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VESTA Viticulture & Enology Science & Technology Alliance

National Center of Excellence

Grape and Wine Education for the 21st Century

VIN 105 - Molecular Principles in Grape and Wine

Date: **January 27 – May 08, 2020**
Instructor: Pam Probert
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Phone:
Office Hours: Virtual, by appointment, email

Semester: **Spring 2020**
Host: Northeast Wisconsin Tech. Col.
Host Course Number: 24104
Course Credit: 4 Credit Hours
Delivery Format: Online

Course Description

This course puts emphasis on basic chemical fundamentals, organic chemistry, biochemistry, and their focused applications in the grape and wine industry. It is recommended for students needing one semester of general chemistry as a prerequisite for VIN 268 Wine and Must Analysis. VIN105 is also highly recommended before taking Intermediate Enology.

Prerequisites: none

Next Courses in Sequence: VIN 148 or VIN 160 or VIN 246 or VIN 247 and VIN 268

Course Objectives

Through recorded and live lectures, facilitated discussions, quizzes and written assignments the student will demonstrate an understanding of:

- qualitative and quantitative tools of chemistry
- chemical structure
- chemical bonding
- nomenclature, families, structure, properties and reactions of organic compounds
- the major types of chemical reactions and quantitative methods of describing the mass relations in those reactions
- the physical properties of gases
- the interactions between molecules
- the properties of solutions
- chemical kinetics and chemical equilibrium
- acids, bases and buffers

Required Textbook

Tro, Nivaldo J. (2014). *Introductory Chemistry* (5th Edition). Prentice Hall.
ISBN 10: 03-2191-029-X | ISBN 13: 978-03-2191-029-5*

*Be sure to get the USA/American version. Some "Global Versions" do not have the same exercises.

Instructional Format

This is an online course with a synchronous component. An online course site (Learning Management System) is provided by the host institution to provide announcements, lectures, notes, supplemental printed and web-based materials, and assignments to the students. It also serves as a central point for interaction/communication between the instructor and the students.

Live Class Meeting and Participation

There will be two live class meetings every week, on **Tuesday and Thursday from 6:00 to 7:00 p.m. Central Time** using the **Zoom** web conferencing system. This is the opportunity for students to interact with the instructor and fellow students directly. The Tuesday meetings will be focused on discussions of the chemistry concepts from the textbook. The instructor will highlight the key points of the weekly topics and answer student questions. The Thursday meetings will be devoted to applying the chemistry concepts to winemaking. Solving problems will also be a part of these bi-weekly sessions.

These sessions are the only opportunity for the students to interact with the instructor directly and participation is required and a participation grade is assigned. Students who miss a class meeting are required to view the recording of the live class as soon as possible. It is the student's responsibility to notify the instructor in advance if he/she has to miss a class. A participation grade is assigned.

The link to the Zoom virtual classrooms will be posted at the top of each weekly module. Students will use the same virtual classrooms for their live class meetings the entire semester. The sessions will take place on the dates listed in the schedule below.

It is the student's responsibility to notify the instructor in advance if he/she must miss a class. The recording of each live class will be available within 24-48 hours after each session for those who miss a live class.

Work Load and Expectation

Due to the nature of the contents, this is a very intensive course with rigorous weekly learning routines. **Students should expect to devote between 10 to 12 hours each week to learn the concepts and complete the assignments.** The best strategy is to actively participate in all online activities and the weekly live class meetings. In addition, students should be very mindful of keeping up with the weekly learning routine to ensure a successful learning experience.

