

Appendix 4.1

Module Name		Biotechnology of Animal Science
Module Level, if applicable	Advance	
Code if Applicable	220354875	
Subtitle, if applicable	-	
Courses, if applicable	220354875, Biotechnology of Animal Science	
Semester(s) in which the module is taught	Semester VII	
Person responsible for the module	DR. IR. Aris Winaya, MM, M.SI., IPU.	
Lecturer	1. Dr. Ir. Aris Winaya, MM, M.Si., IPU. 2. Dr. Ir. Ahmad Wahyudi, M.Kes., IPU. 3. Ir. Suyatno, M.Si.	
Language	Indonesian	
Relation to curriculum	Compulsory Courses for undergraduate program in Department of Animal Science Faculty of Agriculture and Animal Science	
Type of teaching, contact hours	Type of teaching: Face to face and Reporting Contact hours : 3 hours x 14 weeks	
Workload	Class : 2 hours x 14 weeks = 28 hours Practical class : 1 hours x 14 weeks = 14 hours Examination 2 hours x 2 time = 4 hours Total: 46 hours	
Credit points	SKS 3 SCH x (1.4) = 4.2 ECTS	
Requirements according to the examination regulations	1. Registered in this course 2. Minimum 80% attendance in this course	
Recommended prerequisites	Graduated from General Biology, Cell and molecular biology and Genetics courses	
Module Objectives (Intended learning outcomes)	By the end of the module, students should be able to:  1. Able to understand the nature and principles of biotechnology and its relation to various underlying disciplines to improve the quality of human life which includes a general view of traditional and modern biotechnology (DNA isolation and analysis techniques, genetic engineering techniques and applications) and bioethics.	

	<p>2. Able to analyze biotechnology concepts based on various disciplines (P1, P8)</p> <p>3. Skilled in reviewing, presenting, and providing recommendations (KU1, KU3, KU5, KK8, KK4, KK3)</p> <p>4. Review theory, discussion, analysis of scientific articles/research results independently and responsibly in accordance with academic values, norms, and ethics. (S8, S9, KU1, KU3, KU5, KK4)</p>
<b>Module Content</b>	<p>This course presents materials and concepts about the nature, principles of biotechnology and their relation to various underlying scientific disciplines to improve the quality of human life which includes a general view of traditional/conventional and modern biotechnology (DNA isolation and analysis techniques, genetic engineering techniques and applications). ) and bioethics so as to be able to make critical analyzes of various research results on the application of biotechnology both traditional and modern by complying with applicable regulations with full responsibility through various learning activities in the form of assignments (papers, study journals, analysis of scientific articles on research results/journals, and projects). manufacture of conventional biotechnology products), presentations and discussions, and lecturer lectures.</p>
<b>Study and examination requirements and forms of examination</b>	<p><b>Cognitive:</b> Midterm exam, Final exam, Quizzes, Assignments</p> <p><b>Psychomotor:</b> Practice</p> <p><b>Affective:</b> Assessed from the element /variables achievement, namely (a) Contributions (attendance, active, role, initiative, and language), (b) Being on time, (c) Effort.</p>
<b>Media employed</b>	<p>Classical teaching tools with white board and power point presentation</p>
<b>Recommended Literature</b>	<p>For Class</p> <p>A. Compulsory</p> <p>B. Smith, J.E., 2009. <i>Biotechnology-Fifth Edition</i>, New York: Cambridge University Press.</p>

C. Option

1. Campbell, N., A., Reece, J., B., Urry, L., A., Cain, M., L., Wasserman, S., A., Minorsky, P., V., Jackson, R., B., (2010). *Biologi Jilid I*. Jakarta: Erlangga.
2. Nair, A.J., 2007. *Introduction to Biotechnology and Genetic Engineering*. Massachussets: Infinity Science Press LLC.
3. Mosier & Ladisch, 2009, *Modern Biotechnology*, New Jersey: John Wiley & Sons, Inc.
4. Wilson & Walker, 2010, *Principles and Techniques of Biochemistry and Molecular Biology-Sevent Edition*, Cambridge: Cambridge University Press
5. Moller & McPherson, 2006. *PCR-Second Edition*, New York: Taylor & Francis Group
6. Meltzer, S.J., 1998. *PCR in Bioanalysis*. New Jersey: Humana Press Inc.
7. Nguyen, H.T., 2004. *Physiology and Biotechnology Integration for Plant Breeding*. New York: Marcel Dekker Inc.
8. Gordon, I., 2005. *Reproductive Technologies in Farm Animals*. USA: CABI Publishing
9. Sumber belajar lain yang relevan.
10. Jurnal atau hasil penelitian bidang bioteknologi dan berbagai disiplin ilmu yang relevan

For practical class

A. Compulsory

1. Smith, J.E., 2009. *Biotechnology-Fifth Edition*, New York: Cambridge University Press.

B. Option

1. Campbell, N., A., Reece, J., B., Urry, L., A., Cain, M., L., Wasserman, S., A., Minorsky, P., V., Jackson, R., B., (2010). *Biologi Jilid I*. Jakarta: Erlangga.
2. Nair, A.J., 2007. *Introduction to Biotechnology and Genetic Engineering*. Massachussets: Infinity Science Press LLC.
3. Mosier & Ladisch, 2009, *Modern Biotechnology*, New Jersey: John Wiley & Sons, Inc.
4. Wilson & Walker, 2010, *Principles and Techniques of Biochemistry and Molecular Biology-Sevent Edition*,

	<p>Cambridge: Cambridge University Press</p> <ol style="list-style-type: none"><li>5. Moller &amp; McPherson, 2006. <i>PCR-Second Edition</i>, New York: Taylor &amp; Francis Group</li><li>6. Meltzer, S.J., 1998. <i>PCR in Bioanalysis</i>. New Jersey: Humana Press Inc.</li><li>7. Nguyen, H.T., 2004. <i>Physiology and Biotechnology Integration for Plant Breeding</i>. New York: Marcel Dekker Inc.</li><li>8. Gordon, I., 2005. <i>Reproductive Technologies in Farm Animals</i>. USA: CABI Publishing</li><li>9. Sumber belajar lain yang relevan.</li><li>10. Jurnal atau hasil penelitian bidang bioteknologi dan berbagai disiplin ilmu yang relevan</li></ol>
<b>Date of Last Amendment</b>	24 <sup>th</sup> August 2022