



Fundamentals of Animal Science Certification

Study Guide

CERTIFICATION OVERVIEW

The Elanco Fundamentals of Animal Science Certification validates individuals possess a solid understanding of animal science, including the history and practices of the livestock industry as well as common terms and terminology and livestock management practices. In addition, the certification exam assesses major topics in the animal science industry, including genetics, reproduction, nutrition and health management.

EXAM OVERVIEW

The Elanco Fundamentals of Animal Science Certification is hosted on the iCEV testing platform. The certification exam is a 100-question, randomized assessment. Exam questions are in the format of multiple choice, sort order, diagramming, matching, labeling and other question types meant to fully evaluate an individual's competency of the industry standards. The certification exam should be proctored within a controlled environment. The proctor of the exam must review and verify all exam procedures and provide electronic documentation through the exam platform.

More information about the certification exam and testing platform, including optional preparation materials offered by iCEV, can be found at

<https://www.icevonline.com/animalscience>

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. With a 64-year heritage, 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

The certification exam assesses knowledge and skills from the following weighted industry standards set by Elanco:



GENERAL ANIMAL SCIENCE- 25%

- Origin & Evolution of Livestock
- Terms & Terminology
- External Anatomy
- Meat Inspection Regulations
- Harvesting Process



ANIMAL NUTRITION- 15%

- Digestive Systems
- Digestive Requirements & Nutritional Needs
- Balanced Rations
- Feed & Additives
- Hay & Legumes



ANIMAL MANAGEMENT PRACTICES- 25%

- Production Systems
- Handling & Equipment
- Nutrition & Health
- Selection & Breeding
- Management Practices



ANIMAL HEALTH & WELLNESS- 20%

- Common Diseases
- Common Parasites
- Injection Methods
- Injection & Vaccination Rules & Regulations



ANIMAL BREEDING- 15%

- Animal Micro Genetics
- Breeding Systems
- Breeding Methods
- Cloning

Industry Standard Overview

To pass the Elanco Fundamentals of Animal Science Certification exam, certification candidates must have adequate knowledge of the industry standards. The following outlines an in-depth overview of the industry standards and sub-standards:

General Animal Science- 25%



- The Evolution of Livestock
- Origin of Livestock
- Marketing Livestock
- Reproduction
- Gestation Periods
 - Cow
 - Mare
 - Sow
 - Ewe
 - Goat
 - Chicken
- Terms & Terminology
 - Cattle
 - Horse
 - Sheep & Goat
 - Swine
 - Chicken
- Anatomical Terms of Location
 - Dorsal
 - Ventral
 - Caudal
 - Cranial
- External Components of Livestock
- External Anatomy
 - Cattle
 - Swine
 - Sheep
 - Goat
- Meat Inspection
- Quality Grade
- Yield Grade
- Regulatory Agencies & Key Legislation
- Meat Label Requirements
- By-Products

Animal Nutrition- 15%



- Prehension
- Ruminant & Ruminant Compartments
- Ruminant Digestive Tract
- Monogastric
- Monogastric Digestive Tract
- Basic Nutrients

Animal Management Practices (Beef Cattle, Sheep, Goat & Swine)- 25%



- Management Practices
 - Beef Cattle
 - Sheep
 - Swine
 - Goat
- Animal ID
- Numbering Systems
- Common ID
 - Horse
 - Cattle
 - Sheep/Goat
 - Swine
 - Poultry

Animal Health & Wellness- 20%



- Pathogens
- Parasites
- Dehorning
- Castration
- Tail Docking
- Lancing
- Types of Injections
- Types of Medications

Animal Breeding- 15%



- Terminology
- Mendel's Rules of Genetics
- Mitosis
- Meiosis
- Sex Determination
- Genes
- DNA
- Nitrogen Bases
- RNA
- Designing a Breeding Program
- Pedigree
- EPDs
- Types of Breeding System
- Crossbreeding
- Systems of Mating
- Estrus Synchronization
- Animal Reproduction
 - Sheep & Goat
 - Swine
 - Cattle
 - Horse
- Cloning

Optional Preparation Materials Overview

The preparation materials offered by iCEV for the Elanco Fundamentals of Animal Science Certification was specifically created to prepare candidates for the certification exam. While it is not required to complete the preparatory materials before accessing the certification exam, Elanco recommends certification candidates complete some form of training. The following outlines the lessons scope and objectives:

Lesson 1: The Livestock Industry

1. To analyze the growth and development of the livestock industry as a global commodity.
2. To examine the stages of animal growth and relate it to market readiness.
3. To evaluate marketing practices for livestock, meat and meat products.
4. To explore career development and entrepreneurship opportunities.

