MODULE HANDBOOK

	UNIVERSITAS PADJADJARAN **FACULTY OF MATHEMATICS AND NATURAL SCIENCES** **BACHELOR OF BIOLOGY PROGRAMME**	**COURSE CODE :** **D10D-4010**
Module designation	Biotechnology and Bioinformatics	
Semester in which the module is taught	4	
Persons responsible for the module	1. Prof. Dr. Ratu Safitri, MS. 2. Febri Doni, Ph.D 3. Yolani Syaputri, Ph.D	
Medium of instruction	Indonesian	
Relation to curriculum	Compulsory course	
Teaching methods	Lectures, discussions, Project-based Learning and collaboration learning	
Workload	Total workload : 8160 minute = 136 hour Lecture, discussion, and collaboration learning : 3 x 50 minute x 16 week = 2400 minute = 40 hour Exercises : 3 x 60 minute x 16 week = 2880 minute = 48 hour Self-study : 3 x 60 minute x 16 week = 2880 minute = 48 hour	
Credit points	3.00 (5.43 ECTS)	
Required and recommended prerequisites for joining the module	Cell and Molecular Biology	
Module objectives/intended learning outcomes	1. Students are able to relate omics technology to biotechnology applications in the fields of health, industry, environment, and agriculture 2. Students are able to determine DNA recombination techniques, molecular analysis techniques, and stem cells in everyday life 3. Students are able to apply sequence databases and demonstrate P3 software in the creation of phylogenetic trees 4. Students are able to analyze 3D protein modeling and demonstrate software in protein sequencing analysis	
Contents	Study the development of traditional and cutting-edge biotechnology. Biology/microbiology as a basic science in biotechnology, Polymerase Chain Reaction (PCR), genomic, proteomic, basics of recombinant DNA technology, cloning vectors, DNA sequencing, as well as discussing processes in metabolism as the basis of bioprocessing, the role of microbes in industry. In biotechnology, the role of microbes in industry. Types of raw materials, factors, and supporting facilities related to bioprocessing. Methods of implementing bioprocessing of various biotechnology commodities.	
Examination forms	Pretest, Posttest, 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	1. T.A. Brown. 2016. *Gene Cloning and DNA Analysis, An Introduction*. Wiley-Blackwell. West Sussex, UK. 2. S.B. Primrose and R.M. Twyman. 2014. *Principles of Gene Manipulation and Genomics.* Blackwell Publishing. 3. William J. Thieman and Michael A. Palladino. 2013. *Introduction to Biotechnology.* Pearson. Boston. 4. Barh, Debmalya; Khan, Iqrar Ahmad; Khan, Muhammad Sarwar. 2015. *Applied molecular biotechnology: the next generation of genetic engineering*. CRC Press/Taylor & Francis. London. 5. B.R. Glick, J.J Pasternak, C.L. Patten. 2017. *Molecular Biotechnology Principle and Application on Recombinant DNA*. 5th Edition. ASM Press. Washington D.C. 6. Choudhuri, S. 2014. *Bioinformatics for beginners. Academic Press*. Maryland. https://doi.org/10.1016/C2012-0-07153-0	