Nutrition and Clinical Nutrition Course Specification

<table>
<thead>
<tr>
<th>Basic Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course Code</strong></td>
</tr>
<tr>
<td><strong>Course Title</strong></td>
</tr>
<tr>
<td><strong>Academic Year</strong></td>
</tr>
<tr>
<td><strong>Academic Program</strong></td>
</tr>
<tr>
<td><strong>Hours/week</strong></td>
</tr>
<tr>
<td><strong>Term</strong></td>
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</table>

**1. Course Aim**

By the end of this course, students should:
Gain the basic principles of nutrition and clinical nutrition including the types of nutrients, feed additives and methods of feeding in different animals, in addition to acquiring the skills of analyzing and evaluating feed and formulating ration for different animals.

**2. Intended Learning Outcomes**

**2.1. Knowledge and Understanding**

By the end of completion of this course, the student should be able to:

2.1.1. Define the basic terms in the fields of animal nutrition.
2.1.2. Explain methods of nutrition for different farm animals.
2.1.3. Outlines the basic principles of animal feeding.
2.1.4. Discuss the role of different nutrients and feed additives.
2.1.5. Write short notes on nutrition of animals according to species production.
2.1.6. Summarize nutrient deficiency diseases of animals according to age.

**2.2. Intellectual Skills**

By successful completion of this course, the student should be able to

2.2.1. Group the causes suspected to nutrient deficiency diseases.
2.2.2. Discriminate reasons and prevention of nutrient deficiency diseases.
2.2.3. Propose a suitable method for making the ration for different animals according to purpose.
2.2.4. Design a feeding program to improve animal performance according to species.
2.2.5. Modify nutrient schedules in response to avoid nutrient deficiency diseases.
2.2.6. Choose suitable feed ingredients for different animal species and age.
2.2.7. Solve problems arising from feeding farm animal incorrect rations.

**2.3. Practical and Professional Skills**

By the end of this course, the student should be able to

2.3.1. Analyze different feed sample for detection its nutrient composition.
2.3.2. Deal with problems arising from feeding farm animal incorrect rations.
2.3.3. Design system of feeding different animals according to type of production.
2.3.4. Prepare and process a feed according to animal species.
2.3.5. Formulate ration for farm animals, poultry and fish according to the nutrients requirements guidelines.

2.4. General and Transferrable Skills

**By the end of this course, the student should be able to**
2.4.1 Deal ethically with faculty staff, colleagues and stakeholders,
2.4.2 Work in a multidisciplinary team,
2.4.3 Search the web for a given course topic to build up a review,
2.4.4 Demonstrate personal skills.

### 3. Course Contents

#### 1st Semester

<table>
<thead>
<tr>
<th>Topic</th>
<th>No. of hours</th>
<th>Lectures</th>
<th>Practical</th>
<th>ILOS</th>
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</thead>
<tbody>
<tr>
<td>Course description, the animal body and its food</td>
<td>3</td>
<td>3</td>
<td>--</td>
<td>2/1/1-2/1/3</td>
</tr>
</tbody>
</table>

**General Nutrition**

- The role and requirement of water | 3 | 3 | -- | 2/1/4 |
- Carbohydrates in animal nutrition | 4 | 4 | -- | 2/1/4-2/1/3-2/2/4 |
- Lipids in animal nutrition | 4 | 4 | -- | 2/1/4-2/2/4 |
- Protein and amino acids in animal nutrition | 5 | 5 | -- | 2/1/4 |
- Minerals in animal nutrition | 7 | 7 | -- | 2/1/4-2/1/6-2/2/7 |
- Vitamins in animal nutrition | 7 | 7 | -- | 2/1/4-2/1/6-2/2/1 |

**Feed additives** | 4 | 4 | -- | 2/1/4 |

**Clinical nutrition**

Nutrition and animal health and production | 4 | 4 | | 2/2/2-2/1/6-2/1/4 |
Nutritional disorders and health of dairy animals | 4 | 4 | -- | 2/1/6-2/2/1-2/2/7 |
- Technical terms | 2 | -- | 2 | 2/3/1 |

**Feed quality, evaluation and classification**

- Quality and safety of animal feeds and feedstuff | 8 | -- | 8 | 2/3/1 |
- Evaluation of foods | 4 | -- | 5 | 2/3/1 |
- Classification of feeds | 14 | 15 | | 2/3/1 |
  - field trips to animal feed factories and farm animals |
  - poster preparation |
  - mini-reviews and presentation |
## 2\textsuperscript{nd} Semester

### Feeding Standards

- **Feeding standards for maintenance and growth**
  - 5 5 -- 2/1/5

- **Feeding standards for fattening**
  - 3 3 -- 2/1/5

- **Feeding standards for reproduction and lactation**
  - 4 4 -- 2/1/2- 2/1/5

### Special Nutrition

- **Feeding dairy cattle on drylot rations**
  - 3 3 -- 2/1/2

- **Feeding dairy beef for meat production**
  - 2 2 -- 2/1/2-2/2/6

- **Nutrient requirements and feeding of sheep and goats**
  - 5 5 -- 2/1/2- 2/1/5- 2/2/4

