THE MODULE HANDBOOK

Magister Biology Study Program

FACULTY OF BIOLOGY

ANIMAL INVITRO CELL CULTURE

Course code	BIMB202241
Course level	Magister
Semester/ term	Odd/Even
Course coordinator(s)	Dr. Bambang Retnoaji, S.Si., M.Sc.
Lecture(s)	1. Dr. Bambang Retnoaji, S.Si., M.Sc. 2. Dr. biol.hom. Nastiti Wijayanti, S.Si., M.Si. 3. Dr. Ardaning Nuriliani, S.Si., M.Kes.
Language	Indonesia and English (if there is/are foreign student(s))
Classification within the Curriculum	Elective course
Teaching format/ class hours per week during the semester	This course is organized into 1 class and planned to have 14 teaching weeks and 2 weeks of examination.
Workload	Estimated working hour: 2 credits of theory and 1 credit of laboratory work.
Credits	2-1 credits
Requirements	-
Program Learning Outcome	KN1 The graduates are **demonstrating knowledge and comprehend** biological theories, includes all aspects of biological studies at various levels in the organization of life **(Knowledge)**; GS1 The graduates are **able to develop logical, critical, systematic, and creative thinking** through scientific concept and research (**General Skills**); SS1 The graduates are **able to conduct research** in the field of biology independently or in groups, and able to solve various biological-related problems (**Specific Skills)**;
Course Learning Outcome	CPMK 1. Students understand the principles of in vitro animal cell culture CPMK 2. Students understand basic and advanced techniques for in vitro animal cell culture CPMK 3. Students are able to design a research plan using animal cell culture by selecting the appropriate method

	CPMK 4. Students are able to apply a research plan using animal cell culture by selecting the appropriate method
Course Description	The In Vitro Animal Cell Culture course is a part of how to study cell biology, regulation, proliferation, differentiation and genetic manipulation in the biomedical field using animal / human cell / tissue / organ culture. In Vitro Animal Cell Culture Techniques are widely used to study cell cycle, toxicity, gene therapy, cancer cells, vaccine production and viruses. This technique is indispensable in the field of life science, when the use of model animals cannot be done or in the early stages of research / testing will be carried out before entering the preclinical stage. Basic techniques to special techniques will be studied in this course with observation parameters ranging from the organ-tissue-cellular to molecular stages.
Assesments	

Assessment components	Percentage	CPMK 1	CPMK 2	CPMK 3	CPMK 4
Assignment	10%				
Journal Review and presentation	10%				
Midterm exam	25%				
Final exam	25%				
Laboratory Practice	30%				

Study Media	This course discusses the biology of animal cells and interactions between cells; Animal Cell Culture Laboratory; Aseptic Engineering Equipment and Reagents; Biohazard, and Preparation; Types of Animal In Vitro Cells; Organ culture and ex-ovo culture; Basic assays of animal cell cultures; Further assays of animal cell culture; Cellular to molecular techniques
Literature	1. Freshney, R.I. 2010. Culture of Animal Cells: A Manual of Basic Technique and Specialized Applications, Sixth Edition. ISBN Print ISBN:9780470528129. Online ISBN:9780470649367. DOI:10.1002/9780470649367, John Wiley & Sons, Inc. 2. Verma, A., Verma, M. and Singh, A, 2020. Animal tissue culture principles and Applications. *Animal Biotechnology*. 2020: 269-293