FACULTY OF AGRICULTURE

Department of Animal Science

UNDERGRADUATE PROGRAM **MODULE HANDBOOK**

Module designation	NUTRIGENOMIC
Semester(s) in which the module is taught	6th semester
Person responsible for the module	Prof. Dr. Ir. Samadi, M.Sc.
Language	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)	
Credit points	3,2 ects
Required and recommended prerequisites for joining themodule	-
Module objectives/intended learning outcomes	• Students are able to explain the basic concepts of nutrigenomics, molecular nutrition and molecular genetics, understand diet-genome interactions and the impact of the relationship between nutrition and genomes on livestock health and production. • Students are able to understand the basics of molecular biology; genome structure, chromatin, and histones. Advanced basics of molecular biology; gene structure, and regulation of gene expression (transcriptional, post-transcriptional, and translational control mechanisms, omic technologies; transcriptomics and proteomics, lipidomics and metabolomics).
Content	Nutrigenomics explores how nutrients interact with genes to influence animal growth, health, and productivity. This course covers molecular mechanisms, gene–nutrient interactions, and applications in precision feeding, disease prevention, and product quality improvement, integrating omics technologies to optimize nutrition strategies for specific genotypes in sustainable livestock production systems.
Examination and Assessement Formats	Proposal, Log book and Final Report,
Study and examination requirements	Case Method 40% Team Based Learning 30% Assigment 30%
Reading list	• German, J.B., et al. (2005). "Nutrigenomics: The impact of nutrients on gene expression." Advances in Nutrition 133(11): 3967S–3970S. • Davoodi, S.H., et al. (2018). Nutrigenomics and Nutrigenetics in Functional Foods and Personalized Nutrition. Springer.

	• Zhang, C., et al. (2019). "Epigenetic regulation of gene expression in livestock: implications for nutrition." Journal of Animal Science and Biotechnology, 10(1), 1–13.