# Advanced Animal Science Course No. 18103 Credit: 1.0

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| **Student name:** |  | **Graduation Date:** |  |

Pathways and CIP Codes:Animal Science (01.0901)

Course Description:

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

## Benchmark 1: Animal Origin AS.01.01

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Evaluate and describe characteristics of animals that developed in response to the animals’ environment and led to their domestication. |  |
| 1.2 | Outline the development of the animal industry and the resulting products, services and careers. |  |

## Benchmark 2: Classify Animals AS.02.01

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Explain how animals are classified using Linnaeus’s taxonomical classification system. |  |
| 2.2 | Compare and contrast the hierarchical classification of the major agricultural animal species. |  |
| 2.3 | Appraise and evaluate the economic value of animals for various applications in the agriculture industry. |  |

## Benchmark 3: Click or tap here to enter text.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Compare and contrast animal cells, tissues, organs and body systems. |  |
| 3.2 | Explain how the components and systems of animal anatomy and physiology relate to the production and use of animals. |  |
| 3.3 | Describe the functions of animal cell structures. |  |
| 3.4 | Detail the processes of meiosis and mitosis in animal growth, development, health and reproduction. |  |
| 3.5 | Explain the application of the processes of meiosis and mitosis to animal growth, development, health and reproduction. |  |
| 3.6 | Explain the relationship of animal tissues to growth, performance and health. |  |
| 3.7 | Explain the importance and uses made of animal tissues in the agriculture industry. |  |
| 3.8 | Compare and contrast organ types and functions among animal species. |  |
| 3.9 | Relate the importance of animals’ organs to the health, growth and reproduction of animals. |  |
| 3.10 | Compare and contrast body systems and system adaptations between animal species. |  |
| 3.11 | Explain the impact of animal body systems on performance, health, growth and reproduction. |  |

## Benchmark 4: Selecting Animals AS.02.03

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Compare and contrast desirable anatomical and physiological characteristics of animals within and between species. |  |
| 4.2 | Evaluate and select animals to maximize performance based on anatomical and physiological characteristics that affect health, growth and reproduction. |  |
| 4.3 | Assess an animal to determine if it has reached its optimal performance level based on anatomical and physiological characteristics. |  |

## Benchmark 5: Prevention & Treatment of Animals AS.03.01

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Perform simple health-check evaluations on animals. |  |
| 5.2 | Diagnose illnesses and disorders of animals based on symptoms and problems caused by diseases, parasites and physiological disorders. |  |
| 5.3 | Evaluate preventive measures for controlling and limiting the spread of diseases, parasites and disorders among animals. |  |
| 5.4 | Prepare animals, facilities and equipment for surgical and nonsurgical veterinary treatments and procedures. |  |
| 5.5 | Explain the health risk of zoonotic diseases to humans and their historical significance and future implications. |  |

## Benchmark 6: Biosecurity AS.03.02

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 6.1 | Discuss procedures at the local, state and national levels to ensure biosecurity of the animal industry. |  |

## Benchmark 7: Formulate Feed Rations AS.04.01

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 7.1 | Determine the relative nutritional value of feedstuffs by evaluating their general quality and condition. |  |
| 7.2 | Select appropriate feedstuffs for animals based on factors such as economics, digestive system and nutritional needs. |  |
| 7.3 | Appraise the adequacy of feed rations using data from the analysis of feedstuffs, animal requirements and performance. |  |
| 7.4 | Formulate animal feeds based on nutritional requirements, using feed ingredients for maximum nutrition and optimal economic production. |  |

## Benchmark 8: Feed Additives & Growth Promotants AS.04.02

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 8.1 | Discuss how feed additives and growth promotants are administered and the precautions that should be taken. |  |

## Benchmark 9: Male & Female Reproductive Systems AS.05.01

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 9.1 | Describe the functions of major organs in the male and female reproductive systems. |  |
| 9.2 | Select breeding animals based on characteristics of the reproductive organs. |  |

## Benchmark 10: Breeding Readiness & Soundness AS.05.02

### Competencies

| **#** | **Description** | **rating** |
| --- | --- | --- |
| 10.1 | Summarize factors that lead to reproductive maturity. |  |
| 10.2 | Evaluate reproductive problems that occur in animals. |  |

## Benchmark 11: Scientific Principles in Breeding AS.05.03

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 11.1 | Explain the advantages of using genetically superior animals in the production of animals and animal products. |  |
| 11.2 | Explain the processes of natural and artificial breeding methods. |  |
| 11.3 | Compare and contrast quantitative breeding value differences between genetically superior animals and animals of average genetic value. |  |
| 11.4 | Select animals based on quantitative breeding values for specific characteristics. |  |
| 11.5 | Explain the processes of major reproductive management practices, including estrous synchronization, superovulation, flushing and embryo transfer. |  |
| 11.6 | Explain the materials, methods and processes of artificial insemination |  |

## Benchmark 12: Safe Animal Handling AS.06.01

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 12.1 | Outline safety procedures for working with animals by species. |  |
| 12.2 | Design programs that assure the welfare of animals and prevent abuse or mistreatment |  |

## Benchmark 13: Animal Product Safety AS.06.02

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 13.1 | Discuss consumer concerns with animal production practices relative to human health. |  |
| 13.2 | Explain why animal trace-back capability, using individual animal and farm identification systems, is important to producers and consumers. |  |

## Benchmark 14: Design Animal Facilities AS.07.01

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 14.1 | Critique designs for an animal facility and prescribe alternative layouts and adjustments for the safe and efficient use of the facility. |  |
| 14.2 | Design an animal facility, focusing on animal requirements, efficiency, safety and ease of handling. |  |
| 14.3 | Explain how modern equipment and handling facilities enhance the safe and economic production of animals. |  |

## Benchmark 15: Government Regulations & Standards AS.07.02

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 15.1 | Evaluate an animal facility to determine if standards have been met |  |

## Benchmark 16: Reducing Environment Effects AS.08.01

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 16.1 | Outline methods of reducing the effects of animal agriculture on the environment |  |

## Benchmark 17: Environment Conditions on Animals

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 17.1 | Describe the effects of environmental conditions on animal populations and performance |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

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