

ANIMAL NUTRITION I.: TOPICS OF THE LECTURES AND PRACTICALS, RULES, EXAM INFORMATION (2023.)

University of Veterinary Medicine, Budapest, Hungary

Duration of the semester: 6 February – 19 May 2023.

Place of the subject: 6th semester (3rd year).

Number of hours, lecture halls

Lectures: 2 hours/week (28 hours/semester), lecture hall: TORMAY.

Practicals: 1 hour/week (14 hours/semester), practice room of Obstetrics (building L, 1st floor).

Topics of the lectures and practicals

In parentheses numbers of exam questions related to the subjects can be seen. You can find the list of exam questions in chapter 4.3.2.

German students who have already passed the exam “Futtermittelkunde” have to take part on practicals on the 1st, the 6th, and the 13th week only. On the other weeks they are exempted.

See the rules valid for the former German students in chapter 4.8.

1. week (6-10 February)

Lecture: Introduction, chemical compounds of feeds (proximate analysis), fibre fractions /NDF, ADF, ADL/ (I./1., 2.). **Mr. István HULLÁR** associate professor

Practical: Definition and classification of feedstuffs, , manufactured feeds (III./22.), mineral and vitamin supplements. (III./20.). Information about the nutritional summer practice. **Mr. András BERSÉNYI** assistant professor

2. week (13-17 February)

Lecture: Energetic evaluation of feeds. (I./3., 4., 5.).

Mr. István HULLÁR associate professor

Practical: Oilseed (solvent extracted) meals (III./5.).

Those German students who have already passed the “Futtermittelkunde” exam, are exempted.

Mr. András BERSÉNYI assistant professor

3. week (20-24 February)

Lecture: Regulation of the feed intake (I./6.), nutrients’ digestibility (I./7.).

Mr. István HULLÁR associate professor

Practical: Pasture grasses, and harvested green forages (III./14.).

Those German students who have already passed the “Futtermittelkunde” exam, are exempted.

Mrs. Éva CENKVÁRI senior research fellow

24 February (Friday): diploma issuing ceremony (between 10.00 and 13.00 study holiday).

4. week (27 February – 3 March)

Lecture: Protein evaluation systems: monogastric animals + ruminants (I./8., 9.).

Mrs. Éva CENKVÁRI senior research fellow

Practical: Grain legumes (III./4.), by-products of starch industry and fruit processing (III./9.). *Those German students who have already passed the “Futtermittelkunde” exam, are exempted.*

Mr. István HULLÁR associate professor

5. week (6-10 March)

Lecture: Immunological aspects of animal nutrition (I./19.).

Mrs. Orsolya KUTASI-KORBACSKA associate professor

Practical: Cereal grains (III./1., 2., 3.). *Those German students who have already passed the “Futtermittelkunde” exam, are exempted.*

Mrs. Orsolya KUTASI-KORBACSKA associate professor

6. week (13-17 March)

Lecture: Growth promoters, pro- and prebiotics (I./17), nutraceuticals (I./18.).

Mrs. Leticia MORAVSZKI DVM

Practical: Guidelines and rules for ration formulation. Ration formulation by computer (III./7.).

Mr. András BERSÉNYI assistant professor

15 March (Wednesday): **study holiday** (National Holiday).

7. week (20-24 March)

Lecture: Relationship between feeding and reproduction (I./20-24.).

Mr. András BERSÉNYI assistant professor

Practical: Silage making (III./15.), maize silage (III.16.). *Those German students who have already passed the “Futtermittelkunde” exam, are exempted.*

Mrs. Orsolya KUTASI-KORBACSKA associate professor

8. week (27-31 March)

Lecture: Generally about vitamins (II./7.), fat soluble vitamins (II./8., 9.).

