

MODULE HANDBOOK

	UNIVERSITAS PADJADJARAN FACULTY OF MATHEMATICS AND NATURAL SCIENCES BACHELOR OF BIOLOGY PROGRAMME	COURSE CODE: D10D-50603
Module designation	Animal Biotechnology	
Semester in which the module is taught	5	
Persons responsible for the module	1. Dr. Madihah 2. Dr. Desak Made Malini 3. Dr. Yasmi P. Kuntana	
Medium of instruction	Indonesian	
Relation to curriculum	Compulsory course of interest of specialization	
Teaching methods	Student-Centered Learning, Project-based Learning, Collaborative Learning	
Workload	Total workload : 5440 minutes = 90.67 hour Lecture, discussion, and collaborative learning : 2 x 50 minutes x 16 weeks = 1600 minutes = 26.67 hours Exercises : 2 x 60 minutes x 16 weeks = 1920 minutes = 32 hours Self-study : 2 x 60 minutes x 16 weeks = 1920 minutes = 32 hours	
Credit points	2.00 (3.62 ECTS)	
Required and recommended prerequisites for joining the module	Animals Structure and Physiology	
Module objectives/intended learning outcomes	1. Able to apply basic concepts of animal biotechnology, including the history of its development, limitations, and scope of application in the fields of agricultural science and medicine, as well as for commercial applications. 2. Able to relate various assisted reproductive technology techniques in animals and their impact on reproductive efficiency and genetic resource sustainability. 3. Able to determine the principles of biotechnology in improving livestock nutrition through feed modification and the appropriate use of nutraceuticals. 4. Able to apply the use of animal cell cultures for health and therapeutic applications such as vaccine antibody production and the development of transgenic animals. 5. Able to analyze the role of biotechnology in improving productivity and sustainability in aquaculture and fisheries. 6. Able to maximize skills in applying data literacy and technology literacy to assess the application of a technology in solving problems related to reproduction, nutrition, and health in animals and humans. 7. Able to evaluate regulations and bioethical principles related to the management and application of animal biotechnology products, including their impact on society and the environment. 8. Able to direct alternative solutions based on animal biotechnology to solve problems in sustainable biological resource management.	
Contents	This course studies the application of biological science and engineering using animals, especially in the field of health, which includes animal cell culture and transgenic animals, applications in health or therapeutics (production of monoclonal antibodies, enzymes), and applications in assisted reproduction techniques.	

Examination forms	Quiz, Midterm exam, Assignment, and Final exam
Study and examination requirements	The minimum attendance in lectures is 80%. Final grades are evaluated based on quiz (10%), midterm exam (15%), assignment (10%), final exam (15%), project and participation (50%)
Reading lists	<ol style="list-style-type: none"> 1. Freshney, R. I. 2010. Culture of animal cells: a manual of basic technique and Specialized Applications, 6th ed. New York: Wiley-Liss, Inc. 2. Hogan, B., Contantini, F. & Lacy, E. 1986. Manipulating the mouse embryo: a laboratory manual. New York: Cold Spring Harbor Laboratory. 3. Abubakar, M., Saeed, A., Kul, O. (2015). The Role of Biotechnology in Improvement of Livestock: Animal Health and Biotechnology. Berlin: Springer-Verlag. 4. Singh, B., Mal, G., Gautam, S.K., Mukesh, M. (2019). Advances in Animal Biotechnology. Springer. 5. Current Status and Options for Biotechnologies in Aquaculture and Fisheries in Developing Countries (https://www.fao.org/3/i2300e/i2300e04.pdf) 6. Kristanto, A.H., 2022. Domestikasi Ikan Air Tawar Asli Indonesia Mendukung Produksi Perikanan. Jakarta: Penerbit BRIN.