Agriculture, Food & Natural Resources Career Cluster
Agriculture Meat and Dairy Product Processing
Course: 02.43200

Course Description
This course is designed for the Food Products and Processing Pathway. The course introduces the areas of Meats (Beef, Pork, Lamb) Identification, Evaluation, Yield and Quality Grading, and Safety; Poultry (Production and Processing) Evaluation, and Management; Dairy (Production and Processing) Evaluation and Management. The course introduces scientific agricultural production and research; presents problem solving lessons and introductory skills and knowledge in agricultural science, technologies and microbiology. Classroom and laboratory activities are supplemented through supervised agricultural experiences and leadership programs and activities. This course is in the Food Products and Processing Pathway and is intended for students in grades 9-12.

Course Standard 1

AFNR-AMDPP-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.

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

<table>
<thead>
<tr>
<th>Nonverbal Communication</th>
<th>Written Communication</th>
<th>Speaking</th>
<th>Applications and Effective Résumés</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicating Nonverbally</td>
<td>Writing Documents</td>
<td>Using Language Carefully</td>
<td>Completing a Job Application</td>
</tr>
<tr>
<td>Reading Body Language and mixed Messages</td>
<td>Constructive Criticism in Writing</td>
<td>One-on-One Conversations</td>
<td>Writing a Cover Letter</td>
</tr>
<tr>
<td>Matching Verbal and Nonverbal communication</td>
<td>Small Group Communication</td>
<td>Things to Include in a Résumé</td>
<td></td>
</tr>
</tbody>
</table>
1.2 Demonstrate creativity by asking challenging questions and applying innovative procedures and methods.

<table>
<thead>
<tr>
<th>Teamwork and Problem Solving</th>
<th>Meeting Etiquette</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thinking Creatively</td>
<td>Preparation and Participation in Meetings</td>
</tr>
<tr>
<td>Taking Risks</td>
<td>Conducting Two-Person or Large Group Meetings</td>
</tr>
<tr>
<td>Building Team Communication</td>
<td>Inviting and Introducing Speakers</td>
</tr>
<tr>
<td></td>
<td>Facilitating Discussions and Closing</td>
</tr>
<tr>
<td></td>
<td>Preparing Visual Aids</td>
</tr>
<tr>
<td></td>
<td>Preparing Visual Aids</td>
</tr>
<tr>
<td></td>
<td>Virtual Meetings</td>
</tr>
</tbody>
</table>

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

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

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

<table>
<thead>
<tr>
<th>Workplace Ethics</th>
<th>Personal Characteristics</th>
<th>Employer Expectations</th>
<th>Business Etiquette</th>
<th>Communicating at Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrating Good Work Ethic</td>
<td>Demonstrating a Good Attitude</td>
<td>Behaviors Employers Expect</td>
<td>Language and Behavior</td>
<td>Handling Anger</td>
</tr>
<tr>
<td>Behaving Appropriately</td>
<td>Gaining and Showing Respect</td>
<td>Objectionable Behaviors</td>
<td>Keeping Information Confidential</td>
<td>Dealing with Difficult Coworkers</td>
</tr>
<tr>
<td>Maintaining Honesty</td>
<td>Demonstrating Responsibility</td>
<td>Establishing Credibility</td>
<td>Avoiding Gossip</td>
<td>Dealing with a Difficult Boss</td>
</tr>
<tr>
<td>Playing Fair</td>
<td>Showing Dependability</td>
<td>Demonstrating Your Skills</td>
<td>Appropriate Work Email</td>
<td>Dealing with Difficult Customers</td>
</tr>
</tbody>
</table>
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 team work skills.**

