



FACULTY OF AGRICULTURE

DEPARTMENT OF ANIMAL SCIENCE

UNDERGRADUATE PROGRAM

MODULE HANDBOOK

Module designation	Animal Biotechnology
Semester(s) in which the module is taught	6 th semester
Person responsible for the module	Dr. Ir. Dzarnisa, M.Si
Language	Indonesia, English
Relation to curriculum	elective Modules
Teaching methods	Lecture, interactive discussion, practitioner lectures , small group discussion, Project results
Workload (incl. contact hours, self-study hours)	100 minutes of lecture and discussion per week 120 minutes of structured tasks per week 120 minutes of independent activity per week
Credit points	2 SKS = 3,2 ECTS
Required and recommended prerequisites for joining the module	
Module objectives/intended learning outcomes	Students are able to explain the physiological, biochemical, and molecular mechanisms of milk biosynthesis in dairy animals. They will understand the regulation of lactation, factors affecting milk yield and composition, and strategies to enhance milk quality through nutrition, genetics, and management.
Content	This course discusses milk and its characteristics, ruminal biotransformation, udder structure in various livestock species, the process of milk synthesis and lactation, as well as lactation management and the dry period.
Examination and Assesement Formats	<ul style="list-style-type: none"> • Written examination • Project-based learning • Discussion
Study and examination requirements	Participative active 20% Assignments/Projects 40% Midterm and Final Exam 40%

Reading list	<ol style="list-style-type: none"> 1. M’Hamdi, N. (Ed.). (2020). <i>Lactation in Farm Animals: Biology, Physiological Basis, Nutritional Requirements, and Modelization</i>. London: IntechOpen. 2. Newbold, J., Chaucheyras-Durand, F., Dunière, L., Yáñez-Ruiz, D. R., Belanche, A., Kim, S. W., & Mansouryar, M. (2022). <i>Dairy Cattle Science</i>. Cambridge: Burleigh Dodds Science Publishing. 3. Lean, I. J. (2021). <i>Transition Cow Management</i> (2nd ed.). Melbourne: Dairy Australia Limited. 4. Patil, P. V., & Patil, M. K. (2020). <i>Milk Production Management</i>. Abingdon: Routledge. 5. Hussain, F., Kalwar, Q., Rahimoon, M. M., Zaman, M. S., Bhuptani, D. K., Laghari, S. A., & Ramzan, M. (2024). Optimizing Reproductive Health in Dairy Cattle: Strategies for Preventing and Managing Reproductive Disorders. Dalam R. Z. Abbas, T. Akhtar, R. Asrar, A. M. A. Khan, & Z. Saeed (Eds.), <i>Complementary and Alternative Medicine: Feed Additives</i> (hlm. 215–224). Faisalabad: Unique Scientific Publishers.
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