COURSE SCHEDULE ON FOLLOWING PAGE

Course Schedule and Outline of Topics

Week — Dates	Bi-weekly Live Class Dates	Lecture Topics and Assignments
1 01/27 - 02/02	Tue 1/28 and Thur 1/30	Introduction to Class, Syllabus Review, "The Chemical World" "Matter and Energy" Week 1 Quiz
2 02/03 - 02/09	Tue 2/4 and Thur 2/6	"Measurement and Problem Solving" "Calculations in Winemaking" Week 2 Quiz
3 02/10 - 02/16	Tue 2/11 and Thur 2/13	"Atoms and Elements" "Common Winemaking Elements" Week 3 Quiz **Worksheet 1**
4 02/17 - 02/23	Tue 2/18 and Thur 2/20	"Molecules and Compounds" "Elements in Grapes, Must and Wine" Week 4 Quiz
5 02/24 - 03/01	Tue 2/25 and Thur 2/27	"Chemical Composition" "Winemaking Formulas in Daily Use**"** **Week 5 Exam**
6 03/02 - 03/08	Tue 3/3 and Thur 3/5	"Chemical Reactions" Week 6 Quiz **Worksheet 2**
7 03/09 - 03/15	Tue 3/10 and Thur 3/12	"Quantities in Chemical Reactions" "Calculating Quantities Using Fermentation Examples" Week 7 Quiz
8 03/16 - 03/22	Tue 3/17 and Thur 3/19	"Electrons in Atoms and the Periodic Table" "Chemical Bonding" Week 8 Quiz **Worksheet 3**
9 03/23 - 03/29	Tue 3/24 and Thur 3/26	"Gases" "Gases in Winemaking" Week 9 Quiz
10 03/30 - 04/05	Tue 3/31 and Thur 4/2	"Liquids, Solids, and Intermolecular Forces" "Equilibrium in the Fermentation Process" **Week 10 Exam**
11 04/06 - 04/12	Tue 4/7/ and Thur 4/9	"Solutions" "Solution Calculations in Winemaking" Week 11 Quiz
12 04/13 - 04/19	Tue 4/14 and Thur 4/16	"Acids and Bases" "Titrations in Winemaking" Week 12 Quiz **Worksheet 4**
13 04/20 - 04/26	Tue 4/21 and Thur 4/23	"Organic Chemistry" "Organic Compounds in Winemaking" Week 13 Quiz
14 04/27 - 05/03	Tue 4/28 and Thur 4/30	"Biochemistry" "Proteins, Enzymes, and Sugars in Winemaking" Week 14 Quiz **Worksheet 5**
15 05/04 - 05/08	Tue 5/5 and Thur 5/7	Review for Final **Comprehensive Final Exam**

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

Course Assignments

Course assignments include weekly readings (textbook chapters, video lectures/presentations and other print-based materials), weekly quizzes, practice worksheets, and three exams.

Weekly Quizzes: There will be an online quiz on both the chemistry and winemaking topics covered each week when there is not an exam. The quizzes are designed to ensure that students have mastered the weekly concepts. There will be 12 quizzes in total. Students can take a quiz up to three times; the highest score achieved will be recorded. The weekly quizzes will open on Thursday of the week at 7:00 pm Central Time, and close on the following Tuesday at 6:00 pm. There will be no extensions or make-ups.

Worksheet/Problem Set Assignments: There will be five worksheet/problem sets assigned on Week 3, 6, 8, 12 and 14. Detailed instructions will be provided on the online course site.

Live Class Lecture and Discussion: The live class meetings will be devoted to clarification and Q & A of weekly chemistry concepts from the textbook on Tuesdays, and lecture and discussions on winemaking application on Thursdays. Participation is graded.

Exams: There will be three exams. Week 5 Exam will cover materials for weeks 1 through 5; the Week 10 Exam will cover materials for weeks 6 through 10. A comprehensive Final Exam will be given during Week 15. All exams will open on Thursday of the week at 7:00 pm Central Time, and close on the following Tuesday at 6:00 pm. There are no extensions or make-ups.

Late assignments will not be accepted. Please be very mindful regarding assignments/quiz/exam deadlines. Students should make arrangements to submit an assignment on time. The instructor will only accept late assignments in extreme situations **with advanced notice.**

Expectations and Instructor Feedback

With the online course format, students are expected to participate and be prepared to interact in the live class meetings. Students also need to regularly check the Blackboard course site for class materials and communications, be aware of the required activities and assignments, and adhere to the deadlines listed in the course schedule. This will ensure a successful learning experience.

