

**Elanco**<sup>TM</sup>

ELANCO

# Fundamentals of Animal Science

CERTIFICATION



CERTIFICATION BLUEPRINT

## CERTIFICATION EXAM OVERVIEW

The Elanco Fundamentals of Animal Science Certification confirms that individuals have the essential knowledge and skills for the animal science industry. The certification exam, hosted on the iCEV Testing Platform, consists of 100 questions. It evaluates understanding of general animal science, animal breeding, animal nutrition, and management practices. The exam must be proctored in a controlled environment. Proctoring guidelines can be found at [www.icevonline.com/proctoring-guidelines](http://www.icevonline.com/proctoring-guidelines).

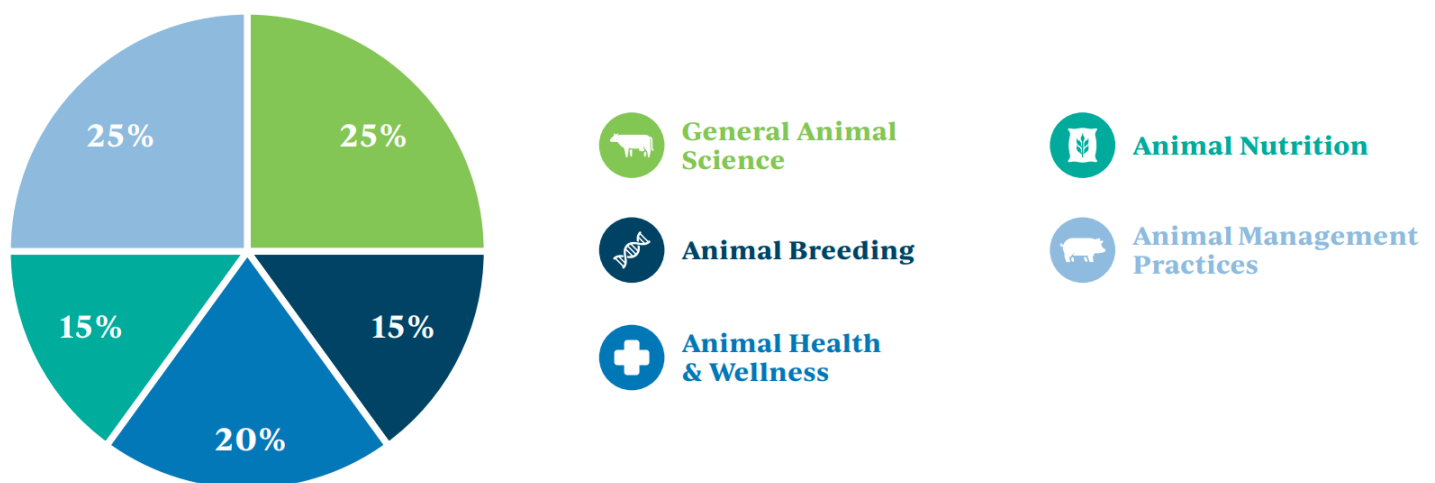
More information about the certification and testing platform can be found at <https://www.icevonline.com/animal-science>.

## ABOUT ELANCO

Elanco is a global animal health company that develops products and knowledge services to prevent and treat disease in food animals and pets in more than 90 countries. Elanco rigorously innovates to improve the health of animals and benefit customers, while fostering an inclusive, cause-driven culture for more than 5,800 employees. Elanco is driven by their vision of food and companionship enriching life – all to advance the health of animals, people and the planet.

Learn more at: <https://www.elanco.com/en-us/careers/faqs>.

