

**Agriculture, Food & Natural Resources Career Cluster
Avian Science & Biotechnology
Course Number**

Course Description:

This course is designed as part of the Georgia Agriculture, Food & Natural Resources Career Cluster for students to explore scientific principles in avian science. This course investigates avian biotechnology and research while exploring avian anatomy physiology, embryonic development, health, and nutrition. This course examines habitats and wild avian management, avian enterprises and products and connects the value of various avian species to food science. This course will analyze poultry environmental control practices and identify USDA certification processes for poultry products.

Course Standard 1

The following standard is included in all CTAE courses adopted for the Career Cluster/Pathways. Teachers should incorporate the elements of this standard into lesson plans during the course. The topics listed for each element of the standard may be addressed in differentiated instruction matching the content of each course. These elements may also be addressed with specific lessons from a variety of resources. This content is not to be treated as a unit or separate body of knowledge but rather integrated into class activities as applications of the concept.

Standard: Demonstrate employability skills required by business and industry.

The following elements should be integrated throughout the content of this course.

1.1 Communicate effectively through writing, speaking, listening, reading, and interpersonal abilities.

Person-to-Person Etiquette	Telephone and Email Etiquette	Cell Phone and Internet Etiquette	Communicating At Work	Listening
Interacting with Your Boss	Telephone Conversations	Using Blogs	Improving Communication Skills	Reasons, Benefits, and Barriers
Interacting with Subordinates	Barriers to Phone conversations	Using Social Media	Effective Oral Communication	Listening Strategies
Interacting with Co-workers	Making and Returning Calls		Effective Written Communication	Ways We Filter What We Hear
Interacting with Suppliers	Making Cold Calls		Effective Nonverbal Skills	Developing a Listening Attitude
	Handling Conference Calls		Effective Word Use	Show You Are Listening
	Handling Unsolicited Calls		Giving and Receiving Feedback	Asking Questions
				Obtaining Feedback
				Getting Others to Listen

Nonverbal Communication	Written Communication	Speaking	Applications and Effective Résumés
Communicating Nonverbally	Writing Documents	Using Language Carefully	Completing a Job Application
Reading Body Language	Constructive	One-on-One Conversations	Writing a Cover Letter

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and mixed Messages	Criticism in Writing		
Matching Verbal and Nonverbal communication		Small Group Communication	Things to Include in a Résumé
Improving Nonverbal Indicators		Large Group Communication	Selling Yourself in a Résumé
Nonverbal Feedback		Making Speeches	Terms to Use in a Résumé
Showing Confidence Nonverbally		Involving the Audience	Describing Your Job Strengths
Showing Assertiveness		Answering Questions	Organizing Your Résumé
		Visual and Media Aids	Writing an Electronic Résumé
		Errors in Presentation	Dressing Up Your Résumé

1.2 Demonstrate creativity by asking challenging questions and applying innovative procedures and methods.

Teamwork and Problem Solving	Meeting Etiquette
Thinking Creatively	Preparation and Participation in Meetings
Taking Risks	Conducting Two-Person or Large Group Meetings
Building Team Communication	Inviting and Introducing Speakers
	Facilitating Discussions and Closing
	Preparing Visual Aids
	Virtual Meetings

1.3 Exhibit critical thinking and problem-solving skills to locate, analyze and apply information in career planning and employment situations.

Problem Solving	Customer Service	The Application Process	Interviewing Skills	Finding the Right Job
Transferable Job Skills	Gaining Trust and Interacting with Customers	Providing Information, Accuracy and Double Checking	Preparing for an Interview	Locating Jobs and Networking
Becoming a Problem Solver	Learning and Giving Customers What They Want	Online Application Process	Questions to Ask in an Interview	Job Shopping Online
Identifying a Problem	Keeping Customers Coming Back	Following Up After Submitting an Application	Things to Include in a Career Portfolio	Job Search Websites
Becoming a Critical Thinker	Seeing the Customer's Point	Effective Résumés	Traits Employers are Seeking	Participation in Job Fairs
Managing	Selling Yourself and the Company	Matching Your Talents to a Job	Considerations Before Taking a Job	Searching the Classified Ads
	Handling Customer Complaints	When a Résumé Should be Used		Using Employment Agencies
	Strategies for Customer Service			Landing an Internship
				Staying Motivated to Search

1.4 Model work readiness traits required for success in the workplace including integrity, honesty, accountability, punctuality, time management, and respect for diversity.

