



School of Humanities and Social Sciences  
ENS 385-AIX 1  
Applied Sustainable Wine Production and Sensory  
Analysis  
202425 Fall

## Course Details

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**Credit Hours:** 3

**Days:** T/F

**Time:** 14:00-15:25 and 10:00-11:25am

**Prerequisites:** ENG 101 or equivalent, and WGS 101 or concurrent enrollment in ENS 201; or the equivalent of six (6) credit hour college-level introductory STEM courses; or instructor permission.

## Instructor Information

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Anthony Triolo

**Email:** Anthony.Triolo@iau.edu

Anthony Triolo

**Title:** Professor

**Email:** anthony.triolo@iau.edu

## Course Description

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This course is designed to give practical experience in the production of wine. From the moment the grapes are harvested, pre-fermentation, fermentation and post-fermentation procedures, until the wine is put into barrels for extended aging. The course is also designed to give students the necessary sensory analytical skills to be able to detect the proper evolution from grape must to wine. Engaging in the following winery/vineyard activities: grape harvest/sorting, initial grape

processing in preparation for fermentation, fermentation cap management, oxygen reduction techniques, wine movement principles, pressing of grape must, aging techniques, taking and reading scientific measurements throughout the duration of the process. We will underpin our practical activities with theoretical/philosophical readings and lectures to gain a holistic knowledge of what it takes to turn grapes into wine and the impact this process has on a sustainable future, i.e. impacts on energy and water usage as well as human labor. Our classroom will primarily be IAU/ACM's vineyard/winery, 250 grapevines of Grenache, Syrah and Cinsault. Every week we will apply principles to create a premium red wine, using these grape varieties in keeping with the local traditions. The course also includes several external site visits. This course is designed to give practical experience in the production of wine. From the moment the grapes are harvested, pre-fermentation, fermentation and post-fermentation procedures, until the wine is put into barrels for extended aging. The course is also designed to give students the necessary sensory analytical skills to be able to detect the proper evolution from grape must to wine.

## Learning Outcomes

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- gain a practical understanding of wine production, as well as the theoretical importance of particular activities during the process, i.e. grape harvest, fermentation, cap management, wine pressing, movements, and aging, in particular as it relates to red wine and all wines in general.
- demonstrate practical competence of major wine production techniques/activities by applying their new skills in the areas of: grape harvest/sorting, scientific measurements/evaluations, fermentation control/monitoring, wine movements, oxygen control techniques, principles of aging.
- develop a theoretical and practical understanding and application for detecting sensory characteristics during the wine making process, especially wine fault detection.
- formulate and support their understanding of the overall wine production process and how that relates to concepts in sustainability, as a means for a holistic perspective on the general wine industry.

## Instructional Methods and Activities

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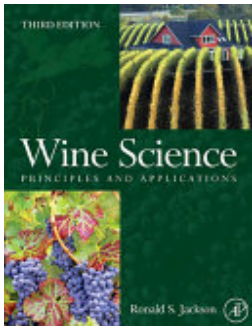
Class meetings will be oriented around hands-on applications in the winery as well as theoretical lessons developed during lectures and symposium style discussions. We will use a variety of learning materials, literature, texts, and most importantly the winery itself. You may be expected to attend guest speaker conferences to supplement class work. Tastings and multiple field study trips are part of the course as well.

**FIELDTRIP:** There are 2-3 mandatory field trips, the site to be determined.

**WRITTEN WORK:** All written work must be submitted electronically to [anthony.triolo@iau.edu](mailto:anthony.triolo@iau.edu). Format should be double-spaced, Times New Roman 12pt. If used, I prefer footnotes to endnotes

## Primary/Required Textbooks and Materials

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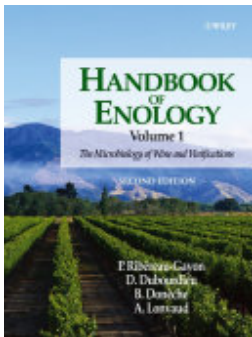
### **Wine Science**

