THE MODULE HANDBOOK
DOCTOR BIOLOGICAL SCIENCES STUDY PROGRAM
FACULTY OF BIOLOGY

SELECTED TOPIC FOR DISSERTATIONS

Population Genetics and Conservation

Course code	BIDB203001
Course level	Doctoral Program
Semester/ term	Odd/even
Course coordinator	Prof. Dra. Tuty Arisuryanti, M.Sc., Ph.D
Lecture(s)	Prof. Dra. Tuty Arisuryanti, M.Sc., Ph.D. Prof. Dr. Budi Setiadi Daryono, M.Agr Sc. Dr. Dwi Sendi Priyono, M.Si. Mukhlish Jamal Musa Holle M.Env.Sc, D.Phil.
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 2.1.Upon completing this program, the graduates will be able to discover or develop new scientific theories/concepts/ideas in biology. CPL 3.1. After attending this program, graduates demonstrate an understanding of the scientific philosophy of biology which is related in depth to structure, function, diversity, reproduction, evolution and engineering of biological systems CPL 3.2. After completing this program, the graduates will be able to contribute to the development and practice of the field of biology through scientific research based on scientific principles and ethics through interdisciplinary, multidisciplinary, or transdisciplinary approaches in solving problems in the field of biology

Course Learning Outcome	BIDB203001.1 By the end of this course, Students will be able to explain the principles and assumptions of the Hardy-Weinberg Law; allele frequency and genotype frequency and their relationship; microevolution and its impacts; mechanisms of isolation and speciation; applications of population genetics for the conservation of genetic resources; species survival and population estimation size and their relationship to conservation. BIDB203001.2 By the end of this course, Students will be able to use and apply bioinformatics for the analysis of genetic variation and the mapping of population structure BIDB203001.3 By the end of this course, Students will be able to integrate data from review articles and present them effectively.
Course Description	This course explains the principles and assumptions of the Hardy-Weinberg equilibrium; allele and genotype frequencies and their interrelationship; microevolution and its impacts; mechanisms of isolation and speciation; applications of population genetics for the conservation of genetic resources; species survival and population size estimation and their relevance to conservation; and the use of bioinformatics for analyzing genetic variation and mapping population structure. Students are expected to review scientific articles, present their findings, and engage in discussions with the lecturer.
Assessments	The assessment for Selected Topic for Dissertations (Population Genetics and Conservation) is based on four components, with the respective criteria and weights: A. Mid-term Exam (20%) B. Final-term Exam (20%) C. Structured Assignment and Project (40%) D. Presentation (20%)
Study Media and Literature	1. Allendorf and Luikart. 2012.Conservation and The Genetic Populations. 2nd Edition. Blackwell Publishing (UK) 2. Campbell, N.A., L.G. Mitchell, and J.B. Reece. 2017. Biology. Concept and Connection. 9th Edition. The Benyamin Cummings Publ.Co.Inc., California (USA) 3. Gillespie, J.H. 2004. Population Genetics. A Concise Guide. 2nd Edition.The Johns Hopkins University Press, London 4. Griffith, A.J.F., J.F.Miller, D.T. Suzuki, R.C. Lewontin, and W.M. Gelbart. 2015. An Introduction to Genetic Analysis. 11th Edition. W.H. Freeman & Co., New York (USA)

5. Fox, C.W. 2006. Evolutionary Genetics: concept and case studies. Oxford University Press
6. Solomon, E.P., L.R. Berg, D.W. Martin. 2014. Biology. 10th.ed Thomson Brooks, Australia
7. Templeton, R. 2006. Population Genetics and Microevolutionary Theory. A John –Wiley and Sons, Inc., Publ., New Jersey (USA)
8. Weiss, K.M. and A.V. Buchanan. 2004. Genetics and The Logic of Evolution. Wiley-Liss. A John Wiley and Sons, Inc. Publ., New Jersey
9. Sa̋ll, T. and Bengtsson, B.O. 2017. Understanding Population Genetics . Wiley-Blackwell Publisher
10. Aristya, G.R., Handayani, N.S.N., Daryono, B.S., Arisuryanti, T.A. 2015. Karakterisasi Kromosomom Tumbuhan dan Hewan. Gadjah Mada University Press (Yogyakarta, Indonesia).
11. Daryono, B.S., Perdamaian, A.B.I. 2019. Karakterisasi dan Keragaman Genetik Ayam Lokal Indonesia. Gadjah Mada University Press (Yogyakarta, Indonesia)
12. Daryono, B.S., Martanto, S.D. 2017. Keanekaragaman dan Potensi Sumber Daya Genetik Melon. Gadjah Mada University Press (Yogyakarta, Indonesia)
13. Daryono, B.S., Tammu, R.M.. 2022. Karakteristik Potensi Genetik dan Pemanfaatan Cabai Katokkon Asal Toraja Indonesia. Gadjah Mada University Press