VITICULTURE
& ENOLOGY

TEXAS TECH
**Davis College**
Plant & Soil Science

# Winery Microbiology and Sanitation
## Syllabus
## Spring 2027

**Class Dates**: February 8th – April 19th, 2027
**Course Name**: Wine Microbiology and Sanitation
**Course No**. : WINE-4034-CE01
**Instructor**: Bénédicte Rhyne
**Office Hours**: By appointment

**Semester**: Spring 2027 TTUFL
**Format**: Online/hybrid asynchronous
**Course Credit**: 3 CEUs
**E-mail**: winectry@gmail.com
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**Course Description:** This is a course in the basic science and technology of winery sanitation. The course serves as an introduction to wine microbiology and covers all methods used for winery sanitation including premises, tanks, pumps, filters, oak barrels and sampling equipment, including but not limited to chemical agents, reagents, and thermal treatments leading to sterile bottling. Environmental issues and compliance are also addressed.

**Course Objectives:** Through lectures, facilitated discussions, quizzes and written assignments the student will:

- Define cleaning, sanitation, and sterilization
- List and explain the side effects of poor sanitation control in relation to cost.
- List the regulatory agencies involved with winery sanitation and describe their function.
- Explain the winemaking process regarding high-risk points of contamination (critical control points)
- Explain how poor winemaking practices can lead to wine spoilage.
- Complete a sanitation analysis procedure for a winery operation.
- Identify and describe the variety of organisms that can infect wine.
- Demonstrate the ability to recognize symptoms in problem wines.
- Describe the processes used to identify some of the basic spoilage organisms.
- Demonstrate an understanding of the methods used to prevent organisms from infecting wine.
- Identify the different types of cleaning compounds and their roles in detergents.

- List and describe cleaning compounds used in winery operations.
- Describe the benefits and restrictions of cleaners in winery operations.
- Describe the difference between cleaning, sanitation, and sterilization.
- Describe the benefits and restrictions of sanitizers used in winery operation.
- Describe the use and function of ozone in the winery.
- List and describe standard sterilization materials.
- Describe the cleaning techniques for the most used winery equipment.
- Explain the effects of specific sanitizing compounds on winery equipment.
- Demonstrate a knowledge of the use of specialized sanitation equipment.
- Explain the process used to test the effectiveness of a sanitation plan.
- Demonstrate a knowledge of the different regulatory agencies that control winery chemical use and waste disposal.
- Demonstrate an understanding of MSDS sheets.
- Explain OSHA regulations as they pertain to wineries.
- Describe how to determine water quality.
- Identify the different pests that can affect wine quality.
- Explain pest control strategy.
- Critically evaluate real life sanitation issues.
- Develop winery and equipment cleaning protocol.
- Explain proper chemical storage.
- Explain the safety aspects of winery chemical usage.

**Required Materials**

The documents are posted on the online course site. There is no need to purchase.

**Methods**

This is an online course with a synchronous component. An online course site hosted by Texas Tech University, department of plant and soil science, is used to provide announcements, lecture notes, supplemental printed and web-based materials, and assignments to the students. It also serves as a central point for interaction/communication between instructor and students.

The live class meeting will take place once a week on **Monday from 6 to 7 p.m. Central Time** via zoom conference system. It is an opportunity for the instructor to go over weekly topic highlights and for students to interact with the instructor and fellow students through questions and discussions.

**Course Assignments**

Course assignments (details follow) include:

1. Weekly readings (online lectures/presentations and print based materials).
2. Discussion Board: Posting and responding to weekly discussion questions.
3. Three exams (2 midterms, one comprehensive final).
4. Two written assignments based on observations at a winery site and class material:
    a. Sanitation Overview: Process Flow Chart with Sanitation Hazards and Controls
    b. Cleaning and Sanitation SOP (Standard Operating Procedure)

**Weekly Reading Assignments:** Online lectures/presentations and web/print-based materials will be posted on the online course site. Students should view the prerecorded weekly lecture video and complete the weekly reading assignments by answering the Key Point questions before each following live class meeting.

**Discussion Board Postings:** Weekly discussion questions to be answered individually by each student. This is an easy way to get extra points.

Ex**ams:** There will be two mid-term exams and a final exam. The final exam will be cumulative but with an emphasis on the third part of the term. The exams will be posted on the online course site with instructions.

