



The University of Southern Queensland

## Course specification

### Description: Wine Science 1

Subject	Cat-nbr	Class	Term	Mode	Units	Campus
BIO	2401	55192	2, 2006	EXT	1.00	Toowoomba

<b>Academic group:</b>	FOSCI
<b>Academic org:</b>	FOS002
<b>Student contribution band:</b>	2
<b>ASCED code:</b>	019905

### STAFFING

Examiner: Bernadette McCabe

Moderator: Robert Learmonth

### REQUISITES

Pre-requisite: BIO1401 and CHE1110

### RATIONALE

This subject provides a theoretical and practical introduction to the principal chemical analyses that influence wine production, including interactions with microbiology at an elementary level, and the effects of these processes on wine production. Emphasis is also given to competency in wine chemical analysis and calculations required in wine quality control.

### SYNOPSIS

Wine Science 1 is aimed at providing an awareness of how chemistry and microbiology can interpret, unify and predict outcomes of winemaking actions. The course introduces the action of microorganisms in winemaking and then proceeds to discuss principles of acidity, buffering, chemical equilibria and oxidation in wine making. It has a heavy focus on the chemical assays associated with wine analysis and control and students will gain competence in performing simple analytical methods that are widely used in the chemical analysis of juice and wine. The residential school (4 days) is a compulsory component of the external offering of this course.

### OBJECTIVES

On completion of this course students will be able to:

1. Describe the basic process of fermentation in chemical terms;
2. Discuss in detail the behaviour of wine acids and the preservative sulphur dioxide as they pertain to juice and wine;
3. Explain different ways of manipulating the fermentation environment to achieve the desired winemaking conditions;
4. Interpret basic units of measurement;
5. Perform calculations required in oenology;

6. Describe the behaviours of sorbic and ascorbic acids in wine;
7. Explain the action and nature of phenolic compounds found in wine and juice;
8. Interpret and explain the effects of oxidation on wine and juice;
9. Discuss the origins of cork taint and the issues surrounding its avoidance.

## TOPICS

	Description	Weighting (%)
1.	The science of winemaking	9.00
2.	Fermentation and microorganisms	9.00
3.	Chemistry in winemaking	9.00
4.	Winemaking control aspects	9.00
5.	Units of measurement, winemaking calculations and significant figures	9.00
6.	Wine acids and acidity	9.00
7.	Sulfur dioxide	9.00
8.	Substances that complement the activity of sulphur dioxide	9.00
9.	Phenolic compounds	9.00
10.	Oxidation	9.00
11.	Cork and cork taint	10.00

## TEXT and MATERIALS required to be PURCHASED or ACCESSED

ALL textbooks and materials are available for purchase from USQ BOOKSHOP (unless otherwise stated). Orders may be placed via secure internet, free fax 1800642453, phone 07 46312742 (within Australia), or mail. Overseas students should fax +61 7 46311743, or phone +61 7 46312742. For costs, further details, and internet ordering, use the 'Textbook Search' facility at <http://bookshop.usq.edu.au> click 'Semester', then enter your 'Course Code' (no spaces).

## REFERENCE MATERIALS

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.

Boulton, RB, Singleton, VL, Bisson, LF & Kumkee, RW 1999, *Principles and practices of winemaking*, Aspen Publishing, Gaithersburg, ISBN: 0 8342 1270 6.

Iland, P, Bruer, N, Edwards, G, Weeks, S, Wilkes, E 2004, *Chemical analysis of grapes and wine: techniques and concepts*, Winetitles, Adelaide.

Peypaud, E 1985, *Knowing and making wine*, Wiley, New York.

Rankine, BC 2004, *Making good wine: A manual of winemaking practice for Australia and New Zealand*, MacMillan, Sydney.

Zoecklein, BW, Fugelsand, KC, Gump, BH & Nury, FS 1995, *Wine analysis and production*, Aspen Publishing, Gaithersburg, ISBN: 0 412 98921 2.

## STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Examinations	3.00
Lectures	26.00
Practical Classes	26.00
Private Study	110.00

## ASSESSMENT DETAILS

Description	Marks out of	Wtg(%)	Due date
PRACTICAL REPORT	100.00	25.00	25 Jul 2006 (see note 1)
UNITS & CALCULATIONS TEST	100.00	10.00	25 Jul 2006 (see note 2)
LABORATORY PRACTICAL TEST	100.00	15.00	25 Jul 2006 (see note 3)
3HR CLOSED EXAMINATION	100.00	50.00	END S2 (see note 4)

### NOTES

1. The due date for the practical report will be during the September residential school.
2. The Units and Calculations Test will be held at the end of the September residential school.
3. The Laboratory Practical Test will be held at the end of the September residential school.
4. The date of the exam will be during the examination period and will become available during the semester. Please check the exam timetable once published.

## IMPORTANT ASSESSMENT INFORMATION

- 1 Attendance requirements:  
It is the students' responsibility to attend and participate appropriately in the residential school scheduled for them, and to study all material provided to them or required to be accessed by them to maximise their chance of meeting the objectives of the course and to be informed of course-related activities and administration.
- 2 Requirements for students to complete each assessment item satisfactorily:  
To complete each of the assessment items satisfactorily, students must obtain at least 50% of the marks available for each assessment item.
- 3 Penalties for late submission of required work:  
If students submit assignments after the due date without prior approval then a penalty of up to 20% of the total marks gained by the student for the assignment will apply for each working day late.
- 4 Requirements for student to be awarded a passing grade in the course:  
To be assured of a passing grade, students must demonstrate, via the summative assessment items, that they have achieved the required minimum standards in relation to the objectives of the course by: (i) satisfactorily completing the examination and assignments; and (ii) obtaining at least 50% of the total weighted marks available for all summative assessment items. Students who do not qualify for a Passing grade may, at the discretion of the Examiner, be awarded Supplementary Examination and/or

assigned additional work to demonstrate to the Examiner that they have achieved the required standard. It is expected that such students will have gained at least 45% of the total marks available for all summative assessment items.

- 5 Method used to combine assessment results to attain final grade:  
The final grades for students will be assigned on the basis of the aggregate of the weighted marks obtained for each of the summative assessment items in the course.
- 6 Examination information:  
Candidates are allowed to bring only writing and drawing instruments into the closed examination.
- 7 Examination period when Deferred/Supplementary examinations will be held:  
Any supplementary or deferred examinations for this course will be held in the Semester 3 examination period following this course offering.
- 8 University Regulations:  
Students should read USQ Regulations 5.1 Definitions, 5.6. Assessment, and 5.10 Academic Misconduct for further information and to avoid actions which might contravene University Regulations. These regulations can be found at the URL <http://www.usq.edu.au/corporateservices/calendar/part5.htm> or in the current USQ Handbook.

## **ASSESSMENT NOTES**

- 9 In order to attend laboratory classes, students must provide and wear appropriate personal protective equipment. This shall include a laboratory coat, closed in shoes, and safety glasses. Such equipment must be approved by supervising staff. Failure to provide and wear the appropriate safety equipment will result in students being excluded from classes.
- 10 The due date for an assignment is the date by which a student must despatch the assignment to the USQ. The onus is on the student to provide proof of the despatch date, if requested by the Examiner. Students must retain a copy of each item submitted for assessment. If requested by the Examiner, students will be required to provide a copy of the assignments submitted for assessment purposes. Such copies should be despatched to USQ within 24 hours of receipt of a request being received. The examiner of a course may grant an extension of the due date of an assignment in extenuating circumstances.