Mrs. Leticia MORAVSZKI DVM

Practical: Feed sampling, feed microscopy (III./6.). Feedstuffs of animal origin /fish meal, milk products, insect protein sources/. (III./13.). *Those German students who have already passed the “Futtermittelkunde” exam, are exempted.*

Mrs. Éva CENKVÁRI senior research fellow

9. week (3-7 April)

STUDY HOLIDAY (3-10 April)

10. week (10-14 April)

Lecture: Water soluble vitamins (II./10., 11., 12., 13.).

Mrs. Leticia MORAVSZKI DVM

Practical: Use of NPN (Non Protein Nitrogen) supplementation in diets made for ruminants (III./21.). *Those German students who have already passed the “Futtermittelkunde” exam, are exempted.*

Mr. István HULLÁR associate professor

10 April (Easter Monday): **study holiday**. 15 April (Saturday): **working day according to the Monday timetable (instead of the 10 April)**. 11-15 April: **Equus Days**. 12 April (Wednesday): **International Day**.

11. week (17-21 April)

Lecture: Macrominerals (II./1., 2.), microminerals (II./3., 4.).

Mrs. Orsolya KUTASI-KORBACSKA associate professor

Practical: Milling by-products of cereal grains (III./8.). Antioxidants, amino acid, and enzyme supplements. (III./19.). *Those German students who have already passed the “Futtermittelkunde” exam, are exempted.*

Mr. István HULLÁR associate professor

12. week (24-28 April)

Lecture: Homeostasis of minerals, control of mineral supply (II./5.). Earth alkali alkalinity, cation-anion balance of rations, clinical effects (II./6.).

Mrs. Orsolya KUTASI-KORBACSKA associate professor

Practical: By-products of sugar industry (III./10.), straws, roots and tubers (III./12.). *Those German students who have already passed the “Futtermittelkunde” exam, are exempted.*

Mr. István HULLÁR associate professor

13. week (1-5 May)

Lecture: Antinutritive substances in feeds, and antimetabolites (I./14.). Deterioration of feeds (rancidity), warranty and guarantees (I./15.). Mycotoxins in feeds (I./16.).

Mrs. Orsolya KUTASI-KORBACSKA associate professor

Practical: Control of the mineral supply, calculation of the Cation-Anion Balance (II./5., 6.).

Mr. András BERSÉNYI assistant professor

1 May (Monday): study holiday (National Holiday). 5 May (Friday): farewell ceremony from 13 hours, study holiday from 12 hours.

14. week (8-12 May)

Lecture: Animal nutrition and food safety (I./13.).

Mr. András BERSÉNYI assistant professor

Practical: Hay and haymaking (III./17.), meadow hay, alfalfa hay (III./18.). *Those German students who have already passed the “Futtermittelkunde” exam, are exempted.*

Mrs. Leticia MORAVSZKI DVM

15. week (15-19 May)

Lecture: Microflora and -fauna in rumen and in gut (I./10.). Interaction between the intestinal flora and feed: eubiosis, dysbiosis (I./11.). Microbiology and mycology of feedstuffs (I./12.).

Mrs. Éva CENKVÁRI senior research fellow

Practical: Distillery and brewery by-products (III./11.). *Those German students who have already passed the “Futtermittelkunde” exam, are exempted.*

Mrs. Leticia MORAVSZKI DVM

FURTHER INFORMATION

1. Attendance on lectures and practicals

1.1. Lectures

According to the decision of the Faculty Council (14 November, 2006) attendance on lectures is obligatory.

The acceptable number of uncertified absences is maximum 3 per semester. With more than three recorded absences your semester is NOT going to be accepted for that subject, thus it has to be re-taken during a later semester for an additional fee in order to sit for the exam.

Absences because of research activity connected to the diploma thesis or illness are not treated as uncertified absences, but these must be verified on the official certificate by the teacher, tutor or physician.

Absences because of **clinical day** or **weekly practice** carried out in Üllő do not need to be certified, they are **accepted**. Consequently, they are not counted in the maximum 3 absences per semester.

1.2. Practical

The Department registers the attendance at the beginning of each single practical by using the official group assignment provided by the Student's Secretariat.

