**Ministry of Education**

Zero Draft Document On Competencies And

Courses Identification For Exit Examination

Program: Natural Resources Management

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Identified Competency Focus Areas and Core Courses for National Exit Examination:

Program:- Bachelor of Science in **Animal Sciences**

Competencies & Courses Suggested For Exit Examination For Bsc In

Animal Sciences Graduates To Be Held In 2015 E.C

Competencies & Courses Suggested For Exit Examination For Bsc In

Animal Sciences Graduates To Be Held In 2015 E.C

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# **Introduction**

One of many academic divisions at Ethiopian institutions devoted to the development of skilled professionals for the advancement of livestock productivity is Animal science. The program has had a big impact on Ethiopia’s livestock industry for more than half century. The development of professionals, researchers, and professionals who can educate, conduct research to address problems, and generate technologies to solve challenges in the field, such as feed, breeding and genetic, and animal health issues, depends heavily on the curriculum.

However, there are notable differences in how graduates are entering the workforce. In order to increase the comparability of grades and degrees across the nation, it is necessary to develop a system that evaluates students' learning outcomes as exit exams systems or central exams for all students who take the same final assessments. This system would be developed centrally for all universities across the nation that train in a similar program. Nationally harmonized curriculum for animal science programs was developed in 2021 with the expected graduate profile having key competencies in knowledge, skill, and attitude. The graduating students should acquire these required competencies and, lastly, need to be assessed.

Thus, the Ministry of Education planned to offer a comprehensive exit exam for undergraduate programs nationally to be started in 2022/2023 AY (2015 E.C). The objectives of the exit exam to assess students based on the key competencies learned in their stay in their universities that enhances quality of education. Thus, to assess students based on the revised competencies, major courses drawn from the key competencies is mandatory which enables the students to focus on those selected courses and for teachers to formulate exam questions to achieve those competencies and learning outcomes.

In a newly (2021) updated curriculum, the BSc degree in Animal Sciences is structured as a four-year study course with 60 courses. Among these 60 courses, 14 courses are selected from major courses which are to be included in the exit exam under 5 themes, namely, feed production and rangeland management, animal nutrition and its application, animal genetics and breed improvement, non-ruminant animal production, and ruminant animal production, are suggested to be included in the assessment.

Therefore, this document is made to facilitate the implementation of exit examinations for the BSc in Animal Sciences program. The paper is produced, stressing the following features: the test should be a curriculum-based exit exam derived from a graduate profile by categorizing important courses into core competencies.

# **2.** **Expected Profiles of Graduates**

Upon completion of the BSc degree in animal sciences, the graduates:

* Could work as professionals at universities/colleges, research institutes, business sectors, government and non-government organizations.
* Realize scientific methods of raising farm animals either directly as entrepreneur or indirectly through extension;
* Design and conduct research geared towards enhancement of livestock production and productivity.
* Consult/advice in the area of livestock development;
* Manage livestock sector;
* Plan or design, implement, monitor and evaluate livestock development projects;
* Supervise livestock development activities;
* Would be capable to integrate livestock production with other farming enterprises;
* Formulate and advocate livestock production and products marketing policies and strategies.
* Identify and analyze problems related to livestock production and health management intervention,
* Able to work in animal feed processing plants
* Able to process livestock products and by-products; and
* Able engage, and assist in livestock and livestock products marketing.

# **3.** **Competencies and Learning Outcomes**

Animal science graduates must possess a wide range of qualities such as versatility, impartiality, openness, flexibility, innovativeness, persistence, and so on. In general, graduates in their profession will have the following competencies and learning outcomes to improve the living conditions of poor urban and rural farmers whose problems are inextricably linked to feed quantity and quality, disease outbreaks, and parasite infestations. The aim of the program is to equip graduates with the scientific knowledge and skills required to implement principles, techniques, and scientific methods in livestock production, feeding, and health management, and product quality development. Thus, the program aims to produce qualified professionals who are knowledgeable, skilled, and capable of working with an appropriate and desired attitude. Graduates will be able to acquire the following competencies:

## **3.1. Knowledge**

* Understand the application of modern animal production technologies and management practices;
* Explain the mechanisms and role of animal physiology in livestock production;
* Understand and use knowledge of animal physiology, behaviors, and handling techniques to successfully interact with animals in a safe and humane manner; and
* Understand the role of nutrition in animal production.

## **3.2. Skill**

* Demonstrate advanced, comprehensive and applicable understanding in animal nutrition, physiology, breeding, genetics and biotechnology;
* Demonstrate critical thinking and problem-solving abilities as graduates to use scientific ideas in a range of animal production;
* Develop feeding methods for farm animal productivity;
* Describe the breadth of animal sciences in terms of the range of career routes, the diversity of the animal industries, the numerous functions of animals in society, and the modern concerns affecting animals and their habitats; and
* Critically analyse and properly interpret scientific material for problem solving and applications in animal production.

## **3.3. Attitude**

* Appreciate the role of animal production and management for food security and poverty reduction;
* Develop sense of enthusiasm to serve and work with farmers and farming communities in rural areas,
* Involve in an intellectually stimulating and satisfying experience of learning and studying,
* Desire to run private farms, animal feed processing plants and other agro-industries as self –employment.
* Develop interest to manage livestock sectors, supervise livestock development activities
* Desire to plan or design, implement, monitor and evaluate livestock development projects;
* Appreciate the animal science profession and to be a dedicated animal science expert who loves his profession.

**4.** **Suggested Courses for Exit Examination**

**Table1. List of courses**

|  |  |  |  |
| --- | --- | --- | --- |
| **№** | **Course name** | **Cr.hr** | **ECTS** |
| 1 | Principle of Genetics | 3 | 5 |
| 2 | Principle of Animal Nutrition | 3 | 5 |
| 3 | Sheep and Goat Production and Management | 3 | 5 |
| 4 | Forage and Pasture Production and Management | 3 | 5 |
| 5 | Camel Production and Management | 2 | 3 |
| 6 | Animal Breeding | 3 | 5 |
| 7 | Reproductive Physiology and Artificial Insemination | 2 | 3 |
| 8 | Applied Animal Nutrition | 4 | 6 |
| 9 | Poultry Production and Hatchery Management | 4 | 6 |
| 10 | Swine Production and Management | 2 | 3 |
| 11 | Dairy Cattle Production and Management | 3 | 5 |
| 12 | Beef Cattle Production and Management | 3 | 5 |
| 13 | Animal Biotechnology | 3 | 5 |
| 14 | Range Ecology and Management | 3 | 5 |
|  | Total | **41** | **66** |

# **5. Courses Categorized in to Themes/ focus areas**

Table2. Core competences/ Course themes

|  |  |  |
| --- | --- | --- |
| **№** | **Themes of Courses** | **List of Courses** |
| 1 | Feed production and Animal Nutrition | 1. Principle of Animal Nutrition |
| 2. Applied Animal Nutrition |
| 3. Forage and Pasture Production, and Rangeland Management |
| 2 | Animal Genetics and Breed Improvement | 1. Principle of Genetics |
| 2. Animal Breeding |
| 3. Reproductive Physiology and Artificial Insemination |
| 4. Animal Biotechnology |
| 3 | Non- Ruminant Animals Production | 1. Swine Production and Management |
| 2. Poultry Production and Hatchery Management |
| 4 | Ruminant Animals Production | 1. Sheep and Goat Production and Management |
| 2. Dairy Cattle Production and Management |
| 3. Beef Cattle Production and Management |
| 4. Camel Production and Management |
| 5 | Beneficiary Insects Production and Management | 1. Apiculture |
| 2. Sericulture |

# **6. Conclusion**

The graduates in the animal science department are required to satisfy the appropriate competences and learning goals. To observe if graduates acquire these abilities and learning goals, credible and reliable evaluation in the form of a comprehensive exit exam is necessary. The exit exam is initiated by MoE and provides a harmonized exit examination across higher education institutions in Ethiopia. Likewise, this document is made to assist the execution of exit examinations for the BSc degree in Animal Sciences program to be begun in the 2015 E.C academic year. The curriculum-based exit exam is generated from the graduate profile by organizing significant courses under major core competences. The examination is expected to be administered following graduation. The proportion of exam coverage to each competency will be decided by the number of courses proposed to be included per competency. Therefore, the national exit exam for animal science department has been prepared based on the identified competencies and learning outcomes (knowledge, skill and attitude) from the selected 15 courses within 5 major themes which enables qualified professionals trained under the recently (2021) revised curriculum. Finally, the core competencies, and specific courses are subjected to revisions and includes modifications and replacement of courses by considering emerging circumstances regarding the program.