

# FERMENTATION SCIENCE (FRM)

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## FRM 100 (1 credit hours)

### Fundamentals of Fermentation

Introduces students to the fundamentals of fermentation. Emphasizes the minimum stages required to produce a fermented product, basic equipment requirements, organization of equipment and supplies, and the fundamentals of sanitization, boiling, cooling, and bottling. Lecture: 0.5 credits (7.5 contact hours). Laboratory: 0.5 credits (15 contact hours).

**Pre-requisite:** Students must be 21 years of age.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## FRM 110 (3 credit hours)

### Principles of Fermentation Science

Introduces students to the basic methodologies used in fermentation. Emphasizes the production of fermented products including ingredients, fermentation best practices, fermentation management, packaging, and sanitation. Lecture: 2 credits (30 contact hours). Laboratory: 1 credit (30 contact hours).

**Pre-requisite:** Students must be 21 years of age, and FRM 100 or consent of instructor.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## FRM 120 (4 credit hours)

### Brewery Facilities and Operational Management

Introduces the knowledge and skill sets required to successfully commission, maintain, manage, operate, troubleshoot, and repair the specialized equipment and facilities found in commercial breweries with an emphasis on industrial safety. Lecture: 3 credits (45 contact hours). Laboratory: 1 credit (30 contact hours).

**Pre-requisite:** Students must be 21 years of age & FRM 100.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## FRM 130 (3 credit hours)

### Sensory Analysis

Evaluates visual, olfactory, taste, and texture characteristics of beer and its raw ingredients using the five senses. Contextualizes materials used in the formulation of recipes while discerning off-flavors at various steps in the brewing process. Lecture: 2 credits (30 contact hours). Laboratory: 1 credit (30 contact hours).

**Pre-requisite:** Students must be 21 years of age, FRM 100 & FRM 110.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## FRM 140 (3 credit hours)

### Materials Evaluation

Evaluates visual, olfactory, taste, texture characteristics, and scientific analysis of raw materials while contextualizing the materials used in the fermentation process. Lecture: 2 credits (30 contact hours). Laboratory: 1 credit (30 contact hours).

**Pre-requisite:** Students must be 21 years of age, FRM 100 & FRM 110.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## FRM 150 (3 credit hours)

### Recipe Formulation

Prepares students to formulate beers based upon desired profile, character, and style using knowledge acquired from Sensory Analysis (FRM 130) and Materials Evaluation (FRM 140) classes respectively. Pre-requisite or Lecture: 2 credits (30 contact hours). Laboratory: 1 credit (30 contact hours).

**Pre-requisite:** Students must be 21 years of age, FRM 100 & FRM 110.

**Co-requisite:** FRM 130 & FRM 140.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## FRM 160 (2 credit hours)

### Beverage Packaging

Prepares students in all aspects of packaging of fermented beverages to include kegging, canning, and bottling operations in a brewery. Lecture: 1 credit (15 contact hours). Laboratory: 1 credit (30 contact hours).

**Pre-requisite:** Students must be 21 years of age, FRM 100 & FRM 110.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture