

**ANSCI 29 Course Outline as of Fall 2024****CATALOG INFORMATION**

Dept and Nbr: ANSCI 29      Title: DAIRY CATTLE SCIENCE  
 Full Title: Dairy Cattle Industry/Dairy Cattle Science  
 Last Reviewed: 1/25/2021

Units	Course Hours per Week		Nbr of Weeks	Course Hours Total		
Maximum	3.00	Lecture Scheduled	2.00	17.5	Lecture Scheduled	35.00
Minimum	3.00	Lab Scheduled	3.00	17.5	Lab Scheduled	52.50
		Contact DHR	0		Contact DHR	0
		Contact Total	5.00		Contact Total	87.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 70.00

Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly: AG 64

**Catalog Description:**

History, development and management strategy of the dairy industry. General information on the economics of dairy production and management including trends, selection, culling, genetics, reproduction and production management; employment opportunities will be covered as well.

**Prerequisites/Corequisites:****Recommended Preparation:**

Eligibility for ENGL 100 OR EMLS 100 (formerly ESL 100) or appropriate placement based on AB705 mandates

**Limits on Enrollment:****Schedule of Classes Information:**

Description: History, development and management strategy of the dairy industry. General information on the economics of dairy production and management including trends, selection, culling, genetics, reproduction and production management; employment opportunities will be covered as well. (Grade Only)

Prerequisites/Corequisites:

Recommended: Eligibility for ENGL 100 OR EMLS 100 (formerly ESL 100) or appropriate placement based on AB705 mandates

Limits on Enrollment:

Transfer Credit: CSU;UC.

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

**AS Degree:**      **Area**      Effective:      Inactive:

**CSU GE:**      **Transfer Area**      Effective:      Inactive:

**IGETC:**      **Transfer Area**      Effective:      Inactive:

**CSU Transfer:** Transferable      Effective:      Fall 1981      Inactive:

**UC Transfer:** Transferable      Effective:      Fall 2001      Inactive:

### **CID:**

CID Descriptor: AG - AS 112L Dairy Cattle Industry / Dairy Cattle Science

SRJC Equivalent Course(s): ANSC29

### **Certificate/Major Applicable:**

Both Certificate and Major Applicable

## **COURSE CONTENT**

### **Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Explain factors affecting milk production in dairy cows.
2. Analyze production records related to herd management in the dairy industry.

### **Objectives:**

At the conclusion of this course, the student should be able to:

1. Discuss and recall historical developments of the dairy industry in the United States.
2. Explain the importance of the dairy industry in California and the United States.
3. Distinguish between the major dairy cattle breeds, and recall the origin, adaptation and production of each breed.
4. Examine and evaluate the business opportunities and requirements in the dairy industry.
5. Analyze production, breeding and management records related to the dairy industry.
6. Identify the anatomical parts of the cow and relate each part to its form and function.
7. Define the nutritional needs and demonstrate proper feeding techniques of dairy cattle.
8. Analyze, translate and discuss dairy cattle pedigrees, linear scores and production records.
9. Demonstrate proper management skill involving dehorning, vaccinating, castrating, hoof trimming and teat removal of dairy cattle.
10. Identify cultural influences on the dairy industry.
11. Practice dairy cattle selection.
12. Analyze animal welfare concerns and the importance of educating the general public.
13. Research and discuss career opportunities and requirements for successful employment in the dairy industry.
14. Evaluate housing strategies in calves, heifers and milk cows for best management practices including economic and welfare considerations.

## **Topics and Scope:**

### **I. Introduction to the Dairy Industry**

- A. History of dairying including the contributions of ethnic groups
- B. Economic importance to agriculture
- C. Past, present and future trends in the dairy industry
- D. Milk and by-product consumption and trends
- E. Inventions and new discoveries

### **II. Opportunities and Careers in the Dairy Industry**

- A. Employment in production, processing and associated industries
- B. Degree and skill development requirement

### **III. Essentials of Success in the Dairy Business**

- A. Financial needs to operate a dairy
- B. Sources of feed, animals and equipment
- C. Selection and management of the labor force
- D. Government regulations
- E. Herd records
- F. Animal welfare

### **IV. Dairy Breeds, Origin and Adaptation**

- A. Bos Taurus versus Bos Indicus
- B. Production traits of common dairy breeds
- C. Rank in popularity and demand
- D. Advantages and disadvantages of each breed

### **V. Development of a Dairy Herd**

- A. Developing a dairy enterprise
- B. Selecting a breed
- C. Locating a market for milk
- D. Understanding quota, base and overbase milk

### **VI. Managing a Dairy Herd**

- A. Selecting animals
- B. Analysis of pedigree and production records
- C. Dehorning, vaccinating, castrating, teat removal and other treatment skills
- D. Cow comfort

### **VII. Reproductive Management**

- A. Anatomy of the reproductive tract
- B. Mating systems
- C. Methods of heat synchronization in cows and heifers
- D. Comparison of natural service vs artificial insemination
- E. Embryo transfer
- F. Calving
- G. Genomics

### **VIII. Care and Management of Calves**

- A. Calf management
  - 1. Nutrition
  - 2. Health
    - a. Calf diseases
    - b. Vaccination
    - c. Colostrum
    - d. Best practices at birth
  - 3. Dehorning
  - 4. Weaning

- 5. Housing
- B. Heifer management
  - 1. Nutrition
  - 2. Puberty
  - 3. Replacement heifers
  - 4. Breeding
- C. Growth of heifers and calves
- IX. Facilities
  - A. Milk barn design
  - B. Housing for cows and calves
  - C. Equipment
- X. Lactation
  - A. Udder anatomy and development
  - B. Milk Synthesis
  - C. Cow management through the stages of milk production
  - D. Health issues of lactating cows
  - E. Factors affecting milk and component production
  - F. Principles of milking
- XI. Nutrition
  - A. Anatomy of the digestive tract
  - B. Nutrient requirements of production stages
  - C. Feed management
  - D. Common feeds

All lab topics will be aligned with lecture topics.

**Assignment:**

Lecture Assignments:

1. Read periodicals, handouts, and textbooks (20-30 pages per week)
2. Case studies (3-5)
3. Presentation(s) (1-2)
4. Term paper (one paper, 2-3 pages)
5. Quizzes (3-4)
6. One Midterm
7. Final Exam

Lab Assignments:

1. Lab reports (14-16)

**Methods of Evaluation/Basis of Grade:**

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Written homework, Lab reports, Term paper
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Writing 10 - 30%
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**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Lab reports	Problem solving 20 - 30%
<b>Skill Demonstrations:</b> All skill-based and physical demonstrations used for assessment purposes including skill performance exams.	
Case studies, presentation(s)	Skill Demonstrations 10 - 30%
<b>Exams:</b> All forms of formal testing, other than skill performance exams.	
Midterm, quizzes, final exam	Exams 30 - 60%
<b>Other:</b> Includes any assessment tools that do not logically fit into the above categories.	
None	Other Category 0 - 0%

**Representative Textbooks and Materials:**

Dairy Cattle Science. Ensminger, M.E. The Interstate Publishers. 2005 (classic)

Dairy Production and Processing: The Science of Milk and Milk Products. Campbell, J.R. and Marshall, R.T. Waveland Press. 2016 (classic)