## INDUSTRY STANDARDS OVERVIEW



# LEARNING OBJECTIVES & INDUSTRY STANDARDS

## 1. General Animal Science

### 1.1 Basic Animal Science

- 1.1.1 To understand the important role animals play in our lives
- 1.1.2 To learn about basic animal reproduction
- 1.1.3 To become familiar with cattle, horses, sheep, goats, swine and poultry

### 1.2 External Anatomy of Livestock: Terms & Terminology

- 1.2.1 To identify the external anatomy of livestock species
- 1.2.2. To analyze the functions of the external anatomy of livestock species
- 1.2.3 To compare the external anatomy of livestock species

### 1.3 Animal ID Systems

- 1.3.1 To learn the reason for animal identification
- 1.3.2. To identify different identification methods
- 1.3.3 To gain knowledge of the numbering systems for identification
- 1.3.4 To learn which identification method is used for different species

### 1.4 Harvesting of Livestock

- 1.4.1 To describe the livestock harvesting process
- 1.4.2. To explain federal and state meat inspection standards
- 1.4.3 To identify retail and wholesale cuts of meat correlated to major muscle groups and meat by-products

## 2. Animal Breeding

### 2.1 Fundamental Animal Microgenetics

- 2.1.1 To learn the stages of body and sex cell division
- 2.1.2 To learn how the sex of an embryo is determined
- 2.1.3 To learn the basic structure and composition of genes

### 2.2 Livestock Breeding Systems

- 2.2.1 To learn how to set goals for a successful breeding program
- 2.2.2 To learn about choosing and weighing traits in a breeding program
- 2.2.3 To learn how to determine measurements in a breeding program
- 2.2.4 To learn how to devise a strategy for selecting parents in a breeding program

### 2.3 Livestock Reproduction

- 2.3.1 To analyze the process of reproductive technologies
- 2.3.2 To understand the different techniques associated with each species
- 2.3.3 To explore the improvements available through artificial insemination, embryo transfer and cloning

## 3. Animal Health & Wellness

### 3.1 Common Diseases of Livestock Animals: Cause & Control

- 3.1.1 To identify common diseases in livestock animals and their causes
- 3.1.2 To evaluate the various pathways of disease transmission
- 3.1.3 To understand biosecurity and the principles which should be included in a prevention protocol

### 3.2 Common Diseases of Livestock Animals: Nutritional Diseases

- 3.2.1 To understand which animal body systems are impacted by diseases
- 3.2.2 To identify common nutritional diseases in livestock animals
- 3.2.3 To investigate symptoms and apply knowledge in the diagnosis of ill animals
- 3.2.4 To learn prevention and treatment techniques of nutritional diseases in livestock

### 3.3 Common Diseases of Livestock Animals: Bacterial Diseases

- 3.3.1 To identify common bacterial diseases in livestock animals
- 3.3.2 To investigate symptoms and apply knowledge in the diagnosis of ill animals
- 3.3.3 To learn prevention and treatment techniques of bacterial diseases in livestock
- 3.3.4 To understand how bacterial diseases are spread

### 3.4 Common Diseases of Livestock Animals: Viral Diseases

- 3.4.1 To understand which animal body systems are impacted by diseases
- 3.4.2 To identify common viral diseases in livestock animals
- 3.4.3 To investigate symptoms and apply knowledge in the diagnosis of ill animals
- 3.4.4 To learn prevention and treatment techniques of viral diseases in livestock

### 3.5 Common Diseases of Livestock Animals: Parasitic & Fungal Diseases

- 3.5.1 To identify common parasitic and fungal diseases in livestock animals
- 3.5.2 To investigate symptoms and apply knowledge in the diagnosis of ill animals
- 3.5.3 To learn prevention and treatment techniques of parasitic and fungal diseases in livestock
- 3.5.4 To understand how parasitic and fungal diseases are spread

### 3.6 Common Diseases of Livestock Animals: Genetic Diseases

- 3.6.1 To identify common genetic diseases in livestock animals
- 3.6.2 To investigate symptoms and apply knowledge in the diagnosis of ill animals
- 3.6.3 To learn prevention and treatment techniques of genetic diseases in livestock
- 3.6.4 To understand the basics of genetics and how they impact genetic diseases

