are required to make papers on the application of physics in the field of biology.</p>																						
Study / exam achievements:	<p>Attitude assessment is carried out at each meeting by observation and/or self-assessment techniques using the assumption that basically every student has a good attitude. The student is given a value of very good or not good attitude if they show it significantly compared to other students in general. The result of attitude assessment is not a component of the final grades, but as one of the requirements to pass the course. Students will pass from this course if at least have a good attitude.</p> <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 rowspan="5">1</td> <td rowspan="5">C01, C02, C03, C04, C05, C06 and C07</td> <td>a. Individual Assignment</td> <td rowspan="5">Presentation / written test</td> <td>15%</td> </tr> <tr> <td>b. Group Assignment</td> <td>15%</td> </tr> <tr> <td>c. Quiz</td> <td>25%</td> </tr> <tr> <td>d. Mid</td> <td>30%</td> </tr> <tr> <td>e. Final Exam</td> <td></td> </tr> <tr> <td colspan="3">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Technique	Weight	1	C01, C02, C03, C04, C05, C06 and C07	a. Individual Assignment	Presentation / written test	15%	b. Group Assignment	15%	c. Quiz	25%	d. Mid	30%	e. Final Exam		Total			100%
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		e. Final Exam																					
Total			100%																				
Forms of media:	Board, LCD Projector, Laptop/Computer																						
Literature:	<p>Martin Zinke-Allmang. (2017). <i>Physics for the Life Sciences, 3rd Edition</i>. Cengage Learning EMEA. New York.</p> <p>Dadan Rosana. (2016). Modul Biofisika. Program Studi</p>																						

	Pendidikan IPA, FMIPA, Universitas Negeri Yogyakarta Cromer H.Alam, <i>Physics for the life science</i> , 1977 McGraw Hill, Inc, New York
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PLO and CO mapping

	PLO											
	Attitude			Knowledge				Spesific SKill				
	PLO1	PLO2	PLO3	PLO1	PLO2	PLO3	PLO4	PLO1	PLO2	PLO3	PLO4	PLO5
CO1				✓		✓						
CO2					✓	✓						
CO3				✓	✓							
CO4					✓		✓					
CO5				✓			✓					
CO6					✓	✓						