

CURRICULUM OVERVIEW

Animal Systems

Career and Technical Education Series



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Animal Systems Course Overview

The role of animals in civilization has an ancient history, and they are no less prominent in today's society. For example, pigs were domesticated in China as long as 10,000 years ago and are still vital to our lifestyle today. But we know that pigs are also intelligent beings. What are their preferences for habitat and treatment, and what are their social and reproductive habits?

Animals today are used for clothing, food, transportation, agriculture, herding, companionship, guide assistance, and crime fighting, and research continues to reveal new uses. As our scientific understanding of animal systems grows, so do our best practices, ethical considerations, and research applications. How mankind treats animals impacts their well-being and productivity.

The course provides students with a wealth of information on livestock-management practices, animal husbandry, physiological systems, the latest scientific trends, and innovations in food production.

Changes in practices, regulations, and legislation for animal welfare continue as new research provides solutions to medical, ethical, and practical concerns. The course reviews current topics, such as advancements in technology and research, and defines areas of discussion while maintaining focus on best-management practices. How the research translates to management practices is a vital area of study and discussion.

Objectives

- Understand the role of animal agriculture in society.
- Examine and apply best-management practices in animal agriculture.
- Compare animal welfare versus animal rights.
- Evaluate and select superior animals to be used for reproductive purposes.
- Investigate animal-performance data.
- Explore careers in animal agriculture.
- Study the environmental impact of animal management and production systems.

Animal Systems Course Requirements

This is an introductory course in animal systems at the high-school level. An interest in animal physiology, husbandry, livestock, veterinary practice, animal welfare, or food production would be desirable for students of the course. The information gained will be helpful in making educational decisions for undergraduate or graduate study. A student might use the knowledge gained from the course to further an interest in becoming a chef, a researcher, a doctor, a wildlife-management professional, or any number of applicable careers. No previous experience in or knowledge of these careers is required for the course.

Some students will have more experiential knowledge of animals; however, hands-on experience is not a requirement. The course covers livestock anatomy, physiology, and reproductive systems, but medical knowledge is not required for the course.

The ability to review online information, research topics independently, pursue hands-on projects, and create reports and presentations is required.

Animal Systems	Unit 1: Nature and Scope of Animal Agriculture in Our Society and Economy	
	Assignments	
	1. Course Overview	10. Project: For the Love of Animals
	2. History of Animal Agriculture	11. Animal Breeds and Classification
	3. Project: In My Tribe	12. Project: A Breed Apart
	4. Advancements in Animal Agriculture	13. Careers in Animal Agriculture
	5. Project: The Discovery that Changed Farming	14. Quiz 2: Animal Agriculture in our Society
	6. Today's Animal Agriculture and Consumer	15. Special Project*
	7. Project: Reliance on Animal Products in Daily Life	16. Test
	8. Quiz 1: Animal Agriculture	17. Course Project Part 1: Why I Want to Study Animals*
	9. Animal Behavior and Safety Practices in Animal Agriculture	18. Glossary and Credits
	Animal Systems	Unit 2: Animal Selection and Health
Assignments		
1. Parts and Processes of the Animal Cell		10. Project: The Parasite Project
2. Project: 3D Gelatin Animal Cell		11. Best-Management Practices to Improve Herd Health
3. Animal Anatomy and Physiology		12. Quiz 2: Animal Health
4. Project: You Are What You Eat		13. Special Project*
5. Selecting Excellence		14. Test
6. Quiz 1: Animal Anatomy and Physiology		15. Course Project Part 2: Your Career Role in Animal Health*
7. Animal Diseases and Prevention		16. Glossary and Credits
8. Project: Animal Disease, Treatment, Prevention, and Prognosis		
9. Animal Parasites and Treatment		
Animal Systems		Unit 3: Animal Nutrition, Growth, and Development
	Assignments	
	1. Animal Digestive Anatomy	10. Project: Animal Parturition
	2. Project: Life as a Blade of Grass	11. Animal Performance and Development
	3. Animal Nutrients and Needs	12. Quiz 2: Animal Growth and Development
	4. Project: The Six Nutrients of Life	13. Special Project*
	5. Selecting Feed and Feedstuff	14. Test
	6. Quiz 1: Animal Nutrition	15. Course Project Part 3: Animal Nutrition, Performance, and You*
	7. Mitosis, Meiosis, and Prenatal Development	16. Glossary and Credits
	8. Project: What do Meiosis and Mitosis Look Like?	
	9. Parturition and Postnatal Development	
	Animal Systems	Unit 4: Animal Reproduction
Assignments		
1. History of Genetics		10. Project: Best-Management Practices
2. Project: The Genome Project		11. Gestation, Parturition, and Lactation
3. Traits and Heredity		12. Quiz 2: Animal Reproduction
4. Project: Traits, Breeds, and Heredity		13. Special Project*
5. Biotechnology Advancements		14. Test
6. Quiz 1: Genetics		15. Course Project Part 4: Making Baby Animals: Your Involvement in Animal Reproduction*
7. Reproductive Anatomy		16. Glossary and Credits
8. Project: How Do Different Species Reproduce?		
9. Breeding Management		

Unit 5: Animals and the Environment		
Animal Systems	Assignments	
	1. USDA Grades of Meat and Their Purposes	11. Project: Animal Welfare and the Work of Dr. Temple Grandin
	2. Retail Cuts of Meat	12. Quiz 2: Animal Issues
	3. Project: Interview Your Local Butcher	13. Special Project*
	4. Food Safety	14. Test
	5. Project: Food-Safety Guidelines	15. Course Project Part 5: What Environment Has to Do With Your Career*
	6. Quiz 1: Consumers and Public Perception	16. Glossary and Credits
	7. Wildlife Management in Cattle Ranching	
	8. Project: Wildlife on the Ranch	
	9. Animal Waste Management and Treatment	
	10. Animals and Society	
Unit 6: Course Project, Review, and Exam		
AS	Assignments	
	1. Course Project Part 6: Your Life in Animal Systems*	2. Course Review
		3. Exam

(*) Indicates alternative assignment