



VWT 272 - Fundamentals of Wine Chemistry & microbio Course Outline

Approval Date: 05/10/2006

Effective Date: 08/14/2006

SECTION A

Unique ID Number CCC000147453

Discipline(s)

Division Career Education and Workforce Development

Subject Area Viticulture and Winery Technology

Subject Code VWT

Course Number 272

Course Title Fundamentals of Wine Chemistry & microbio

TOP Code/SAM Code 0104.00* - Viticulture, Enology, and Wine Business* / B
- Advance Occupational

Rationale for adding this course to
the curriculum typo corr for catal

Units 3

Cross List N/A

Typical Course Weeks

Total Instructional Hours

Contact Hours

Lecture 54.00

Lab 0.00

Activity 0.00

Work Experience 0.00

Outside of Class Hours 108.00

Total Contact Hours 54

Total Student Hours 162

Open Entry/Open Exit No

Maximum Enrollment

Grading Option Letter Grade or P/NP

Distance Education Mode of
Instruction

SECTION B

General Education Information:

SECTION C

Course Description

Repeatability May be repeated 0 times

Catalog Chemistry and microbiology of winemaking, including use of enzymes and yeasts; fermentation management; wine micro-organisms; phenols; aging; flavor development.

Schedule
Description

SECTION D

Condition on Enrollment

1a. Prerequisite(s): *None*

1b. Corequisite(s): *None*

1c. Recommended: *None*

1d. Limitation on Enrollment: *None*

SECTION E

Course Outline Information

1. Student Learning Outcomes:

- A. Basic principles of wine chemistry and microbiology.
- B. Applicable federal, state and local regulations.
- C. Sources of subject matter research materials.
- D. Technical writing styles appropriate to subject matter.
- E. Skills required in the workplace.

2. Course Objectives: Upon completion of this course, the student will be able to:

- A. Select the appropriate enzyme to create a specific wine style
- B. Assess the effect of different bacteria and molds on wine style and quality
- C. Use basic microbiological techniques
- D. Evaluate the effect of different yeasts on wine style
- E. Demonstrate knowledge of the nutritional needs of yeasts
- F. Plan and implement a successful alcoholic fermentation
- G. Demonstrate knowledge of the use of "Botrytis cinerea" in winemaking
- H. Demonstrate knowledge of the role of yeast autolysis in ?Methode Champenoise? winemaking
- I. Implement plans to prevent undesirable effects caused by micro-organisms
- J. Estimate the effect of oxygen and lees on wine style and quality
- K. Implement plans to create high quality wine styles with different amounts of phenols
- L. Assess the factors that effect red wine color
- M. Demonstrate knowledge of flavor compounds
- N.

3. Course Content

- A. Indigenous and commercially available enzymes
- B. Yeasts, bacteria and molds in musts and wines
- C. Microbiological practices in the winery
- D. Indigenous yeasts
- E. Nutrient requirements of yeasts
- F. Preventing sluggish and stuck fermentations
- G. Uses of "Botrytis cinerea" in winemaking
- H. Role of yeast autolysis in sparkling wines
- I. Causes and control undesirable microorganisms in wine
- J. Oxygen and lees management in wines
- K. Phenols and wine quality

- L. Red wine color
- M. Wine flavors
- N.

4. Methods of Instruction:

5. Methods of Evaluation: Describe the general types of evaluations for this course and provide at least two, specific examples.

Additional assessment information:

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.

Letter Grade or P/NP

6. Assignments: State the general types of assignments for this course under the following categories and provide at least two specific examples for each section.

A. Reading Assignments

-Assigned reading from the textbook (example: "Fermentation" chapter from Wine Science)

-Assigned reading from the textbook (example: "Postfermentation Treatments and Related Topics" from Wine Science)

B. Writing Assignments

Writing:

Essay or short paper (example: an essay question on the midterm examination in which the student describes the role of yeast during primary alcohol fermentation).

Problem Solving:

Essay or short paper (example: an essay question on the final examination in which the student selects from alternative management methods for the control of spoilage yeasts and justifies the choice for a real or a hypothetical winery).

C. Other Assignments

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7. Required Materials

A. EXAMPLES of typical college-level textbooks (for degree-applicable courses) or other print materials.

Book #1:

Author: Jackson, R.S.
Title: Wine Science
Publisher: Academic Press
Date of Publication: 2000
Edition: 2nd

Book #2:

Author: Fleet, et al
Title: Wine Microbiology and Biotechnology

Publisher: Harwood Academic Publishers

Date of Publication: 1993

Edition: 1st

Book #3:

Author: Dr. Gerry Ritchie

Title: WT 272 Workbook

Publisher: NVC Print Shop

Date of Publication: 2006

Edition: 1st

B. Other required materials/supplies.