

Module Handbook of Fundamentals of Genetics

A Module Handbook or collection of module descriptions that are also available for students to consult should contain the following information about the individual modules:

Module designation	Fundamentals of Genetics is a compulsory course for students of Aquaculture study program in the second semester. This course aims to give students the verbal and written ability to understand and apply the concept of genetics. In addition, students will learn to think, find and plan research to solve unanswered problems or questions in genetics. The learning method applied in this course is the student-centered Learning method supported by Collaborative Learning, Cooperative Learning, Case-Based Learning and Problem Learning.
Module level, if applicable	Undergraduate
Code, if applicable	PIA 20191261
Subtitle, if applicable	Dasar-Dasar Genetika
Courses, if applicable	-
Semester(s) in which the module is taught	2 nd
Person responsible for the module	Dr. Dini Wahyu Kartikasari, S.Pi., M.Si.
Lecturer	Dr. Ir. Ign. Hardaningsih, M.Si. Ganies Riza Aristya, S.Si., M.Sc Dr. Dini Wahyu Kartikasari, S.Pi., M.Si. Dra. Tuty Arisuryanti, M.Sc., Ph.D. Dr. Ir. Triyanto, M.Si. Drs. Budi S Daryono, M.Agr. Sc.Ph.D
Language	Indonesian

Relation to curriculum	Study Program, Compulsory
Type of teaching, contact hours	Activities: 1. Lecture offline and online (lecture, discussion, assignment; 50 min/meeting) 2. Examinations (mid-term and final exam) 3. Independent studies online platform (eLOK, eLISA) (quiz, examination, discussion, and private study) This course uses blended learning and SCL (small group discussion, case-based learning) method.
Workload	1. Lecture $2 \text{ SKS} \times 50 \text{ minutes} \times 16 \text{ meetings} = 1,600 \text{ minutes}$ $= 26.67 \text{ hours}$ $= 26.67 \text{ hours}$ $/30 \text{ hours}$ $= 0.89 \text{ ECTS}$ 2. Structural Assignment $2 \text{ SKS} \times 60 \text{ minutes} \times 16 \text{ meetings} = 1,920 \text{ minutes}$ $= 32.00 \text{ hours}$ $= 32.00 \text{ hours}$ $/30 \text{ hours}$ $= 1.07 \text{ ECTS}$ 3. Self Study $2 \text{ SKS} \times 60 \text{ minutes} \times 16 \text{ meetings} = 1,920 \text{ minutes}$ $= 32.00 \text{ hours}$ $= 32.00 \text{ hours}$ $/30 \text{ hours}$ $= 1.07 \text{ ECTS}$ Total Workload = 3.02 ECTS
Credit points	2 credit points
Requirements according to the examination regulations	Students must attend at least 70% of the total 14 class meetings to be eligible to take the final exams.
Recommended prerequisites	-

Module objectives/intended learning outcomes	Course Learning Outcomes: CO-1: Understand the fundamentals of genetics (PLO3-P1). CO-2: Understand modern genetics (PLO3-P1). Program Learning Outcome: PLO3-P1: To be able to explain sustainable fisheries and marine systems, including management and utilization of aquatic resources, socio-economics, fish culture, and processing of fishery products.
Content	Course Learning Outcome CO1 1. Gender Determination, Sex couples 2. Gene Expression Affected and restricted by sex 3. Chromosome Structure and Function 4. Cell Cycle; Meiosis division 5. Mendel's inheritance 6. Mendelian Inheritance Development (semi-dominance; lethal genes; multiple alleles; gene interactions) 7. Chi-Square Test and Probability Theory in Genetics CO2 1. Gender Determination; Sex Couples; Genes Expression Affected and restricted by sex 2. Genealogical Diagram Analysis 3. Sequencing and Crossover 4. Chromosome Map 5. Gene Frequency Recognition, Frequency of genotype 6. Introduction of Inbreeding 7. Introduction Techniques in Modern Genetics

Study and examination requirements and forms of examination	Lectures Quizzes, paper, presentation Midterm examination Final examination
Media employed	LCD Zoom Video Textbook

Reading list	Albert, B., Bray, D., Lewis, J., Raff, M., Robert, K., Watson, J.D. 2008. Molecular Biology of the Cell. 5th ed. Garland Publ. Inc., New York. Brown, T.A. 2002. Genomes. New York and London: Garland Science. Campbell, N.A., L.G. Mitchell, and J.B. Reece. 2008. Biology: Concept and Connection. The Benjamin Cummings Publ. Co. Inc., California (USA). Griffith, A.J.F., J.F. Miller, D.T. Suzuki, R.C. Lewontin, and W.M. Gelbart. 2008. An Introduction to Genetic Analysis. W.H. Freeman & Co., New York (USA). Hartl, D.L. and E.W. Jones. 2011. Genetics: Principles and Analysis. Jones & Bartlett Publisher, London Hartwell, L., Hood, L., Goldberg, M.L., Reynolds, A.E., Silver, L.M., and Veres, R.C. 2000. Genetics: From Genes to Genomes. 1st ed. The Mc. Graw Hill Companies, Inc., USA. Klug, W.S. and R. Cummings, C.A. Spencer, and M.A. Palladino. 2012. Concept of Genetics. 10th Ed. Prentice Hall Inc., New Jersey (USA). Lewin, Benjamin (2006). Essential Genes. International Edition. Pearson Ed. Inc., USA. Passarge, E. 2001. Color Atlas of Genetics. 2nd.ed. Thieme Stuttgart, New York (USA). Pasternak, J.J. 2005. An Introduction To Human Molecular Genetics. 2nd ed. A John Wiley & Sons, Inc., Hoboken, New Jersey. Robinson, R. 2003. Genetics. Volume 1, 2, 3, & 4. Macmillan Reference, USA. Suryo. 1997. Genetika. Gadjah Mada University Press, Yogyakarta.
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	Tamarin, R.H. 1999. Principles of Genetics. 6th.ed. WCB. McGraw-Hill, New York (USA).
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