### 3.7 Common Diseases of Livestock Animals: Neurological Diseases

- 3.7.1 To identify common neurological diseases in livestock animals
- 3.7.2 To investigate symptoms and apply knowledge in the diagnosis of ill animals
- 3.7.3 To learn prevention and treatment techniques of neurological diseases in livestock
- 3.7.4 To evaluate the nervous system and the impact of neurological diseases

### 3.8 Common Parasites of Livestock: Cause & Control

- 3.8.1 To identify common parasites found among livestock animals
- 3.8.2 To evaluate the various pathways of parasite transmission
- 3.8.3 To analyze the impacts parasites have on livestock, producer, consumer and economy
- 3.8.4 To understand animal welfare and the principles which should be included to ensure proper animal health

### 3.9 Common Parasites of Livestock Animals: Internal Parasites

- 3.9.1 To identify common internal parasites in livestock animals
- 3.9.2 To analyze symptoms and apply knowledge to identify infected animals
- 3.9.3 To learn prevention and treatment methods for common internal parasites in livestock
- 3.9.4 To learn how internal parasites are spread throughout livestock species

### 3.10 Common Diseases of Livestock Animals: External Parasites

- 3.10.1 To identify common external parasites in livestock animals
- 3.10.2 To analyze symptoms and apply knowledge to identify infected animals
- 3.10.3 To learn prevention and treatment methods for common external parasites in livestock
- 3.10.4 To learn how external parasites are spread throughout livestock species

### 3.11 Basic Livestock Surgical Procedures

- 3.11.1 To discuss tools used for basic surgical procedures in livestock
- 3.11.2 To understand the importance of each procedure
- 3.11.3 To examine the techniques used in each basic surgical procedure

### 3.12 Injection Techniques

- 3.12.1 To understand the importance of injections for medicine and vaccine administration
- 3.12.2 To examine proper injection methods and techniques
- 3.12.3 To explore common livestock vaccinations

## 4. Animal Nutrition

### 4.1 Digestive Systems of Livestock: A Basic Look

- 4.1.1 To understand methods of prehension
- 4.1.2 To understand the different types of digestive systems
- 4.1.3 To identify basic structures associated with digestive systems

### 4.2 Basic Livestock Nutrition

- 4.2.1 To gain an understanding of nutrition and what it comprises
- 4.2.2 To have a fundamental understanding of nutrients
- 4.2.3 To understand how and why feed is processed

## 5. Animal Management Practices

### 5.1 Beef Cattle Management Practices

- 5.1.1 To become familiar with the various production systems involved in beef cattle
- 5.1.2 To identify beef cattle handling methods and equipment
- 5.1.3 To gain a general knowledge of beef cattle nutrition and health
- 5.1.4 To gain understanding of the beef cattle selection, breeding, and reproduction processes
- 5.1.5 To learn the many tasks involved in calf management
- 5.1.6 To learn the proper environmental management practices involved in beef cattle management

### 5.2 Sheep Management Practices

- 5.2.1 To identify the many breeds of sheep
- 5.2.2 To learn the types of sheep productions
- 5.2.3 To gain a general knowledge of sheep nutrition and health
- 5.2.4 To gain understanding of sheep selection, breeding, and reproduction
- 5.2.5 To learn important characteristics of wool and market lambs
- 5.2.6 To learn the many tasks involved in sheep management

### 5.3 Swine Management Practices

- 5.3.1 To identify the many breeds of swine
- 5.3.2 To learn the types of swine productions
- 5.3.3 To gain a general knowledge of swine nutrition and health
- 5.3.4 To gain understanding of swine selection, breeding, and reproduction
- 5.3.5 To learn the many tasks involved in swine management
- 5.3.6 To become familiar with pork consumption and by-products

### 5.14 Goat Management Practices

- 5.4.1 To identify the different segments of the goat industries and associated breeds
- 5.4.2 To understand the management tasks performed to have a successful goat operation
- 5.4.3 To explore diseases affecting the goat industry and techniques producers use to eliminate them from a herd