Workplace Ethics	Personal Characteristics	Employer Expectations	Business Etiquette	Communicating at Work
Demonstrating Good Work Ethic	Demonstrating a Good Attitude	Behaviors Employers Expect	Language and Behavior	Handling Anger
Behaving Appropriately	Gaining and Showing Respect	Objectionable Behaviors	Keeping Information Confidential	Dealing with Difficult Coworkers
Maintaining Honesty	Demonstrating Responsibility	Establishing Credibility	Avoiding Gossip	Dealing with a Difficult Boss
Playing Fair	Showing Dependability	Demonstrating Your Skills	Appropriate Work Email	Dealing with Difficult Customers
Using Ethical Language	Being Courteous	Building Work Relationships	Cell Phone Etiquette	Dealing with Conflict
Showing Responsibility	Gaining Coworkers' Trust		Appropriate Work Texting	
Reducing Harassment	Persevering		Understanding Copyright	
Respecting Diversity	Handling Criticism		Social Networking	
Making Truthfulness a Habit	Showing Professionalism			
Leaving a Job Ethically				

1.5 Apply the appropriate skill sets to be productive in a changing, technological, diverse workplace to be able to work independently and apply teamwork skills.

Expected Work Traits	Teamwork	Time Management
Demonstrating Responsibility	Teamwork Skills	Managing Time
Dealing with Information Overload	Reasons Companies Use Teams	Putting First Things First
Transferable Job Skills	Decisions Teams Make	Juggling Many Priorities
Managing Change	Team Responsibilities	Overcoming Procrastination
Adopting a New Technology	Problems That Affect Teams	Organizing Workspace and Tasks
	Expressing Yourself on a Team	Staying Organized
	Giving and Receiving Constructive Criticism	Finding More Time
		Managing Projects
		Prioritizing Personal and Work Life

1.6 Present a professional image through appearance, behavior and language.

On-the-Job Etiquette	Person-to-Person Etiquette	Communication Etiquette	Presenting Yourself
Using Professional Manners	Meeting Business Acquaintances	Creating a Good Impression	Looking Professional
Introducing People	Meeting People for the First Time	Keeping Phone Calls Professional	Dressing for Success
Appropriate Dress	Showing Politeness	Proper Use of Work Email	Showing a Professional Attitude

Business Meal Functions		Proper Use of Cell Phone	Using Good Posture
Behavior at Work Parties		Proper Use in Texting	Presenting Yourself to Associates
Behavior at Conventions			Accepting Criticism
International Etiquette			Demonstrating Leadership
Cross-Cultural Etiquette			
Working in a Cubicle			

Course Standard 2

AFNR-ASB-2

Orient and apply the comprehensive program of agricultural education, learn to work safely in the agriculture lab and work sites, demonstrate selected competencies in leadership through the FFA and agricultural industry organizations, and develop plans for a Supervised Agricultural Experience Program (SAEP).

- 2.1 Explain the role of the Agricultural Education program and the FFA in personal development.
- 2.2 Demonstrate knowledge learned through a SAEP.
- 2.3 Develop leadership and personal development skills through participation in the FFA.
- 2.4 Explore career opportunities with meat & dairy products through the FFA and Agricultural Education Program.
- 2.5 Explore the professional agricultural organizations associated with the course content.

Course Standard 3

AFNR-ASB-3

Investigate the history and characteristics of avian species.

- 3.1 Explore the evolution of avian species from prehistoric times to present.
- 3.2 Identify types of birds using scientific classification with binomial nomenclature.
- 3.3 Compare and contrast the various types of avian species - commercial poultry, gamebirds, exotics, raptors, ratites, etc.

Course Standard 4

AFNR-ASB-4

Analyze avian anatomy and physiology.

- 4.1 Investigate avian external parts.
- 4.2 Critique avian muscle systems.
- 4.3 Classify avian skeletal systems.
- 4.4 Assess and describe avian respiratory and circulatory systems.
- 4.5 Categorize avian digestive systems.
- 4.6 Describe functions of the avian reproductive systems.
- 4.7 Understand avian urinary system and endocrine system.
- 4.8 Compare and contrast poultry anatomy and physiology to other avian species.

Course Standard 5

AFNR-ASB-5

Investigate the process of avian embryonic development.

