VWT-172: LABORATORY ANALYSIS OF MUSTS & WINES

Effective Term
Fall 2021

BOT Approval
03/11/2021

SECTION A - Course Data Elements

CB04 Credit Status
Credit - Degree Applicable

Discipline

Minimum Qualifications	And/Or
Agricultural Business and Related Services (Any Degree and Professional Experience)	

Subject Code
VWT - Viticulture and Winery Technology

Course Number
172

Department
Viticulture and Winery Technology (VWT)

Division
Career Education and Workforce Development (CEWD)

Full Course Title
Laboratory Analysis of Musts & Wines

Short Title
Lab Analysis of Musts & Wines

CB03 TOP Code
0104.00 - *Viticulture, Enology, and Wine Business

CB08 Basic Skills Status
NBS - Not Basic Skills

CB09 SAM Code
B - Advanced Occupational

Rationale
Add variable unit.

SECTION B - Course Description

Catalog Course Description
An introduction to winery laboratory practices, including basic principles, techniques and common methods of analysis for musts and wines. Students learn laboratory methods used to determine when to add amendments to wines and how to stabilize and clarify wines.

SECTION C - Conditions on Enrollment

Open Entry/Open Exit
No

Repeatability
Not Repeatable

Grading Options
Letter Grade or Pass/No Pass

Allow Audit
Yes

Requisites

SECTION D - Course Standards

Is this course variable unit?
Yes

Units
0.50
Units Maximum
3.00

Lecture Hours
9.00
Lecture Hours Maximum
54.00

Outside of Class Hours
18
Outside of Class Hours Maximum
108

Total Contact Hours
9
Total Contact Hours Maximum
54

Total Student Hours
27
Total Student Hours Maximum
162

Distance Education Approval

Is this course offered through Distance Education?
Yes

Online Delivery Methods

DE Modalities	Permanent or Emergency Only?
Entirely Online	Emergency Only
Hybrid	Permanent

SECTION E - Course Content

Student Learning Outcomes

	Upon satisfactory completion of the course, students will be able to:
1.	Basic principles of laboratory analysis of wines and musts.
2.	Applicable federal, state and local regulations.
3.	Sources of subject matter research materials.
4.	Technical writing styles appropriate to subject matter.
5.	Skills required in the workplace.

Course Objectives

	Upon satisfactory completion of the course, students will be able to:
1.	Apply basic chemistry theory to the analysis of wines and musts.
2.	Demonstrate knowledge of basic laboratory skills, including ability to perform laboratory tests and operate wine laboratory equipment.
3.	Create a plan for monitoring must and wine integrity.
4.	Evaluate the results of wine laboratory tests.
5.	Plan and implement a grape maturation monitoring protocol.
6.	Choose and perform tests for titratable acidity and p
7.	Select and carry out tests for yeast-available nitrogen.
8.	Choose and perform tests for alcoholic fermentation measurements.
9.	Select and carry out tests for malolactic fermentation evaluation.
10.	Choose and perform tests for sulfur dioxide content of wine.
11.	Select and carry out tests for volatile acidity measurement.
12.	Design and implement a plan for wine stabilization, fining and clarification.
13.	Evaluate the presence of undesirable sulfur compounds in wines.
14.	Assess the level of phenols and color components of red musts and red wines.
15.	Demonstrate knowledge of the characteristics of must and wine amendments.
16.	Prepare for the addition of must and wine amendments by computing the number of materials needed.
17.	Design and implement a plan for the addition of amendments to must and wine.
18.	Create and execute winemaking trials.

Course Content

1. Basic Chemistry Theory
2. Basic Laboratory Skills
3. Plans for monitoring must and wine integrity
4. Interpretation of analytical results
5. Grape maturation monitoring
6. Titratable acidity and pH measurement methods
7. Yeast-available nitrogen measurement methods
8. Alcoholic fermentation measurement methods
9. Malolactic fermentation measurement methods
10. Sulfur dioxide measurement methods
11. Volatile acidity measurement methods
12. Stabilization, fining and clarification of wines
13. Undesirable sulfur compounds in wines
14. Phenols and color components of red musts and red wines
15. Simple sensory analysis for small wineries
16. Must and wine amendments
17. Calculations for must and wine amendment additions
18. Methods of must and wine amendment additions

Methods of Instruction

Methods of Instruction

Types	Examples of learning activities
Activity	
Lecture	
Other	Projects

Instructor-Initiated Online Contact Types

Announcements/Bulletin Boards
Chat Rooms
Discussion Boards

E-mail Communication
Telephone Conversations
Video or Teleconferencing

Student-Initiated Online Contact Types

Chat Rooms
Discussions
Group Work

Course design is accessible

Yes

Methods of Evaluation

Methods of Evaluation

Types	Examples of classroom assessments
Exams/Tests	Development of a protocol for a winemaking trial. A midterm examination and a final examination. Examples include: A midterm examination consisting of true/false, multiple choice and essay questions. A final examination consisting of true/false, multiple choice and essay questions.
Quizzes	Tank volume calculations, executing analytical methods, or calculating wine additions.
Projects	Develop a laboratory notebook complete with procedures and calculations.
Class Participation	Participating in class and learning the analytical methods.
Homework	Cellar math homework necessary for tank calculations, wine additions, and stability.
Lab Activities	pH; titratable acidity; sulfur dioxide; volatile acidity; Enzymatics.

Assignments

Reading Assignments

Assigned readings from class handouts (example: "Total Acidity Determination by Titration").

Assigned readings from textbook (example: "Alcohol and Extract" chapter from Wine Analysis and Production).

Writing Assignments

Writing:

Essay or short paper (example: a midterm examination essay question in which the student describes the uses of pH determination in wine).

Essay or short paper (example: a final examination essay question in which the student describes the use of bentonite in stabilization and clarification of wine).

SECTION F - Textbooks and Instructional Materials

Material Type

Textbook

Author

Zoeklin, et al

Title

Wine Analysis and Production

Edition/Version

2nd

Publisher

Aspen Publishers, Inc

Year

1999

Material Type
Textbook

Author
Iland, et al

Title
Techniques for Accurate Chemical Analysis and Quality Monitoring

Edition/Version
2nd

Publisher
Patrick Iland Wine Promotions

Year
2013

Material Type
Textbook

Author
Dr. Gerry Ritchie

Title
VWT 172 Workbook

Edition/Version
1st

Publisher
NVC Printing

Year
2006

Material Type
Textbook

Author
Dr. Gerry Ritchie, et al.

Title
NVC Teaching Winery Analyses Manual

Edition/Version
1st

Publisher
NVC Printing

Year
2006

Proposed General Education/Transfer Agreement

Do you wish to propose this course for a Local General Education Area?
No

Do you wish to propose this course for a CSU General Education Area?
No

Do you wish to propose this course for a UC Transferable Course Agreement (UC-TCA)?
No

Course Codes (Admin Only)

ASSIST Update
No

CB00 State ID
CCC000337873

CB10 Cooperative Work Experience Status
N - Is Not Part of a Cooperative Work Experience Education Program

CB11 Course Classification Status
Y - Credit Course

CB13 Special Class Status
N - The Course is Not an Approved Special Class

CB23 Funding Agency Category
Y - Not Applicable (Funding Not Used)

CB24 Program Course Status
Program Applicable

Allow Pass/No Pass
Yes

Only Pass/No Pass
No