


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	<ol style="list-style-type: none"> 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, and collaboration learning													
Workload	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Total workload</td> <td style="width: 30%;">: 8160 minute = 136 hour</td> <td style="width: 40%;"></td> </tr> <tr> <td>Lecture, discussion, and collaboration learning</td> <td>: 3 x 50 minute x 16 week = 2400 minute = 40 hour</td> <td></td> </tr> <tr> <td>Exercises</td> <td>: 3 x 60 minute x 16 week = 2880 minute = 48 hour</td> <td></td> </tr> <tr> <td>Self-study</td> <td>: 3 x 60 minute x 16 week = 2880 minute = 48 hour</td> <td></td> </tr> </table>		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	
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Credit points	3.00 (5.43 ECTS)													
Required and recommended prerequisites for joining the module	Cell and Molecular Biology													
Module objectives/intended learning outcomes	<ol style="list-style-type: none"> 1. Students know the application of biotechnology 2. Students recognize the basics of omics technology 3. Students understand DNA recombination techniques, molecular analysis techniques 4. Students know about basic bioinformatics tools, and the main applications of bioinformatics, Databases, Data Format, Data Search, Data Retrieval Systems, and Genomic Browsers 5. Students know about the basics of fermentation and fermentation technology 													
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 pretest (10%), posttest (10%), midterm exam (25%), assignment (20%), and final exam (35%)													
Reading lists	<ol style="list-style-type: none"> 1. T.A. Brown. 2016. <i>Gene Cloning and DNA Analysis, An Introduction</i>. Wiley-Blackwell. West Sussex, UK. 2. S.B. Primrose and R.M. Twyman. 2014. <i>Principles of Gene Manipulation and Genomics</i>. Blackwell Publishing. 3. William J. Thieman and Michael A. Palladino. 2013. <i>Introduction to Biotechnology</i>. Pearson. Boston. 4. Barh, Debmalya; Khan, Iqrar Ahmad; Khan, Muhammad Sarwar. 2015. <i>Applied molecular biotechnology: the next generation of genetic engineering</i>. CRC Press/Taylor & Francis. London. 5. B.R. Glick, J.J Pasternak, C.L. Patten. 2017. <i>Molecular Biotechnology Principle and Application on Recombinant DNA</i>. 5th Edition. ASM Press. Washington D.C. 6. Choudhuri, S. 2014. <i>Bioinformatics for beginners</i>. Academic Press. Maryland. https://doi.org/10.1016/C2012-0-07153-0 													