

Module Descriptions

Module designation	Genetics (course code MPB 2111)
Semester(s) in which the module is taught	3 th semester of Bachelor Programme in Biology
Person responsible for the module	Siti Ifadatin, S.Si., M.Si.
Lecture (s)	1. Siti Ifadatin, S.Si., M.Si. 2. Masnur Turnip, S.Si., M.Sc.
Language	Indonesia
Names of other study programmes with which the module is shared	-
Relation to curriculum	Compulsory course
Teaching methods	Lecture, case discussion and practical sessions
Workload (incl. contact hours, self-study)	Total workload: 8.98 ECTS • Lecture: 40 hours (1.48 ECTS) • Assignment: 80.2 hours (2.97 ECTS) • Self-study: 74.52 hours (2.76 ECTS) • Practical sessions: 47.8 hours (1.77 ECTS) Practical sessions will complement and reinforce the concepts that are taught in the lectures by providing hands-on experience to apply the theoretical knowledge gained).
Credit points	4 credits
Required and recommended prerequisites for joining the module	Students have taken General Biology (course code MPB 1100)
Module objectives/intended learning outcomes	Intended Learning Outcomes (ILO) Knowledge (ILO-2) Able to integrate and apply biological science and other scientific fields that support the development of biological science. General Skill (ILO-3) Able to collaborate effectively within a team and to communicate actively, both orally and in writing, in the domain of biology. Specific Skill (ILO-6) Able to apply biological methodology and use instruments by prioritising work safety and able to apply in the management of tropical wetland resources. Course learning outcomes (CO) CLO 9. Students are able to analyse the structure and function of chromosomes and genes (DNA), as well as the inheritance patterns of traits for understanding genetic mechanisms.. CLO 19. Students are able to communicate effectively and empathetically in conveying ideas related to religious and social values, in addition to scientific ethics. CLO 27. Students are able to operate biological instruments and methodologies by prioritising work safety in the observation and measurement of biological and environmental objects..

Content	Genetics started with understanding <i>genetics and organisms</i> , <i>Mendel's experiment</i> , <i>autosomal inheritance patterns</i> , <i>sex chromosomes</i> , <i>sex determination and sex chromosome linked inheritance</i> , <i>pedigree analysis</i> , <i>mitotic and meiotic cell division</i> , <i>gene interaction</i> , <i>chromosome linkage and mapping</i> , <i>changes in chromosome structure and number</i> , <i>cytoplasmic gene inheritance</i> , <i>genetic material</i> , <i>DNA structure</i> , <i>DNA replication</i> , <i>transcription</i> , <i>translation</i> , and <i>regulation of gene expression</i> .
Examination forms	1. Theory 75% a. Midterm 25% b. Final Exams 25% c. Assignment 15% d. Activity (Quiz) 10% 2. Lab works 25%
Study and examination requirements	75% attendance
Reading list	1. Griffith AJF, Wessler SR, Lewontin RC, Gelbart WM, Suzuki DT, Miller JH. 2005. <i>An Introduction to Genetic Analysis</i> Eighth Edition. WH Freeman & Co 2. Irawan, B. (2023). <i>Genetika molekuler</i>. Airlangga University Press. 3. Pierce BA. 2012. <i>Genetics: A Conceptual Approach</i> Fourth Edition. WH Freeman and Company 4. Russell, P. J. (2018). <i>Genetics</i> (8th ed.). Pearson. 5. Klug, W. S., Cummings, M. R., Spencer, C. A., & Palladino, M. (2018). <i>Concepts of Genetics</i> (12th ed.). Pearson.