**Written Assignments:** All written assignments will be typed, saved electronically and submitted to the instructor via assignment links on the online course site. Spelling and grammar are extremely important in professional writing and papers will be scored accordingly. Photographs should be used in low resolution or compressed to keep file size manageable. Saving as a pdf file is encouraged for this reason.

**Winery Sanitation Projects ("Sanitation Overview" and "SOP"):** Students will complete a winery sanitation project for this course. Prepare two reports to be submitted to the instructor based on what you have learned from the course, your personal experience and /or interviews from a local needed if not in the industry yet, 1) a" Sanitation Overview" report and 2) an "SOP" or cleaning and sanitation standard operating procedure on a piece of winery equipment.

> *The "**Sanitation Overview": Process Flow Chart with Sanitation Hazards and Controls** is to be presented in the format of a report of a current winery operations and sanitation that you either participate in or chose to interview or use what you have learned during the class. At minimum the student should prepare a process flow diagram showing the general winery operations and comment on sanitation risks encountered at various steps along with current procedures for preventing or controlling contamination or adulteration. A list of the types of cleaning and sanitizing chemicals that are used, usage rates are required, suppliers and any safety concerns optional. Additional documentation on current chemical, water, and other resource issues is ideal.*
>
> *The **"SOP" Cleaning and Sanitation Standard Operating Procedure** is to be written using any standard SOP format and covers all the basics of an SOP as learned in the reading materials. The SOP should be written with a specific piece of equipment (pump, Tank, press, destemer) or cooperage (i.e. a carboy, a keg, or a barrel) in mind.*

**Live class participation**: Weekly live sessions offer great interaction between students and the instructor. The instructor will make every attempt to engage all students in discussion of the weekly subject matter. Since this is the only opportunity for the students to interact with the instructor directly, participation is required. Please inform the instructor in advance if you cannot attend the session. Students who miss a class meeting are required to view the live class recording as soon as possible.

**Expectations and Instructor Feedback:** Students should participate in the weekly virtual class meeting. It is also the students' responsibility to check the online course site on a regular basis, be aware of the required activities and assignments, and adhere to the deadlines. This will ensure a successful learning experience.
The instructor will make the best effort to respond to student questions and complete assignment/exam grading in a timely manner.

**Late Material:** Late assignments will be assessed in an individual case.

**Grading:** This is a credit/ no credit course. To receive credit, an average of 70% or greater must be achieved.

The percentage weight of student performance will be:

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|---|---|
| Discussion Board | 15% |
| Test and Quizzes | |
| Mid-term Exam 1 | 15% |
| Mid-term Exam 2 | 15% |
| Final | 15% |
| Winery Sanitation Project Reports | |
| Sanitation Overview | 20% |
| Cleaning/Sanitation SOP | 20% |
| Total | 100% |

**Outline of Content and Proposed Schedule**

| Module | Date | Topics |
|---|---|---|
| 1 | 2/8/2027 | Introduction and Importance of Cleaning and Sanitation in the Winery |
| 2 | 2/15/2027 | Winery Pests and Wine Spoilage Organisms (Microbiology) |
| 3 | 2/23/2027 | Microbiology hands on class February 23rd 2027 |
| | 2/24/2027 | **Mid-Term Exam 1 available 02/24/27 11:59pm** (through week 2 content**)** |
| 4 | 3/1/2027 | Overview of Winemaking Process and Evaluating Risks |
| 5 | 3/8/2027 | Cleaning Compounds and Water Quality |
| 6 | 3/15/2027 | Sanitizers |
| | 3/21/2027 | **"Sanitation Overview" written report Due by Sunday 03/21/27 11:59 PM** |
| 7 | 3/22/2027 | Winery Specific Issues in Cleaning and Sanitizing-1 |
| | 3/28/2027 | **Mid-Term Exam 2 available 03/28/27 11:59pm** (through week 6 content) |
| 8 | 3/29/2027 | Winery Specifics Issues Cleaning and Sanitizing Equipment -2 |
| 9 | 4/5/2027 | SOPs |
| | 4/11/2027 | **Final Exam available 04/11/27 11:59pm (**through week 9 content**)** |

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|---|---|---|
| 10 | 4/19/2027 | Wrap Up Last class |
| | 4/26/2027 | **SOP report Due by Monday 04/26/27 11:59pm** |

*The instructor reserves the right to adjust the schedule as necessary.*