



THE MODULE HANDBOOK
DOCTOR BIOLOGICAL SCIENCES STUDY PROGRAM
FACULTY OF BIOLOGY

SELECTED TOPIC FOR DISSERTATIONS

Analytical Biochemistry

Course code	BIDB203117
Course level	Doctoral Program
Semester/ term	Odd/even
Course coordinator	Prof. Dr. Rarastoeti Pratiwi, M.Sc
Lecture(s)	Prof. Dr. Rarastoeti Pratiwi, M.Sc. Prof. 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/English
Classification within the Curriculum	Compulsory Specialization Courses
Teaching format/ class hours per week during the semester	This course is planned to have 14 teaching weeks and 2 weeks of examination.
Workload	1,125 hours/day 5 days/week 5,625 hours/week 16 Weeks/Semester total workload : 90 hours/3,6 ECTS
Credits	3.6 ECTS
Requirements	-
Program Learning Outcome	CPL 1.2. Upon completing this program, the graduates demonstrate an attitude of being able to demonstrate honesty, responsibility, self-confidence, emotional maturity, ethics, and awareness of being a lifelong learner CPL 3.1. After completing this program, the graduates will be able to discover or develop new scientific theories/concepts/ideas in biology
Course Learning Outcome	BIDB203117.1 By the end of this course, students will be able to develop an understanding of the relationships between facts, concepts, principles, and theories particularly those derived from the fundamental principles of biochemistry in order to comprehend and analyze biomolecules more comprehensively, and to elucidate biological phenomena.



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	BIDB203117.2 By the end of this course, students will be able to to apply biomolecular analysis methods to address relevant problems, and to integrate and critically evaluate information and data from various sources regarding biomolecular analysis processes in living organisms. BIDB203117.3 By the end of this course, students will be able to formulate and design appropriate research methodologies relevant to their dissertation work.
Course Description	This course provides an advanced exploration of biomolecular analysis, covering sample preparation techniques with an emphasis on ensuring data validity and accuracy through precise and accurate measurements. It addresses the influence of both micro- and macro-environmental conditions during biomolecular analysis, the importance of achieving sample homogeneity both in intact cells and extracted materials and the critical conditions affecting extraction, fractionation, and analysis of bioactive compounds. The course also includes techniques for the isolation and purification of DNA, RNA, and proteins, as well as radioisotope labeling and tracing.
Assessments	The assessment for Selected Topic for Dissertations (Analytical Biochemistry) is based on four components, with the respective criteria and weights: 1. Presentation Assignment (30%) 2. Mid-term Exam (20%) 3. Final-term Exam (20%) 4. Structured Assignment/task (20%) 5. Quiz (10%)
Study Media and Literature	Main 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.Principles and Technique of Biochemistry and Molecular Biology. Seventh Edition. Cambridge University Press (e-book) Additional 1. Review: Phytochemicals: Extraction, Isolation, and Identification of Bioactive Compounds from Plant Extracts. MDPI (e-journal) 2. Course material from lecturer (PPT, Vidio, etc) and any journals related to topic