

COURSE WHITE PAPER

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# Whole Beef Breakdown

A complete professional course in beef carcass fabrication — from slaughter to shelf.

**10**

LESSONS

**5**

MODULES

**29**

QUIZ QUESTIONS

**15**

FINAL EXAM QS

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## COURSE OVERVIEW

This white paper outlines the complete curriculum, learning objectives, and professional outcomes of the Whole Beef Breakdown course offered through Butcher Bud Academy. Whether you are a culinary student, an aspiring butcher, a farm-direct processor, or a chef seeking to deepen your sourcing knowledge, this course delivers the technical foundation required for professional beef fabrication. The curriculum is written at the level of USDA FSIS regulatory standards and industry best practice.

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## WHO SHOULD TAKE THIS COURSE

- Butchery students and apprentices seeking structured curriculum with verifiable credentials
- Farm-direct and custom beef processors who need to meet USDA compliance standards
- Chefs and culinary professionals who purchase whole animals or primals
- Meat retail managers building in-house fabrication programs
- Serious home processors who want professional-grade knowledge

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## PROFESSIONAL OUTCOMES

- Calculate dressing percentage, yield grade, and cutout value for any beef carcass
- Identify all 8 USDA beef primals and their sub-primal breakdown options
- Execute the 12th rib separation, quarter break, seam butchery, and tenderloin cleaning
- Understand and apply HACCP principles and USDA temperature regulations
- Price and merchandise retail cuts using industry-standard yield math
- Earn a Butcher Bud Academy diploma in Whole Beef Breakdown

# Course Syllabus

Whole Beef Breakdown · 5 Modules · 10 Lessons · 75% passing grade on final exam

## MODULE 1 Safety, Sanitation & Station Setup

### Lesson 1: Food Safety, HACCP & the Law

- Temperature Danger Zone (40°F–140°F)
- Key pathogens: E. coli O157:H7, Salmonella, Listeria
- 7 HACCP Principles (9 CFR Part 417)
- Cross-contamination pathways
- Sanitation schedules & SSOPs

### Lesson 2: Station Setup, Tools & Temperature Management

- Optimal processing temperature range
- Complete professional tool kit & uses
- LEAN station organization
- 180°F knife sanitizer dip protocol
- Chill chain management

Quiz: 7 Questions — 70% to pass

## MODULE 2 Beef Anatomy & Primal Identification

### Lesson 3: Skeletal Structure & Muscle Physiology

- 207 bovine bones & key landmarks
- High-work vs. low-work muscle characteristics
- Longissimus dorsi & psoas major
- Collagen vs. elastin — cooking implications
- Marbling & USDA Quality Grades (BMS 1–12)

### Lesson 4: The Eight Beef Primals — Complete Guide

- Chuck, Rib, Short Loin, Sirloin, Round, Brisket, Plate, Flank
- Yield % per primal from a 1,000 lb live animal
- T-bone vs. Porterhouse USDA legal distinction
- Hanger steak, flat iron, tri-tip — specialty cuts

### Lesson 5: Yield Analysis & Quality Grading

- Dressing percentage formula
- USDA Yield Grade 1–5 formula & parameters
- Cooler shrink, processing shrink, display shrink
- Fat trim standards:  $\frac{3}{4}$ ",  $\frac{1}{2}$ ",  $\frac{1}{4}$ ", 0"

Quiz: 7 Questions — 70% to pass

## MODULE 3 Primal Separation & Carcass Breakdown

### Lesson 6: Splitting the Carcass & Quarter Separation

- Dorsal midline split technique
- The 12th rib separation — most critical cut in fabrication
- Forequarter breakdown sequence
- Hindquarter breakdown sequence
- Chine bone removal

### Lesson 7: Seam Butchery & Muscle Identification

- Visual & tactile seam identification techniques
- Chuck seam butchery step-by-step
- Tenderloin cleaning — 4-step professional process
- Bone-following technique for yield maximization