With more than 4 recorded absences your semester is NOT going to be accepted for that subject, thus it has to be re-taken during a later semester for an additional fee in order to sit for the exam.

One practical per semester can be missed without any consequence.

In case of more absences (max up to 4), the student has to give an account of the subject of missed practical within 2 weeks at the lecturer of the topic. **According to these no more than 4 missed practicals will be accepted.**

Absences because of research activity connected to the diploma thesis are not treated as uncertified absences, but these must be verified on the official certificate by the teacher or the tutor. But in case of absence, the student has to give an account of the subject of missed practical within 2 weeks at the lecturer of the topic.

Absences because of **clinical day** or **weekly practice** carried out in Üllő do not need to be certified, they are **accepted**. Consequently, they are not counted in the maximum 4 absences per semester, and the student does not have to give an account of the subject of missed practical.

The acceptance of 4 missed practicals is not valid for the former German students who have already passed the exam “Futtermittelkunde”. As they have to take part on 3 practicals (the 1st, the 6th, and the 13th weeks) only (see the chapter 4.8.), at most one absence will be accepted. But in case of one absence the student has to give an account of the subject of missed practical within 2 weeks at the lecturer of the topic.

In case of online education to each practical subject belongs a short online test. This test must be filled in successfully (at least 80%) every week at latest till Sunday midnight on the given week. This is the prerequisite of the acceptance of the given practical.

During the whole semester only one missed online test will be accepted. The successful solution of the test is the prerequisite of acceptance of the semester, consequently, to admit the student to exam.

2. Group assignment

The Department uses the official group assignment provided by the Student’s Secretariat. You can attend the lab with the group you are registered in only. Due to efficiency and size of the groups it is not possible to attend any additional lab (including labs of different courses/years).

A permanent change to assignment may be requested but has to be approved by both the Department and the Secretariat.

Upon preliminary request the student might be allowed to switch exceptionally to a group other than registered in. Such a request, however, must be sent to the effected tutor at the latest one working day before the practical, until 12 pm (noon). Such a request should affect ONE practical only and will be evaluated on a case-by-case basis.

3. Contact person of the department

Mr. András BERSÉNYI assistant professor (location: Rottenbiller Str. 50.; Phone: +361 478 4291 or from inside the University phone extension: 8643; e-mail: bersenyi.andras@univet.hu). In case of any question connected to the subject feel free to contact him. You are kindly requested NOT to address the head-of-department or his secretary with teaching-related issues, unless you did not receive satisfactory answers to your inquiries by your contact person.

4. The “Animal Nutrition 1” exam

4.1. Exam period: 22 May – 30 June 2023.

4.2. Prerequisites of the “Animal Nutrition 1” exam: acceptance of the semester (see the chapters 1.1., and 1.2.).

4.3. Possible forms of the “Animal Nutrition 1” exam

4.3.1. Written exam (test)

There are only *two* written exam possibilities (tests) within the whole exam period. The date of these will be determined possibly according to the agreement with the students’ representative.

For the written tests students will use the computers of the University placed in a lecture hall.

◆ Those who could not pass the first written test have another possibility for repeating the test on the 2nd given date.

◆ Those who did not take part on the written exam announced for the first date, will lose one written exam possibility. It means that they can take part on the test at the 2nd given date only. Would that be unsuccessful only oral exams can be done afterwards.

◆ Those who leave out both dates given for the tests will have oral exam possibilities only.

Registration for the written test from “Animal Nutrition 1”

According to the agreement made with the students’ representative the given dates and the number of places will be set up, after that students can register themselves via NEPTUN.

The written exam from “Animal Nutrition 1” is a single choice test. Scoring of the test is as follows.

Mark	%
excellent (5)	90-100
good (4)	80- 89
fair (3)	70- 79
passing (2)	60- 69
failure (1)	0- 59

Please note that every year new tests will be compiled, consequently knowing the questions of the previous test only does not guarantee the passing.

4.3.2. Oral exam

Those who

- do not want to do the exam in written form or
- cannot take part on the tests or
- fail on the test, will get oral exam dates via NEPTUN.

