

FBM A146: INTRODUCTION TO FERMENTED BEVERAGES

Item	Value
Curriculum Committee Approval Date	10/19/2022
Top Code	130710 - Restaurant and Food Services and Management
Units	3 Total Units
Hours	90 Total Hours (Lecture Hours 36; Lab Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	Yes
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S)

Course Description

This course will introduce students to the fermented beverage industry and explores the basic production methods of beer, cider, hard seltzer and kombucha while assessing the factors contributing to flavor development and flavor defects through sensory evaluation of taste and aroma. Students must be at least 18 years of age by the first scheduled class meeting. Class tastings will adhere to the California State tasting legislation, AB 1989. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. To gain a comprehensive overview of the key characteristics of the fermented beverage industry while applying basic production techniques and examining sensory properties and identification of the different categories and style of fermented beverages through aroma and taste evaluation.

Course Objectives

- 1. Explain the evolution of fermented beverages from its ancient origins to its growth as an industry around the world.
- 2. Distinguish among the categories of fermented beverages including variety, origin, ingredients, techniques, method of production, fermentation management, storage and sanitation.
- 3. Identify the key characteristics of fermented beverages along with integration and promotional techniques utilized in the beverage industry.
- 4. Identify the major beer styles, while describing the primary ingredients in brewing malted grain, hops, yeast, water, and adjuncts along with their roles in the brewing process.
- 5. Describe the overall process of yeast driven fermentation while demonstrating an understanding of the key variables involved and the flavor outcomes.
- 6. Describe the key pieces of brewing equipment, their function, and engineering considerations.
- 7. Summarize production and consumption trends within the fermented beverage industry.
- 8. Demonstrate a knowledge of the processes for the production and service of fermented beverages (Kombucha, Cider and Seltzer).

- 9. Analyze the physical properties of fermented beverages through sensory identification including appearance, aroma, flavor, and mouthfeel – through guided tastings.

Lecture Content

The Origins of Beer The Middle Ages and Europe Early America Modern Times: A Turning Point Craft Beer: The 21st Century Uprising Significant Beer-Producing Countries German Beer Reinheitsgebot Oktoberfest Belgium/Belgian Beer Trappist Beers United Kingdom Beer Eastern European Beer North American Beer The Core Ingredients in Beer Water "The Purifier of Beer" x-small;">Yeast "The Fermenter of Beer" Malted Barley "The Soul of Beer" Use of Adjuncts The Malting Process Hops "The Spice of Beer" Beer Styles Categories of Beer Top-Fermented Beers Ale Style Beers Bottom-Fermented Beers Lager Style Beers The Essentials of Cider Apples Origin Spread Cultivation/grafting , sans-serif; font-size: x-small;">Cider In Europe (English, French, Spanish) In the U.S. (settlers, temperance/Prohibition and post-Prohibition) Cider and Apples Cider styles (modern, heritage, spiced, fruit, rosé) Apple classifications (sweet, sharp, bittersweet, bittersharp) Apples for cider Pressing apples Cider Production United States and Canadian Ciders English Ciders French Ciders Spanish Ciders Pear Cider Fermentation using a Culture Kombucha y: arial, helvetica, sans-serif; font-size: x-small;">The History and Science of Kombucha Scoby Jun Kefir Water Kefir and Coconut Water Kefir Milk Kefir Wild Fermentation Beet Kvas Pineapple Tepache Ginger Bug Honey Mead Hard Seltzer History Spring Brewing England Germany Belgium Win ter Brewing Carbonation Sugar Plus Water Production Methods Government Regulation Sake Ingredients Used to Produce Sake Water Rice Variety (or Sakamai) Yeast Koji The Production Process Milling and Polishing Washing and Soaking Multiple Parallel Fermentation Filtration and Pasteurization Aging Style Categories of Sake Junmai Sake Honjzo Sake Alternative Styles The Sake Meter Serving Vessels Serving Temperatures

Lab Content

Cider Equipment Demonstration (instructional handout provided) Tasting and evaluation Kombucha Make SCOBY Brewing Basics Primary Fermentation Secondary Fermentation Tasting and evaluation Hard Seltzer Equipment Sugar Wash Aeration, Oxygenation and pH Adjustment Pitching the Yeast Fermentation Fining nt-family: arial, helvetica, sans-serif; font-size: x-small;">Odor Removal with CO2 Flavor Additions and Carbonation The Brewing Process Types of Breweries Malting Wort and Mashing Fermentation Maturation/Aging Clarification Carbonation Bottle-Conditioned Beer Cask-Conditioned Beer Packaging Draft Beer Growlers Bottles and Cans Beer Service How to Professionally Pour Beer Beer Glassware Serving Temperature for Beers Ales Lagers The Perceptual Visual Experience Color Carbonation Foam Head

Method(s) of Instruction

- Lecture (02)
- Lab (04)

Instructional Techniques

Traditional lectures, supplemental course materials, internet exploration

Reading Assignments

2hours of weekly readings including textbooks and supplemental materials

Writing Assignments

2 hours of written assignments and lab reports summaries.

Out-of-class Assignments

1 hour of online discussion prompts to facilitate critical thinking and reflection of the material

Demonstration of Critical Thinking

Student evaluations will be based on a midterm and final exam. Critical thinking will further be analyzed through weekly discussions and the completion of a writing assignments and projects.

Required Writing, Problem Solving, Skills Demonstration

Weekly discussions, lab reports and individual and group projects.

Eligible Disciplines

Restaurant management: Any bachelors degree and two years of professional experience, or any associate degree and six years of professional experience.

Textbooks Resources

1. Required Lewin, A., Guajardo, R.. Kombucha, Kefir, and Beyond, ed. Fair Winds Press, 2017 Rationale: It covers a range of recipes, including Coconut Water Kefir, Root Beer, Honey–Green Tea Kombucha, Pear Cider, Gluten-Free Pale Ale, Chai-Spiced Mead, Cloudy Cherry Sake, Plum Wine and more. 2. Required Alworth, J. . The Beer Bible, 2 ed. Workman Publishing , 2021

Other Resources

1. Provided by the Instructor: Sensory evaluations information and forms
Lab packet