**ISBN:** 9780080568744

**Authors:** Ronald S. Jackson

**Publisher:** Academic Press

**Publication Date:** 2008-04-30



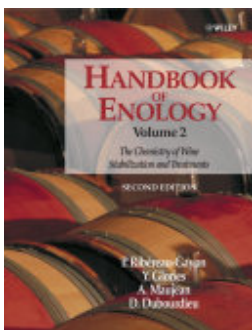
### **Handbook of Enology, Volume 1**

**ISBN:** 9780470010358

**Authors:** Pascal Ribéreau-Gayon, Denis Dubourdieu, B. Donèche, A. Lonvaud

**Publisher:** John Wiley & Sons

**Publication Date:** 2006-05-01



### **Handbook of Enology, Volume 2**

**ISBN:** 9780470010389

**Authors:** Pascal Ribéreau-Gayon, Yves Glories, Alain Maujean, Denis Dubourdieu

**Publisher:** John Wiley & Sons

**Publication Date:** 2006-05-01

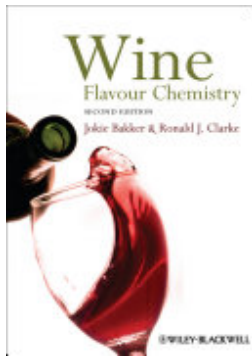
### **Wine**

**ISBN:** 9781444346008

**Authors:** Jokie Bakker, Ronald J. Clarke

**Publisher:** John Wiley & Sons

**Publication Date:** 2011-10-13



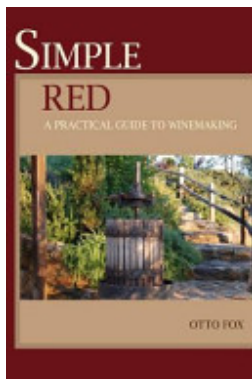
### **Simple Red**

**ISBN:** 9781456450458

**Authors:** Otto Fox

**Publisher:** CreateSpace

**Publication Date:** 2011-07-01



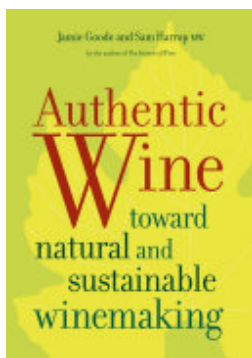
### **Authentic Wine**

**ISBN:** 9780520265639

**Authors:** Jamie Goode, Sam Harrop

**Publisher:** Univ of California Press

**Publication Date:** 2011-08-02



### **The Dirty Guide to Wine: Following Flavor from Ground to Glass**

**ISBN:** 9781581575255

**Authors:** Alice Feiring

**Publisher:** The Countryman Press

**Publication Date:** 2017-06-13



## Assessment, Evaluation, and Grading

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1. Participation and attendance (35%) One of the primary requirements this semester is that you attend class. This is not a lecture class, and its success depends very much on your coming to class on time, prepared for the lesson, and ready to participate in discussion and activities. Attendance will be part of your final grade. Any absences can have a negative impact on your final grade. Students are permitted 2 (two) absences throughout the semester. It will be up to the student to manage their absences. Your final grade will be lowered by one half-letter grade (B+ to become a B, B to become B-, and so on) for each and every absence above two.
2. Research Paper (25%) You will write one 8-10 page paper examining a relevant topic to the class. Some potential topics could be examining: how different yeast strains affect the final aroma profile of the wine, how does fermentation temperature affect the wine, use of CO<sub>2</sub> and SO<sub>2</sub> in wine production etc... Outside research will be necessary. Professor will meet with students on an individual basis to help define research topics and objectives. First draft is due week 12, final draft due last day of class.
3. Mid-term exam (20%): A choice between several short answer and essay questions taken in class. Covers the material from week 1 through week 6.
4. Final exam (20%): A choice between several short answer and essay questions taken in class, covers material after the mid-term.

## Grading System/Grade Distribution

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Grading System/Grade  
Distribution

U.S	ACM	French Equivalent
95-100%	A	17-20
90-94%	A -	16
88-89%	B+	15
84-87%	B	14
80-83%	B-	13
78-79%	C+	12
74-77%	C	11
70-73%	C-	10

U.S	ACM	French Equivalent
68-69%	D+	9
64-67%	D	8
60-63%	D-	7
0-59%	F	0-6

## Attendance

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One of the primary requirements this semester is that you attend class. This is not a lecture class; it's essential that you come to class on time, be prepared for the lesson, and be ready to participate in discussions and activities. Attendance will be part of your final grade. Any absences can harm your final grade. It will be up to the student to manage and communicate with professors about their absences. For every absence, your final grade may be lowered by one half-letter grade (B+ to become a B, B to become B-, and so on). ACM-IAU professors are empowered to impose academic sanctions (including a lowered grade or even failure) upon students for unexcused absences, frequent tardiness, work submitted late, or any other actions or behaviors that violate ACM's academic standards and policies.

## Academic Policies

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All students are responsible for reading, knowing, and understanding the information pertinent to their areas of study available in the ACM Catalog. The catalog contains requirements for all degree programs, course descriptions, academic policies, and regulations that govern ACM. All parts of the catalog are subject to annual changes as university rules, policies, and curricula change. It is your responsibility to keep informed of such changes; failure to do so will not exempt you from whatever penalties you may incur. Catalogs are published from August through July.