Registration for the oral exam from “Animal Nutrition 1”: it can be done for the given exam dates via NEPTUN. Exam dates will be published through the NEPTUN shortly after the beginning of each academic semester.

Each and every exam organized by the Department will may come with an individual deadline for registration in the NEPTUN, therefore we strongly recommend students to

verify that deadline at least one week prior to the exam, since it is not possible to make any changes once the registration period has been closed.

The form of oral exam from “Animal Nutrition 1”: each student gets 1-1 question (i.e. altogether 3) from the following 3 question groups.

- 1) Fundamentals of animal nutrition.
- 2) Vitamins, minerals.
- 3) Feedstuffs.

Questions of the oral exam from “Animal Nutrition 1” (at the same time topics for the written test as well) are as follows.

See the rules valid for the former German students in chapter 4.8.

I. Fundamentals of animal nutrition

1. Chemical analysis of feeds. I. Proximate analysis.
2. Chemical analysis of feeds. II. Fibre fractions (NDF, ADF, ADL).
3. Energetic Evaluation of Feeds. I. Conception (GE, DE, ME, NEm, NE_i, NE_g, q-, k-, and i-values).
4. Energetic Evaluation of Feeds II. Monogastric animals (energy types, reasons of their use in different species).
5. Energetic Evaluation of Feeds. III. Ruminants (energy types, reasons of their use in different species).
6. Regulation of the feed intake, and the importance of its knowledge.
7. Nutrients' digestibility (definitions, methods for assessment).
8. Protein evaluation systems. I. Monogastric animals.
9. Protein evaluation systems. II. Ruminants (RDP, UDP, MP, MPN, MPE).
10. Microflora and -fauna in rumen and in gut.
11. Interaction between the intestinal flora and feed: eubiosis, dysbiosis.
12. Microbiology and mycology of feedstuffs.
13. Animal nutrition and food safety (HACCP, BSE, dioxin, etc.).
14. Antinutritive substances in feeds (classification, effects on animals), antimetabolites.
15. Deterioration of feeds (rancidity), warranty and guarantees.
16. Mycotoxins in feeds.
17. Growth promoters, pro- and prebiotics (groups, mode of action, tendency of their use in the future).
18. Nutraceuticals.
19. Immunological aspects of animal nutrition.
20. Relationships between feeding and reproduction. I. Effects of energy supply on reproduction (puberty, ovulation rate, udder development, /re/insemination, NEB improvement by nutrition).
21. Relationships between feeding and reproduction. II. Effects of protein supply on reproduction (protein to energy ratio, RDP and UDP proportion, control).
22. Relationships between feeding and reproduction. III. Effects of vitamin and mineral supply on reproduction (including taurin).
23. Relationships between feeding and reproduction. IV. Effects of phyto-oestrogens and mycotoxins (F2, T2) on reproduction.
24. Relationships between feeding and reproduction. V. Non-infectious abortions (causes, mare reproductive loss syndrome /MRLS/, fescue grass toxicosis).

II. Vitamins, minerals

Macrominerals

1. Ca, P and Mg (biological functions, deficiency syndromes, requirements, their sources, control of supply).
2. S, Na, K and Cl (biological functions, deficiency syndromes, requirements, their sources, control of supply).

Microminerals

3. Fe, Zn, Cu, Mn (biological functions, deficiency syndromes, requirements, their sources, control of supply).
4. F, I, Se, Co (biological functions, deficiency syndromes, requirements, their sources, control of supply).
5. Homeostasis of minerals, control of mineral supply.
6. Earth alkali alkalinity, Cation-anion balance of rations (FAA, AA, dUA, CAB), clinical effects.

7. Generally about vitamins (nutrition and diseases, recommendations, stability, role of rumen and gut flora, exploration of deficiencies, newly developed functions).

Fat soluble vitamins

8. Beta-carotene, vit. A (biological functions, deficiency syndromes, requirements, their sources, control of supply).
9. Vit. D and E, K (biological functions, deficiency syndromes, requirements, their sources, control of supply).