The instructor will make every effort to respond to student questions and complete assignment/exam grading in a timely manner.

GRADING INFORMATION ON FOLLOWING PAGE

Grading

Student grades will be determined based on their total points earned in the class. The table below outlines the total points possible and their percentage weight.

Percentage Weight of Student Performance		
Activity	**Percentage**	**Points**
Weekly Mastery Quizzes (12)	28%	280 total points (points vary per quiz)
Worksheets/Problem Sets (5)	15%	30 points each
Week 5 Exam	12%	120 points
Week 10 Exam	14%	140 points
Comprehensive Final Exam	17%	170 points
Live Class Participation	14%	140 points (5 points per class, weeks 2 to 15)
Total	**100%**	**1,000**

Grade calculation: total points earned ÷ total points possible; then using the following scale to determine final letter grades:

90 – 100% = A	80 – 89.9% = B	70 – 79.9% = C	60 – 69.9% = D	Below 60% = F

Incomplete grades are <u>not</u> given in this class. It is the students' responsibility to see that all graded assignments and exams reach the instructor in a timely fashion so grades can be issued.

INSTITUTIONAL POLICIES ON FOLLOWING PAGES

Northeast Wisconsin Technical College Institutional Policies

Student Responsibilities and Policies

As a student of NWTC, you are expected to adhere to the policies of the College, as outlined in the *Student Handbook* which can be viewed and or downloaded at:
https://www.nwtc.edu/NWTC/media/student-experience/student%20involvement/FY16-17-Student-Handbook-FINAL-without-ad-pages.pdf
Please be fully aware of the following policies: Academic Integrity (includes plagiarism, cheating and collusion); Assessment; Copyright Notice; Refund Policy; Student Code of Conduct; Withdrawal from a Class or Program.

Withdrawals and Refunds

Should it become necessary to withdraw, it is the student's responsibility to do so according to the guidelines in the Northeast Wisconsin Technical College policies. Please see the link below for information related to withdrawals and refunds.
http://www.nwtc.edu/services/studentfinancialservices/Pages/RefundPolicy.aspx

Students planning to withdraw from this course must also complete the VESTA Withdrawal/Change of Schedule form and submit it to the VESTA office.

Student Email

NWTC offers a student e-mail account for all students. All official email sent from the host institution or sent through Blackboard, will go to this account. Therefore, you are responsible for setting up and monitoring your NWTC student email account. This is not optional; it is a requirement of the course. Student email can be accessed by visiting https://www.nwtc.edu/students/new-students Student technical assistance is available 24 hours a day, 7 days a week; call toll free at 1-866-235-5037.

If you do not intend to use your NWTC email account, you must contact NWTC Tech Support to redirect (forward) your NWTC email to the email account of your choice. Your instructor will not accept "I didn't get the email" as a legitimate excuse for missing assignments or tests, schedule changes, or other important messages from your instructor, or the host institution.

Disability Act Statement

NWTC complies with all provisions of the Americans with Disabilities Act and makes reasonable accommodations upon request. For more information contact Student Accommodations Services at: https://www.nwtc.edu/student-experience/accommodation-services

Student Rights

For additional information regarding your rights as a student, including college policies on harassment, student rights and other services available at NWTC, please consult the NWTC Student Handbook, available through Student Services or on the NWTC webpage at http://www.nwtc.edu

Student Code of Conduct

Students are expected to conduct themselves in accordance with the Student Code of Conduct listed in the *Student Handbook* (see link above). As noted in the handbook, violations will be brought to the immediate attention of the Student Conduct Team and may be referred to the Dean of Student Development or to the Supervisor of Student Involvement. Additionally, in cases where behavior(s)

warrants concern over the safety of the student(s), an alert may be made to the Responsive Intervention for Student Concerns (RISC) Committee.

Class Cancellation

Unanticipated class cancellation by the institution will be posted as early as possible in the "Announcements" section of the Blackboard course site. Students will also be notified by email.