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

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

<table>
<thead>
<tr>
<th>On-the-Job Etiquette</th>
<th>Person-to-Person Etiquette</th>
<th>Communication Etiquette</th>
<th>Presenting Yourself</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using Professional Manners</td>
<td>Meeting Business Acquaintances</td>
<td>Creating a Good Impression</td>
<td>Looking Professional</td>
</tr>
<tr>
<td>Introducing People</td>
<td>Meeting People for the First Time</td>
<td>Keeping Phone Calls Professional</td>
<td>Dressing for Success</td>
</tr>
<tr>
<td>Appropriate Dress</td>
<td>Showing Politeness</td>
<td>Proper Use of Work Email</td>
<td>Showing a Professional Attitude</td>
</tr>
<tr>
<td>Business Meal Functions</td>
<td></td>
<td>Proper Use of Cell Phone</td>
<td>Using Good Posture</td>
</tr>
<tr>
<td>Behavior at Work Parties</td>
<td></td>
<td>Proper Use in Texting</td>
<td>Presenting Yourself to Associates</td>
</tr>
<tr>
<td>Behavior at Conventions</td>
<td></td>
<td></td>
<td>Accepting Criticism</td>
</tr>
<tr>
<td>International Etiquette</td>
<td></td>
<td></td>
<td>Demonstrating Leadership</td>
</tr>
<tr>
<td>Cross-Cultural Etiquette</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working in a Cubicle</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Support of CTAE Foundation Course Standards and Georgia Standards of Excellence L9-10RST 1-10 and L9-10WHST 1-10:**
Georgia Standards of Excellence ELA/Literacy standards have been written specifically for technical subjects and have been adopted as part of the official standards for all CTAE courses.
Course Standard 2

AFNR-AMDPP-2
Orient and apply the comprehensive program of agricultural education, learns to work safely in the agriculture lab and work sites, demonstrates selected competencies in leadership through the FFA and agricultural industry organizations, and develops 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-AMDPP-3
Identify and describe meat retail cuts of beef, pork, and lamb.

3.1 Identify different muscles and muscle groups within a retail cut.
3.2 Recognize bone structure as it applies to carcass structure.
3.3 Differentiate between the types of fat-external (subcutaneous), marbling (intramuscular), and seam (intermuscular).
3.4 Discuss quality of lean color, lean texture, marbling, and fat color.
3.5 Illustrate whole carcasses to identify wholesale and retail cuts.
3.6 Determine and explain appropriate cookery for meat cuts.
3.7 Research retail cuts that are considered value-added products and the importance of value-added products to the retail meat industry.

Course Standard 4

AFNR-AMDPP–4
Collect and display knowledge of class evaluation, keep/cull and meat formulation, quality and yield grading; allowing for critical thinking, logical comparing, independent decision-making, problem-solving rationale, effective communication, and leading decisively.

4.1 Compare and contrast meat classes for evaluation: beef carcasses, pork carcasses, wholesale/subprimal cuts, and processed meats.
4.2 Select cuts based on value-based pricing of beef.
4.3 Research industry standards-based scenarios/situations and outline areas of keep/cull.
4.4 Identify and explain meat storage, handling, cookery, nutrition, food safety, animal welfare, and animal identification systems.
4.5 Research and analyze meat formulation problems and follow specifications.
4.6 Prepare and develop questions on classes related to the required evaluation skills.
4.7 Discuss and explain quality grading using analysis of carcass skeletal maturity score, lean maturity score, final maturity, and USDA Standards Marbling Score.
4.8 Practice yield grading by identifying and solving for carcass weight, USDA standards, preliminary yield grade, Ribeye area, % kidney, pelvic and heart fat, and final yield grade.
Course Standard 5
AFNR-AMDPP–5
Research and apply the objectives of commercial poultry production and management.
5.1 Differentiate between broiler, turkey, and egg production.
5.2 Explore careers in the poultry industry.
5.3 Analyze the areas of management: hatchery, broiler, turkey, egg-strain, and hen.
5.4 Discuss health and waste management.
5.5 Assess the importance of environmental control management in poultry production.
5.6 Summarize the areas of marketing poultry products.

Course Standard 6
AFNR-AMDPP–6
Draw conclusions by explaining the anatomy and physiology of the fowl.
6.1 Develop an understanding of the anatomy and physiology of the fowl.
6.2 Discuss poultry embryology, embryonic development, and mortality.
6.3 Research poultry genetics and the structure and flow of genetics in the poultry industry.
6.4 Outline poultry nutrition; covering classes of nutrients and feedstuffs, feed additives, and formulating diets.

Course Standard 7
AFNR-AMDPP–7
Categorize the different areas of poultry processing and product marketing.
7.1 Outline the steps in processing poultry products.
7.2 Discuss the consumer-driven market in marketing poultry products.
7.3 Summarize additional poultry enterprises and products.

Course Standard 8
AFNR-AMDPP–8
Investigate and describe the major components of poultry evaluation.
8.1 Evaluate and compare/contrast live birds; egg-type hens and broilers while demonstrating proper handling techniques.
8.2 Identify poultry carcass parts and further-processed poultry meat products.
8.3 Evaluate and compare/contrast ready-to-cook poultry carcasses and/or parts and further-processed meat products.
8.4 Develop skills for grading shell eggs; interior and exterior referencing the official egg air cell gauge, U.S. standards of quality shell eggs, grades, and common weight classes for shell eggs.