Lesson 2: Basic Animal Science

1. To understand the important role animals play in our lives.
2. To learn about basic animal reproduction.
3. To become familiar with cattle, horses, sheep, goats, swine and poultry.

Lesson 3: External Anatomy of Livestock: Terms and Terminology

1. To identify the external anatomy of livestock species.
2. To analyze the functions of the external anatomy of livestock species.
3. To compare the external anatomy of livestock species.

Lesson 4: Digestive Systems of Livestock: A Basic Look

1. To understand methods of prehension.
2. To understand the different types of digestive systems.
3. To identify basic structures associated with digestive systems.

Lesson 5: Basic Livestock Nutrition

1. To gain an understanding of nutrition and what it comprises.
2. To have a fundamental understanding of nutrients.
3. To understand how and why feed is processed.

Lesson 6: Fundamental Animal Microgenetics

1. To learn the stages of body and sex cell division.
2. To understand how the sex of an embryo is determined.
3. To describe the basic structure and composition of genes.

Lesson 7: Livestock Breeding Systems

1. To learn how to set goals for a successful breeding program.
2. To learn about choosing and weighing traits in a breeding program.
3. To determine measurements in a breeding program.
4. To learn how to devise a strategy for selecting parents in a breeding program.

Lesson 8: Livestock Reproduction

1. To analyze the process of reproductive technologies
2. To understand the different techniques associated with each species.
3. To explore the improvements available through artificial insemination, embryo transfer and cloning.

Lesson 9: Common Animal Diseases

1. To identify the ways of preventing diseases.
2. To investigate symptoms, prevention and treatment of common animal diseases.
3. To learn to diagnose common animal diseases.

Lesson 10: Parasites of Livestock

1. To examine common large animal parasites.
2. To describe symptoms of external and internal parasites in small animals.
3. To illustrate preventative methods and treatment options concerning parasites.

Lesson 11: Basic Livestock Surgical Procedures

1. To discuss tools used for basic surgical procedures in livestock.
2. To understand the importance of each procedure.
3. To examine the techniques used in each basic surgical procedure.

Lesson 12: Injection Techniques

1. To understand the importance of injections for medicine and vaccine administration.
2. To examine proper injection methods and techniques.
3. To explore common livestock vaccinations.

Lesson 13: Beef Cattle Management Practices

1. To become familiar with the various production systems involved in beef cattle.
2. To identify beef cattle handling methods and equipment.
3. To gain general knowledge of beef cattle nutrition and health.
4. To gain an understanding of the beef cattle selection, breeding and reproduction processes.
5. To learn the many tasks involved in calf management.
6. To learn the proper environmental management practices involved in beef cattle management.

Lesson 14: Sheep Management Practices

1. To identify the many breeds of sheep.
2. To learn the types of sheep production.
3. To gain general knowledge of sheep nutrition and health.
4. To gain an understanding of sheep selection, breeding and reproduction.
5. To learn important characteristics of wool and market lambs.
6. To learn the many tasks involved in sheep management.

Lesson 15: Swine Management Practices

1. To identify the many breeds of swine.
2. To learn the types of swine operations.
3. To gain general knowledge of swine nutrition and health.
4. To gain an understanding of swine selection, breeding and reproduction.
5. To learn the many tasks involved in swine management.
6. To become familiar with pork consumption and by-products.

Lesson 16: Goat Management Practices

1. To identify the different segments of the goat industries and the associated breeds.
2. To understand the management tasks performed to have a successful goat operation.
3. To explore diseases affecting the goat industry and techniques producers use to eliminate them from a herd.

Lesson 17: Animal ID Systems

1. To learn the reasons for animal identification.
2. To identify different identification methods.
3. To gain knowledge of the numbering systems for identification.
4. To learn which identification method is used for different species.

Lesson 18: Harvesting of Livestock

1. To describe the livestock harvesting process.
2. To explain federal and state meat inspection standards.
3. To identify retail and wholesale cuts of meat correlated to major muscle groups and meat byproducts.