Module Handbook of Applied Mathematics

Module designation	Applied Mathematics course is a course in mathematics for students at the Faculty of Agriculture that examines the real number system, functions, limits, derivatives, integrals and matrices and their applications in solving optimization problems, area calculation and systems of linear equations. After studying this course, students are expected to have a complete understanding of the basics of mathematics and its applications, both in advanced courses, and to understand a number of scientific phenomena in various daily lives. Including those related to agriculture.
Semester(s) in which the module is taught	First Semester
Person responsible for the module	Made Benny Prasetya Wiranata, S.Si., M.Sc.
Language	Bahasa Indonesia/Indonesian Language
Relation to curriculum	*Compulsory Course*
Teaching methods	Lecture are conducted in the class with 50-60 students. In every meeting, there will be delivered interactive lecture and discussion. In some topics there will be quizzes, individual and/or group assignment. Details: 1. Lectures 2. Assignment (Individual and Group) 3. Discussion 4. Midterm 5. Final Exam
Workload (incl. contact hours, self-study hours)	- Lectures = 2 SKS x 50 minutes x 16 meetings = 1.600 minutes = 26,67 hours = 26,67 hours/30hours = 0,89 ECTS - Assignment = 2 SKS x 60 minutes x 16 meetings = 1.920 minutes = 32 hours = 32 hours/30hours = 1,07 ECTS - Self Study = 2 SKS x 60 minutes x 16 meetings = 1.920 minutes = 32 hours = 32 hours/30hours = 1,07 ECTS Total Workload = 3,03 ECTS
Credit points	*2/0 Credit Points*
Required and recommended prerequisites for joining the module	*None*

Module objectives/intended learning outcomes	*Program Learning Outcomes (PLO):* *PLO1: Able to apply logical, critical, systematic, and innovative thinking by utilizing the technology of information to produce solutions according to the field of expertise with integrity and embodied in scientific documents.* *PLO2: Able to describe the latest methodology in the field of microbiology to create environmentally friendly and sustainable agricultural development.* *PLO3: Able to select, utilize and manage the potential of microbes and microbiomes to build industrial and agricultural systems.* *Course Learning Outcomes (CLO):* *CLO1: Able to master the theoretical concepts of mathematics related to real numbers, absolute value, inequalities, functions, limits, integrals, matrices, and systems of linear equations.* *CLO2: Able to solve given mathematical problems.* *CLO3: Possess scientific problem-solving skills, including organizing information, identifying, and applying relevant principles, providing quantitative solutions, interpreting results, and evaluating the validity of outcomes.*
Content	1. *Real Number System (1 meeting)* 2. *Inequality in Mathematics (1 meeting)* 3. *Relations and Functions (1 meeting)* 4. *Limit Functions (2 meetings)* 5. *Continuous Functions (1 meeting)* 6. *Derivatives (2 meetings)* 7. *Derivative Applications (1 meeting)* 8. *Integral (1 meeting)* 9. *Integral Applications (1 meeting)* 10. *Matrix (1 meeting)* 11. *System of Linear Equations (1 meeting)* 12. *Materials Review (1 meeting)*
Examination forms	*High Order Thinking Skills*
Study and examination requirements	*To be able to take the final exams, the minimum of student attendance is 70% out of effective meetings. From 14 meetings, students must take a minimum of 10 meetings to take the exam.*
Reading list	*None*