Course Standard 9
AFNR-AMDPP–9
Retrieve information and apply basic skills in Dairy Farm Management.
9.1 Trace the importance of genetics and reproduction in the success of a dairy farm.
9.2 Identify and discuss appropriate feeds and nutrition requirements of dairy cattle.
9.3 Identify housing, facilities, and equipment needs for each area of the dairy industry.
9.4 Develop a herd health plan for dairy farm covering aspects of health and disease.
9.5 Distinguish the important factors of milking management.
9.6 Outline the management of the dairy herd.
9.7 Analyze and explain DHI records and dairy herd record evaluation data sheets.
9.8 Assess linear descriptive traits and compare and contrast multiple animals.
9.9 Practice dairy cattle evaluation, selecting, and judging.
Course Standard 10

AFNR-AMDPP-10
Follow procedures using principles of safety on the dairy and in dairy product processing.

10.1 Summarize the importance of animal welfare in regards to food safety and farm productivity.
10.2 Discuss areas of attention for biosecurity on the farm, transport, and additional points in the processing of dairy products.
10.3 Research and explain current issues facing the dairy industry.
10.4 Describe and illustrate environmental management issues on the dairy farm.
10.5 Identify safety concerns on the farm and in dairy product processing.
10.6 Describe price, supply, and demand trends for milk and dairy products and the marketing of milk.

Course Standard 11

AFNR-AMDPP-11
Categorize and contrast milking systems and milking processing equipment.

11.1 Label machine parts in the milking system and processing equipment.
11.2 Discuss types of milking systems (e.g., flat barns, herringbone parlors, carousel parlors).
11.3 Outline and describe the pasteurization process including on-farm and commercial milking systems, and identify potential contamination points and possible diseases transmitted to consumers via milk.
11.4 Describe homogenization and explain its importance in the milking process.
11.5 Identify and create a chart outlining the refrigeration requirements and essential equipment in the milking process.

Course Standard 12

AFNR-AMDPP-12
Research and understand the causes and control of mastitis, its influences on milk quality, cheese yield, and the use of mastitis detection methods in controlling the disease.

12.1 Distinguish and explain cases and causes of mastitis.
12.2 Explore prevention methods for mastitis.
12.3 Research and discuss detection methods used on farm and commercial milking systems (e.g., California Mastitis Test and Direct Microscopic Somatic Cell Count).
12.4 Distinguish and identify best treatment methods for mastitis.
12.5 List regulatory programs for the identification and control of mastitis.

Course Standard 13

AFNR-AMDPP-13
Identify cheese varieties and characterize textures, colors, and additional properties.

13.1 Analyze moisture content of various cheeses and develop a graph to display data.
13.2 Summarize fat content of various cheeses and interpret data based on results.
13.3 Discuss cheese ripening procedures and develop an appropriate hypothesis.
13.4 Define and practice "pasta filata treatment."
13.5 Research and trace specific cheese origins.
13.6 Identify and evaluate the salting procedures for various cheeses.
13.7 Demonstrate the process for making different cheeses, ice creams, and yogurts.
**Course Standard 14**

**AFNR-AMDPP-14**

Draw conclusions from data based on flavor defections of milk.

14.1 Compare milk flavors vs. feed components fed to animals.
14.2 Compare and contrast milk flavors and their relative digestibility (e.g., cow milk vs. goat milk).
14.3 Explain common flavor defects found in Georgia milk (e.g., onions).
14.4 Compare and contrast flavors of dairy milk vs. non-dairy milk (e.g., Silk, Almond Milk).

---

**Course Standard 15**

**AFNR-AMDPP-15**

Cite evidence from information covering Good Manufacturing Practices (GMP’s), Critical Control Points (CCP’s), Hazard Analysis and Critical Control Point (HACCP), Food, Drug, and Cosmetic Act (FD&C Act), Food Safety Modernization Act (FSMA), and Global Food Safety Initiative (GFSI).

15.1 Identify regulatory areas for food safety in the meat, poultry, and dairy industries.
15.2 Determine microbes and foodborne illnesses that are addressed in the meat, poultry, and dairy industries.
15.3 Discuss and specify ways to use good herd management plans, critical control points, and hazard analysis based on current regulations.
15.4 Discuss main points of the Federal Food, Drug, and Cosmetic Act, Food Safety and Modernization Act, and the Global Food Safety Initiative.