- **Camel nutrition and feeding**
  - 3 3 -- 2/1/2-2/2/5

- **Nutrient requirement and feeding of horses.**
  - 3 3 -- 2/1/2- 2/2/3

- **Poultry nutrition and feeding**
  - 8 8 -- 2/1/2- 2/1/6- 2/2/5-2/2/4

- **Rabbit nutrition and feeding**
  - 3 3 -- 2/1/2-2/1/5- 2/2/3

- **Fish nutrition and feeding**
  - 3 3 -- 2/1/2- 2/2/6

- **Dog and cat nutrition and feeding**
  - 3 3 -- 2/1/2

- **Feed preparation and processing**
  - 4 -- 4 2/3/4

- **Ration formulation for poultry**
  - 6 -- 6 2/3/4- 2/3/3

- **Ration formulation for growth and fattening**
  - 3 -- 3 2/3/5

- **Ration formulation for lactating cattle**
  - 6 -- 6 2/3/3-2/3/5

- **Ration formulation for sheep and goats**
  - 3 -- 3 2/3/2-2/3/5

- **Ration formulation for horse**
  - 3 -- 3 2/3/5

- **Ration formulation for rabbit**
  - 3 -- 3 2/3/5

- **Ration formulation for fish**
  - 2 -- 2 2/3/5

- **Student activity**
  - 2/4/1- 2/4/2-
    - field trips to animal feed factories and farm animals
    - poster preparation
    - mini-reviews and presentation

<p>| | | | |</p>
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<tr>
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<tbody>
<tr>
<td>Total</td>
<td>150</td>
<td>90</td>
<td>60</td>
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</table>

### 4. Teaching and Learning Methods

**Lectures:** Interactive lectures through:
- Student involvement in the discussions
- The use of datashow for demonstration of electronic slides and videos tutorials.

**Practical sessions:** Laboratory analysis of feedstuffs.
- Identification of feed ingredients.
- Training on ration formulation and using standard tables.
- Slideshow exams.

Self-Learning activities:

- Field trips to animal feed factories and animal, poultry and fish farms.
- Poster preparations
- Mini-reviews and presentations

5. Teaching and Learning Methods for Students of Limited Capabilities

- Activating staff office hours.
- Additional revisions for previously taught and difficult topics.
- Providing a summary for previous chapter at the end of each one.
- Following up student feedbacks.

<table>
<thead>
<tr>
<th>6.1. Methods</th>
<th>6. Student Assessment</th>
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<tbody>
<tr>
<td></td>
<td>Intended Learning Outcomes Covered</td>
</tr>
<tr>
<td></td>
<td>KU</td>
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<tr>
<td>Written exams</td>
<td>2.1.1/2.1.2/2.1.3 2.1.4/2.1.6/2.1.5</td>
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<tr>
<td>Practical exams</td>
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<tr>
<td>Oral exams</td>
<td>2.2.2/2.2.4/2.2.5 / 2.2.6/2.2.7</td>
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<tr>
<td>Student Activities</td>
<td></td>
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</table>

KU, knowledge and understanding; IS, intellectual skills; PPS, practical and professional skills; GTS, general and transferable skills.

6.2. Exam Description

| Written exams | Short essays. |
|               | Multiple choice questions. |
|               | True or false. |
|               | Scientific terms |
|               | Comparisons. |

| Practical exams | Slideshows. |
|                | Ration formulation for different animal species |
Feed analysis.
Identifying feed ingredients.

Oral exams
- The students choose randomly questions/topics cards in front of the examiners’ committee who have the course specification in hands.
- The exam committee involves at least 2 examiners. Each evaluates the student by giving a separate score. The scores are then averaged.
- The student randomly selects question cards.

Student activities
- Self-learning activities are evaluated during the semester. For details, refer to the section: “4. Teaching and Learning Methods”.

<table>
<thead>
<tr>
<th>Exams and activities</th>
<th>Week (in each semester)</th>
<th>Per semester</th>
<th>Total (%)</th>
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<tbody>
<tr>
<td>Semester work exam</td>
<td>4th, 8th and 12th</td>
<td>8</td>
<td>16</td>
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<tr>
<td>Student activities</td>
<td>Throughout the semester</td>
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<td>4</td>
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<tr>
<td>Final written exam</td>
<td>16th</td>
<td>25</td>
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<tr>
<td>Final Practical exam</td>
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<tr>
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<td>16th</td>
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7. List of References

7.1. Course Notes
Ahmed, HA and Mervat AA. Animal Nutrition and Clinical Nutrition. Departmental Notes, Department of Nutrition and Clinical Nutrition, Faculty of Veterinary Medicine, Damanhour University.

7.2. Essential Books

7.3. Recommended Books
Nutrient Requirements and Feeding of Finfish for Aquaculture (2002), Carl D.Webster ,Chhorn lim Cabi Publishing

7.4. Periodicals, websites ….. etc.
- Journal of Animal Science
- Livestock Production Science
- Animal Science

- **Scientific websites**
  - [www.animal-nutrition.basf.com](http://www.animal-nutrition.basf.com).
  - [www.animalnutritiontechnologies.com](http://www.animalnutritiontechnologies.com).
  - [www.nutrition.org/education-and.../graduate-program-directory](http://www.nutrition.org/education-and.../graduate-program-directory)

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الاستاذ سماه السيد محروس

منسق المادة: د. حماد عبد العزيز السيد

رئيس القسم العلمي: آ/ إسامة السيد محروس
## Course Matrix for Achievement of Intended Learning Outcomes

<table>
<thead>
<tr>
<th>Topics</th>
<th>Hours</th>
<th>Knowledge &amp; Understanding</th>
<th>Intellectual Skills</th>
<th>Practical &amp; Professional Skills</th>
<th>General &amp; Transferable Skills</th>
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