Quiz: 5 Questions — 70% to pass

## MODULE 4 Retail Fabrication & Portion Control

### Lesson 8: Steak Portioning, Grading & Labeling Standards

- IMPS/NAMP number system
- Thickness-based vs. weight-based portioning
- USDA FSIS 9 CFR 317 labeling requirements
- Mechanical tenderization disclosure law (post-2016)
- Band saw precision settings
- Dry aging vs. wet aging economics

### Lesson 9: Grinding, Trim Utilization & Value-Added Products

- Trim classification by fat %
- Pearson Square fat blend math
- Grinding protocol — food safety critical (160°F)
- Marinated tips, rolled roasts, bone broth
- Bone utilization table by type & retail value

Quiz: 5 Questions — 70% to pass

## MODULE 5 Advanced Yield, Merchandising & Economics

### Lesson 10: Beef Economics: Cutout Math & Merchandising Strategy

- Full cutout value calculation on a 756 lb. carcass
- Whole carcass vs. boxed beef decision matrix
- High-low retail pricing strategy
- Custom processing fee structures
- FIFO inventory management
- Myoglobin & beef color science

Quiz: 5 Questions — 70% to pass

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>> Final Exam: 15 questions — 75% required to pass — 3 attempts included — Diploma issued on pass

## Key Regulations & Industry Standards Covered

Regulation / Standard	Topic Covered	Application
9 CFR Part 417 (USDA FSIS)	HACCP requirements	All processing plants
9 CFR Part 416	Sanitation SOPs	All processing plants
9 CFR Part 317	Retail labeling law	All retail beef products
21 U.S.C. §§ 601–695	Federal Meat Inspection Act	All federally inspected plants
USDA YG Formula	Yield Grade 1–5 calculation	Carcass pricing & grading
USDA QG / BMS 1–12	Marbling & quality grade	Retail pricing & purchasing
IMPS/NAMP Buyer's Guide	Cut identification codes	Wholesale ordering & specs
Mech. Tenderization Rule (2016)	Enhanced labeling	Blade/needle tenderized beef

## Career Applications

### Custom Beef Processor

Understand USDA regulations, temperature compliance, and HACCP plans required to legally operate a custom processing facility and pass inspections.

### Retail Butcher / Counter Manager

Execute high-yield fabrication from primals, price cuts using cutout math, manage display color and shrink, and train junior staff.

### Farm Direct-to-Consumer

Price whole and half animal sales correctly, communicate with processors, and guide customers through cut selection and yield expectations.

### Chef / Culinary Professional

Purchase whole animals or primals with confidence, fabricate in-house for cost savings, and communicate precisely with suppliers.

### Restaurant Operator

Understand yield-adjusted pricing, evaluate supplier quotes, and recognize cut substitution or mislabeling.

## Final Exam — What to Expect

Topic Area	Questions	% of Exam
Food Safety, HACCP & Regulations	3	20%
Anatomy, Primals & Muscle Science	3	20%
Carcass Breakdown & Seam Butchery	3	20%
Retail Fabrication & Labeling Law	3	20%
Yield Math & Economics (calc. problems)	3	20%
<b>TOTAL</b>	<b>15</b>	<b>100%</b>

Questions include applied math problems (dressing %, Pearson Square, cutout value calculations), regulatory citation questions, anatomy identification, and scenario-based decision questions. The exam is designed so that a student who has carefully read all lessons will pass comfortably; a student who has merely skimmed the material will not.

### About Butcher Bud Academy

Butcher Bud Academy was founded on a simple belief: professional butchery knowledge should be accessible to anyone willing to do the work to learn it. Our courses are written at the standard of USDA regulatory compliance and industry professional practice — not watered-down or simplified for mass appeal. Students who complete our courses are genuinely prepared for professional work.

- 100% online — learn on any device, at any pace, no deadlines
- Written by working meat professionals — not content agencies
- USDA regulatory standards — every citation verified
- Diploma on pass — printable, shareable, verifiable
- Lifetime access to purchased courses — yours forever
- All-access subscription — \$8/week for every course and every future course

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