- 5.1 Differentiate the layers of the shell and membranes as well as their functions.
- 5.2 Identify embryonic development stages and differences, if any, between various classifications of avian species.
- 5.3 Explore embryonic mortality causes (e.g., genetics, nutrient shortages, deformities, etc.).
- 5.4 Assess advanced hatchery management practices in commercial poultry production.

Course Standard 6

AFNR-ASB-6

Investigate natural & engineered avian habitats & needs.

- 6.1 Identify the natural habitat needs of avian species (food, water, cover, arrangement.)
- 6.2 Identify the biome of different avian species (temperature, humidity, lighting, air circulation, food sources, water sources, etc.)
- 6.3 Investigate engineered (man-made) habitats (temperature, humidity, lighting, air circulation, food sources, water sources, biosecurity, etc.)
- 6.4 Design an engineered habitat for an avian species.

Course Standard 7

AFNR-ASB-7

Critique wild avian management (turkey, gamebirds, exotics, raptors, etc.) practices.

- 7.1 Analyze the contributions of wild avian species to the environment.
- 7.2 Compare current and past conservation and preservation practices.
- 7.3 Investigate the factors that influence birth rate & death rate of wild avian populations.
- 7.4 Identify methods of manipulating avian populations for management purposes.
- 7.5 Investigate wild avian management entrepreneurial opportunities.

Course Standard 8

AFNR-ASB-8

Compare additional avian enterprises and products.

- 8.1 Explore alternative avian production industries (e.g., Turkey, Geese, Quail, Pigeons, Ducks, Ratites, Show-Quality Birds, Exotics, Pets, etc.).
- 8.2 Identify variations between alternative production (free-range, backyard, & pasture flocks) methods and commercial poultry production practices.
- 8.3 Differentiate consumer preferences in avian products (ostrich burgers, eggshell preference, dark pigmented poultry, etc.)

Course Standard 9

AFNR-ASB-9

Analyze the diverse concepts and importance of nutrition in avian species.

- 9.1 Compare and contrast diets of pre-domesticated to domesticated poultry.
- 9.2 Analyze the prevention and treatment of avian nutritional disorders.
- 9.3 Compare and contrast classes of feed nutrients in respect to different avian species (commercial poultry, waterfowl, gamebird, exotic, etc.)
- 9.4 Differentiate classes of feedstuffs and feed additives used in poultry diets.

Course Standard 10

AFNR-ASB-10

Investigate Avian Health and explore major avian diseases and vaccines.

- 10.1 Compare and contrast microscopic differences of bacterial, viral and protozoan diseases.
- 10.2 Examine avian clinical signs, modes of transmission, and preventative measures for bacterial, viral, protozoan, miscellaneous diseases.
- 10.3 Explore biosecurity practices of commercial poultry.

Course Standard 11

AFNR-ASB-11

Connect the value of various avian species to food science.

- 11.1 Analyze market prices for exotic or non-traditional eggs or carcasses for various styles of cooking (e.g., ostrich eggs versus chicken eggs).
- 11.2 Compare and contrast cultural preferences in poultry food products (chicken paws, gizzards, geese, duck, balut eggs, dark pigmented poultry, etc.)

Course Standard 12

AFNR-ASB-12

Assess the process of obtaining a USDA Certification for poultry products and explore controversial subjects within the commercial poultry industry.

- 12.1 Construct the steps and requirements of USDA certification for poultry table egg and meat processors.
- 12.2 Compare and contrast commercial processors with small, local processing facilities.
- 12.3 Assess the uses of feathers, bone, body organs, etc. to create by-products of value and how it may differ in relation to various processor practices.
- 12.4 Develop a logical argument regarding controversies in poultry and poultry products (e.g., smell, noise, environmental effects, animal welfare, etc.).

Course Standard 13

AFNR-ASB-13

Investigate avian biotechnology and research.

- 13.1 Research and report avian biotechnology events or products.
- 13.2 Design, implement, collect data, and determine conclusions using scientific processes related to avian biology.

Course Standard 14

AFNR-ASB-14

Analyze poultry environmental control practices.

- 14.1 Assess the impact of poultry production on the air, water & soil health.
- 14.2 Differentiate methods of poultry waste management and their effect on environmental pollution.
- 14.3 Research environmental guidelines of current poultry production laws and regulations.