THE MODULE HANDBOOK

Magister Biology Study Program

FACULTY OF BIOLOGY

ANALITICAL BIOCHEMISTRY

Course code	BIMB202111
Course level	Magister
Semester/ term	Odd and Even
Course coordinator(s)	Dr. Rarastoeti Pratiwi, M.Sc.
Lecture(s)	Dr. Yekti Asih Purwestri, M.Si. Dr. Tri Rini Nuringtyas, M.Sc. Dr. Woro Anindito Sri Tunjung, M.Sc. Prof. Dr. L. Hartanto Nugroho, M.Agr.Sc.
Language	Indonesian
Classification within the Curriculum	Compulsory for Biomedical Concentration
Teaching format/ class hours per week during the semester	This course is organised into one classes and planned to have 14 teaching weeks and 2 weeks of examination.
Workload	Estimated working hour: 2credits of theory and 1 credit of laboratory work.
Credits	2-1 credits
Requirements	-
Program Learning Outcome	*CPL K2: appropriate biological research methods (knowledge);* *CPL GS2:* make decisions in solving biological problems based on analytical or experimental studies and critical analysis of information and data (General Skills)
Course Learning Outcome	1. Students have knowledge and understanding of the relationship between facts and concepts, principles, and theories both from the basic principles of biochemistry in order to understand and analyze biomolecules more comprehensively to reveal biological phenomena. 2. Students can analyze and solve problems and can integrate and evaluate information and data on the analysis of biomolecules in living things from various sources. 3. Students are skilled in using libraries, communicating effectively, both written, oral and with tables and figures as well as using communication and information technology, especially in the field of analytical biochemistry as well as applying and integrating several

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<tr><td></td><td>methods of biomolecular analysis into biological science and its branches.

4. Students have a basic curiosity, appreciate the originality of ideas, concepts and discoveries, views and other opinions that are interdisciplinary in exploring, utilizing and conserving natural resources, as well as being sensitive to changes and biological problems in the global/regional/local scope.</td></tr>
<tr><td>Course Description</td><td>This course discusses the understanding of biomolecular analysis including sample preparation, including the accuracy and precision of measurements; understanding of acid base, buffer system and pH meter; cell homogenization and dialysis; extraction, fractionation and analysis of bioactive compounds; as well as isolation and purification of DNA, RNA and protein, as well as labeling and sequencing of radioisotopes. In addition, it also discussed advanced understanding of centrifugation techniques, spectroscopy, and various chromatography: gel filtration, ion exchange chromatography, partition chromatography, and gas chromatography and electrophoresis; and Polymerase Chain Reaction (PCR). To improve the ability and skills of biomolecular analysis, an Analytical Biochemistry practicum is given which is described in the Practical Assistance and Instructions Book. For deepening course material, assignments are in the form of quizzes, summarizing lecture material, mid-semester and end-semester exams, while for practicums, assignments are in the form of preliminary tests, pre-tests and reporting for each practicum event and responses</td></tr>
<tr><td>Assessments</td><td>
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<tr><th>Assessments Component</th><th>Percentage (%)</th><th>CPMK 1</th><th>CPMK 2</th><th>CPMK 3</th><th>CPMK 4</th></tr>
<tr><td>Project/Practical course</td><td>30</td><td></td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>Assignment</td><td>2.5</td><td></td><td></td><td></td><td>√</td></tr>
<tr><td>Quiz</td><td>2,5</td><td>√</td><td></td><td></td><td></td></tr>
<tr><td>Midterm Examination</td><td>30</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>Final Examination</td><td>35</td><td>√</td><td>√</td><td></td><td></td></tr>
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<tr><td>Study Media</td><td>computer, gadget, internet access</td></tr>
<tr><td>Literature</td><td>1. Wilson, K. And Walker, J. 2011. Principles and Technique of Biochemistry and Molecular Biology. Seventh Edition. Cambridge University Press (e-book)

2. Altemimi, A. Lakhssassi, N. Baharlouei, A, Watson, D.G. and Lightfoot, D.A. 2017. Review: Phytochemicals: Extraction, Isolation,</td></tr>
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	and Identification of Bioactive Compounds from Plant Extracts. MDPI (e-journal).