Review the latest catalog at: <https://www.acmfrance.org/academics/catalog>

## Schedule of Classes and Assignments

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**Week 1: Course Introduction:** Intro to Wine Production and Grape Harvest Criteria

Winery Activities: Preparation for fruit processing

**Readings:**

Ronald S. Jackson, "Wine Science: Principles and Applications", 3rd ed., Elsevier, 2008, **Ch. 6**

Pascale Ribereau-Gayon, "Handbook of Enology Volume 1 The Microbiology of Wine and Vinifications 2nd Ed.", Jon Wiley and Sons, 2006, **Ch. 12.**

## **Week 2: Grape Harvest**

### **Analysing Grape Musts**

#### **Sensory Analysis Methodology for Wine Making**

Winery Activities: Harvest/Sorting/Crushing/Measurements

#### **Readings:**

Otto Fox, "Simple Red: A Practical Guide to Making Wine", Stone Step Cellar, 2011, **Ch. 1 and 4(to page 50).**

Ronald S. Jackson, "Wine Science: Principles and Applications", 3rd ed., Elsevier, 2008, **Ch. 11.**

## **Week 3: Pre-Fermentation and Fermentation**

### **Fermentation Monitoring/Control**

#### **Yeast Selection/Cap Management**

Winery Activities: Fermentation Monitoring/Cap Management/Sensory Analysis

#### **Readings:**

Ronald S. Jackson, "Wine Science: Principles and Applications", 3rd ed., Elsevier, 2008, **Ch. 7.**

Otto Fox, "Simple Red: A Practical Guide to Making Wine", Stone Step Cellar, 2011, **Ch. 2.**

## **Week 4: Cap Management**

### **Post-Fermentation Extended Maceration/Extraction**

Winery Activities: Measurements/Preparation for Pressing/ Sensory Analysis

#### **Readings:**

Ronald S. Jackson, "Wine Science: Principles and Applications", 3rd ed., Elsevier, 2008, **Ch. 8 (until page 438)**

Ronald J. Clark, Jokie Bakker, "Wine Flavour Chemistry", Blackwell, 2004, **Ch. 3.**

## **Week 5: Pressing Wine**

### **Understanding Press Fractions**

Winery Activities: Pressing/Measurements/Sensory Analysis/Post- Pressing clean-up

#### **Readings:**

Ronald J. Clark, Jokie Bakker, "Wine Flavour Chemistry", Blackwell, 2004, **Ch. 4.**

Otto Fox, "Simple Red: A Practical Guide to Making Wine", Stone Step Cellar, 2011, **Ch. 3.**

## **Week 6: Settling/Clarification**

### **Additions/Fining**

Winery Activities: Measurements/Racking/Moving/ sensory analysis

#### **Readings:**

Pascale Ribereau-Gayon, "Handbook of Enology Volume 2 The Chemistry of Wine Stabilization and Treatments", John Wiley and Sons, 2006, **Ch. 10.**

## **Week 7: Mid-term**

## **Week 8: Sensory Analysis Methodology Sensory**

### **Effects of Production Methods**

### **Blending Trials**

Winery Activities: Measurements/Monitoring/Topping off/ Sensory Analysis

#### **Readings:**

Ronald J. Clark, Jokie Bakker, "Wine Flavour Chemistry", Blackwell, 2004, Ch. 7.

## **Week 9: Fall Break**

## **Week 10: Racking to Long-Term Aging Vessels**

Winery Activities: Measurements/Monitoring/Topping off/ Sensory

Analysis/Preparation and Clean-up

#### **Readings:**



Otto Fox, "Simple Red: A Practical Guide to Making Wine", Stone Step Cellar, 2011, **Ch. 5 and 6.**

Pascale Ribereau-Gayon, "Handbook of Enology Volume 2 The Chemistry of Wine Stabilization and Treatments", John Wiley and Sons, 2006, Ch. 13.

### **Week 11: Concepts in Sustainability**

Post-Harvest Vineyard Soil Management

Winery Activities: Measurements/Monitoring/Topping off/ Sensory Analysis

#### **Readings:**

Jamie Goode and Sam Harrop, "Authentic Wine", University of California, 2011, **Ch. 5.**

### **Week 12: Sensory Analysis Methodology**

Sensory Effects of Production Methods

Winery Activities: Measurements/Monitoring/Topping off/ Sensory Analysis

#### **Readings:**

Alice Feiring, "The Dirty Guide to Wine", Countryman Press, 2017, **p. 40-49.**

### **Week 13: Group Excursion**

Winery Visit

#### **Readings:**

Research on Winery Visit

### **Week 14: Concepts in Sustainability**

#### **Post-Harvest Vineyard Pest Management**

Winery Activities: Measurements/Monitoring/Topping off/ Sensory Analysis

#### **Readings:**

Jamie Goode and Sam Harrop, "Authentic Wine", University of California, 2011, **Ch. 6.**