Water soluble vitamins

10. Vit. C, B₁, and B₂ (biological functions, deficiency syndromes, requirements, their sources, control of supply).
11. Vit. B₆, and B₁₂ (biological functions, deficiency syndromes, requirements, their sources, control of supply).
12. Niacin and pantothenic acid (biological functions, deficiency syndromes, requirements, their sources, control of supply).
13. Biotin, folic acid and cholin (biological functions, deficiency syndromes, requirements, their sources, control of supply).

III. Feedstuffs

1. Cereal grains (list, their approximate nutrient content).
2. Corn, wheat.
3. Barley, oats.
4. Grain legumes (list, their approximate nutrient content).
5. Oilseed (solvent extracted) meals (list, their approximate nutrient content).
6. Feed sampling, feed microscopy.
7. Guidelines and rules for ration formulation. Ration formulation by computer.
8. Milling by-products of cereal grains (wheat bran, wheat germ).
9. By-products of starch industry and fruit processing.
10. By-products of sugar industry.
11. Distillery and brewery by-products.
12. Straws, roots and tubers.
13. Feedstuffs of animal origin (fish meal, milk products, insect protein sources).
14. Pasture grasses, and harvested green forages.
15. Silage making.
16. Maize silage (nutrient content, its use in animal nutrition).
17. Hay and haymaking.
18. Meadow hay, Alfalfa hay.
19. Antioxidants, amino acid and enzyme supplements.
20. Mineral and vitamin supplements.
21. Use of NPN (Non Protein Nitrogen) supplementation in diets made for ruminants.
22. Manufactured feeds.

4.4. Plagiarism and cheating

Plagiarism and cheating are a violation of the University's academic regulations and are subject to disciplinary action. Students who fail to credit properly ideas or materials taken from another commit plagiarism. Putting your name on a piece of work – any part of which is not yours – constitute plagiarism, unless that piece is clearly marked and the work from which you have borrowed is fully identified.

Cheating during an exam includes but is not limited to e.g. peaking at other's exam, using non-permissible electronic devices or assistance. If you are caught in a dishonest act during the course of an examination you will be reported to the Secretariat of International Study Programs.

Students found guilty of cheating will receive a failing grade on that exam and will be subject to further disciplinary action. Penalties – even the dismissal from the school – may be imposed at the discretion of the relevant authorities.

4.5. Preparation for the “Animal Nutrition 1” exam

There are no prescribed textbooks. Any exam in “Animal Nutrition 1” will be based on the information given during lectures, and practicals. For preparations first of all **your own notes**, and the **handouts** of lectures and practicals are recommended. For further reading see the book listed below.

RECOMMENDED LITERATURE

P. McDonald, R.A. Edwards, J.F.D. Greenhalk, C.A. Morgan, L.A. Sinclair, R.G. Wilkinson: Animal Nutrition. Prentice Hall, 11th Edition, 2011.

4.6. Extra exam possibility for inactive students during the semester (out of the regular exam period)

Inactive students can get only one exam possibility during the semester (out of the exam period) even if they have more missing exams (e.g. “Animal Nutrition 1”, or “Calculation Test”, or “Animal Nutrition 2”). The exams remained above that one, can be done in the regular exam period only. These students will be examined according to the actual exam question lists.

4.7. Extra exam possibilities for “older” active students

Those who are active but should have passed the animal nutrition exam(s) earlier, are allowed to be examined from 1 May 2021 only (see the the exam rules of the university) according to the actual exam question lists.

4.8. Rules valid for the former German students

Those German students who have already passed the exam “Futtermittelkunde” will be exempted from studying the feeds again, which means that they

- will be exempted from those practicals which deal with feeds, consequently
- neither the test nor the oral exam made from “Animal Nutrition 1” consist the topic “feedstuffs”.

5. Nutritional Sumer Practice

Concerning this please see the detailed written information given by the department.

Budapest, 6 February, 2023.

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