MODULE HANDBOOK
Biological Mathematics

MASTER DEGREE PROGRAM

DEPARTMENT OF MATHEMATICS

FACULTY OF SCIENCE AND DATA ANALYTICS

INSTITUT TEKNOLOGI SEPULUH NOPEMBER

MODULE HANDBOOK

Biological Mathematics

Module name	**Biological Mathematics**
Module level	Master
Code	KM185372
Course (if applicable)	Biological Mathematics
Semester	Fall (Ganjil)
Person responsible for the module	Dr. Dieky Adzkiya
Lecturer	Dr. Dieky Adzkiya
Language	Bahasa Indonesia and English
Relation to curriculum	Master degree program, **elective**, 3rd semester.
Type of teaching, contact hours	Lectures, <60 students
Workload	1. Lectures : 3 x 50 = 150 minutes per week. 2. Exercises and Assignments : 3 x 60 = 180 minutes (3 hours) per week. 3. Private learning : 3 x 60 = 180 minutes (3 hours) per week.
Credit points	3 credit points (sks)
Requirements according to the examination regulations	A student must have attended at least 80% of the lectures to sit in the exams.
Mandatory prerequisites	-
Learning outcomes and their corresponding ILOs	Course Learning Outcome (CLO) after completing this module, *CLO-1 : Able to understand the problem of a continuous population model in the form of diffusion reactions and to analyze system behavior* *CLO-2 : Able and master the meaning of pupolation interactions as a transmission function in the dispersion model* *CLO-3 : Able to construct a discrete model of the phenomenon of the object of observation.* *CLO-4 : Able to make research projects related to the diffuse reaction model and to publish*
Content	• Continuous Population Model

	• Discrete Population Model • Population Interaction Models
Study and examination requirements and forms of examination	• In-class exercises • Assignment 1, 2, 3 • Mid-term examination • Final examination
Media employed	LCD, whiteboard, websites (myITS Classroom), zoom.
Reading list	1. Marco Di Francesco,2010." Mathematical models in life science" 2. Eduardo D. Sontag, 2006," Lecture Notes in Mathematical Biology" Rutgers University 3. D. W. Hughes,J. H. Merkin,R. Sturman,2004." Lecture Notes in Analytic Solutions of Partial Differential Equations" School of Mathematics, University of Leeds 4. F Brauer C. –Chavez, 2012." Mathematical Models in Population Biology and Epidemiology", Texts in Applied Mathematics, Springer Science Business Media