Sveučilište u Zagrebu Agronomski fakultet
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General animal nutrition (176009)

Nositelj kolegija

izv. prof. dr. sc. Marija Duvnjak

Opis kolegija

Students will learn to evaluate the nutrient contents in feeds and nutritional needs of animals - a basis for the correct preparation of diets on the farm, planning crop and livestock production and additional activities facilitating enrollment to doctoral studies. Students will learn about nutrients present in feeds as well as about the nutrient needs of different types and categories of animals. The analytical methods for nutrient quantification will be learned (dry matter, crude protein, crude fat, crude fibres, water soluble sugars, starch, neutral detergent fibres, acid detergent fibres, lignin, digestible fibres etc.) and discussed. The effect of nutrition on the course of livestock production in several distinguished production types will be learned and discussed (for example: lactating dairy cows, grazing animals, poultry etc.).

ECTS: **6.00**

Sati nastave: 60
Predavanja: 50
Auditorne vježbe: 6
Seminar: 4

Izvođač predavanja

- izv. prof. dr. sc. Marija Duvnjak
- prof. dr. sc. Goran Kiš

Ocjenjivanje

Dovoljan (2): 60-70
Dobar (3): 71-80
Vrlo dobar (4): 81-90
Izvrstan (5): 91-100

Uvjeti za dobivanje potpisa

• Participation in teaching.
• Preparation and presentation of a seminar paper.

Vrsta kolegija

- Graduate studies / MS Courses taught in English (Izborni kolegij, 1. semestar, 1. godina)

Opće kompetencije

After completion of the Module, students will be competent to use their knowledge in practical conditions. They will know how to evaluate quality of feeds in compare to nutritional, health and productive needs of different types of animals (i.e. poultry, pigs, beef etc). They will learn how to evaluate and compare different types of feeds. Main objective of this module is to prepare students to on farm conditions and how to use basic knowledge in animal feeds quality in order to optimize on farm production.

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Oblici nastave

- Lectures
- Seminars
  Trace elements and their physiological role in animal nutrition
- Exercises
  Comparison and implementation of various systems assessment of the nutritional value of feed. Visit to the various farms: poultry, pig and lactating dairy farm - field exercise

Ishodi učenja i način provjere

Ishod učenja	Način provjere
Recognize the importance of nutrients essential in animal feeding. Distinguish differences between the biological role of different nutrients.	Written or oral
Describe the process of feed digestion and metabolism of nutrients. Compare the needs of nutrients and energy in different animal species.	Written or oral
Explain the impact of nutrition on animal welfare, human health and the environment	Written or oral
Define the specific chemical analysis of diverse nutrients in feed and fodder, and on the basis of the results obtained with this analysis design the animal diets.	Written or oral

Tjedni plan nastave

1. Students will be familiar with the nutrients present in feed as well as the nutrient needs of different types and categories of animals, the effect of nutrition on the course of livestock production as well as the composition of plant and animal organisms (comparison)
2. Specificity of the digestive system of different animals (pigs, poultry, horses, cattle etc). Digestion of nutrients in defined parts of the digestive tract of animals.
3. Organic nutrients (carbohydrates, lipids, proteins). Digestion and resorption of nutrients.
4. Organic nutrients (carbohydrates, lipids, proteins). Digestion and resorption of nutrients
5. Biologically active substances (water soluble vitamins)
6. Biologically active substances (vitamins soluble in fats) enzymes and hormones
7. Different systems for assessing the metabolism of nutrients and energy.
8. Methods for evaluation of nutritional requirements of animals
9. Balances of nutrients and energy. Comparison and implementation of various systems assessment of the nutritional value of feeds.
10. Sampling of biological samples. Evaluation of feeds and their connection with the standards of nutrition for the maintenance, growth, reproduction and lactation
11. Food intake, estimation: monogastric animals, ruminants. Calculations. Animal feeding and the consumption of animal products - interconnection of animal feeding and human nutrition.
12. Antinutritive substances in animal feeds. Nutrigenomics
13. Comparison and implementation of various systems assessment of nutritional needs of domestic animals. Comparison and implementation of various models of animal meal and feed preparation
14. Trace elements and their physiological role in animal nutrition
15. Field exercise

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Obvezna literatura

1. McDonald P., Edwards R. A., Greenhalgh J. F. D., Morgan C. A. (2002): Animal Nutrition 6th Edition, Pearson Education Limited, UK 693 Pages
2. Lectures and PowerPoint presentations - on site
3. Moughan, P.J., Vestegen, M.W.A., Visser-Reyneveld (2000): Feed evaluation-priciples and practice, Wageningen Pers, Wageningen Nizozemska, 285 pages

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