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Grape and Wine Education for the 21st Century

VIN 106 - Physics for the Wine Industry

Date: **August 26 - December 6, 2019**
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Semester: **Fall 2019**
Host: Missouri State University
Host Course No.: VIN106-FA19-10604-WP
Course Credit: 3 Hours
Delivery Format: Online

Course Description: Introduction to physical theories covering the content areas of mechanics, fluids, sounds, thermodynamics and their relationship to the grape and wine industry.

Prerequisites: MTH 103 - Intermediate Algebra or higher

Next Courses in Sequence: Any VIN course

Course Objectives

Through recorded and live lectures, facilitated discussions, quizzes and written assignments, the student will:

- Demonstrate an understanding of basic topics in physics that can aid in understanding of industrial elements of the grape and wine industry
- Be introduced to fundamental concepts such as Newton's Laws of Motion that will provide essential context for later topics such as properties of solids, liquids, and gasses
- Become comfortable with why wine appears red or white, cloudy, or transparent, and understand the basic function of industry tools used to evaluate liquids including wine
- Gain an appreciation of the physics behind temperature, heat, and heat transfer that can aid in the understanding of manufacturing process requirements
- Although this course will not delve deeply into chemistry, students will be introduced to atoms and molecules in order gain a level of comfort with the language of physics when discussed at the atomic level
- Develop an understanding of the basis of many instruments, measurements, and industry standards, in order to become comfortable with concepts of light including reflection, refraction, dispersion, the relationship between wavelength and perception of color, and properties of lenses

Required Textbook

Kuhn, K. F. *Basic Physics: A Self-Teaching Guide.* (1996). New York: John Wiley & Sons.
ISBN 10: 04-7113-447-3 or ISBN 13: 978-04-7113-447-3

This book can be purchased through the MSU Bookstore, Amazon.com, or the vendor of your choice.

Lecture Topics, Schedule, and Reading Assignments

Week — Dates	**Wednesday Live Class Meeting**	**Lecture Topic(s)** (Participation Points)	**Chapter(s) Covered**	**Quiz/Exam**	**To Prepare for the Next Class Independently Read:**
1 08/26 - 09/01	08/28	Welcome and Introduction (7pts)	None	None	Ch. 1: Force & Motion
2 09/02 - 09/08	09/04	Force and Motion (7pts)	Chapter 1	Quiz 1: Force & Motion (20pts)	Read Ch. 2: Newton's Laws of Motion
3 09/09 - 09/15	09/11	Newton's Laws of Motion (7pts)	Chapter 2	Quiz 2: Newton's Laws of Motion (20pts)	Read Ch. 3: Conservation of Momentum & Energy
4 09/16 - 09/22	09/18	Conservation of Momentum and Energy (7pts)	Chapter 3	Quiz 3: Conservation of Momentum & Energy (20pts)	Read Ch. 4: Gravity
5 09/23 - 09/29	09/25	Gravity (7pts)	Chapter 4	Quiz 4: Gravity (20pts)	Read Ch. 5: Atoms & Molecules
6 09/30 - 10/06	10/02	Atoms & Molecules (7pts)	Chapter 5	Quiz 5: Atoms & Molecules (20pts)	Read Ch. 6: Solids; and Ch. 7: Liquids & Gasses
7 10/07 - 10/13	10/09	1) Solids; and 2) Liquids, and Gases (8pts)	Ch. 6 and 7	Quiz 6: Solids; and Liquids & Gases (20pts)	Read Ch. 8: Temperature & Heat; and Ch. 9: Heat Transfer & Change of State
8 10/14 - 10/20	10/16	1) Temperature & Heat; and 2) Heat Transfer & Change of State (8pts)	Ch. 8 and 9	**Midterm Exam**, Chapters 1-9 (100pts)	Read Ch. 10: Wave Motion; and Ch. 11: Sound
9 10/21 - 10/27	10/23	1) Wave Motion; and 2) Sound (8pts)	Ch. 10 and 11	Quiz 7: Wave Motion; and Sound, (20pts)	Read Ch. 12: Diffraction and Interference
10 10/28 - 11/03	10/30	Diffraction and Interference (7 pts)	Chapter 12	Quiz 8: Diffraction and Interference (20pts)	Read Ch. 18: Light: Wave or Particle?
11 11/04 - 11/10	11/06	Light: Wave or Particle? (7pts)	Chapter 18	Quiz 9: Light: Wave or Particle? (20pts)	Read Ch. 20: Reflection, Refraction, and Dispersion
12 11/11 - 11/17	11/13	Reflection, Refraction, and Dispersion (7pts)	Chapter 20	Quiz 10: Reflection, Refraction, and Dispersion (20pts)	Read Ch. 21: Lenses and Instruments
13 11/18 - 11/24	11/20	Lenses and Instruments (7pts)	Chapter 21	Quiz 11: Lenses and Instruments (20pts)	Read Ch. 22: Light as a Wave; and Ch. 23: Color
14 11/25 - 12/01	11/27	1) Light as a Wave; and 2) Color (8pts)	Ch. 22 and 23	None	None
15 12/02 - 12/06	12/04	Review for Final **Final Exam**: Chapters 10 – 23 (100pts)			

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

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

The live class meeting will take place every **Wednesday from 6:00 to 7:00 p.m. Central Time** via the **Zoom** web classroom system. Participation to the live class meetings is required and participation points are assigned. This is an opportunity for the instructor to go over weekly topic highlights and for students to interact directly with the instructor and fellow students through questions and discussions. Students are expected to be prepared to ask questions and actively participate in the discussions.

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

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.

Course Assignments

Course Assignments will include weekly reading assignments, physics problems assigned from the text or other available sources, quizzes, and tests. Students are expected to view all pre-recorded lectures and complete assigned reading and physics problems prior to attendance of the online class.

Quizzes
There are 11 chapter quizzes worth 20 points each. There is no quiz for Chapters 8 or 9; that material is included on the Midterm. There is no quiz for Chapters 22 or 23; that material is included on the Final. **NOTE:** The lowest quiz grade of the semester will be dropped.

Exams

There are two exams, a Midterm and a Final. Exams will test knowledge of the material covered and may include essay and short answer questions. Students will take the exams online through the course site at proposed dates. Make-up examinations will not be given, as an adequate time period will be available to take the exam. The Midterm Exam covers materials from chapters 1-9. The non-cumulative Final Exam covers materials from chapters 10-23.

Expectations and Instructor Feedback

With the online course format, students are expected to participate and be prepared for the live class meetings by studying the weekly lecture and reading materials. Students also need to check the online course site for class materials and communications regularly, 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.

Late Material

Late assignments are not accepted and will be given a zero. The instructor reserves the right under extreme cases to make exceptions to this policy.

Grading

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

Percentage Weight of Student Performance		
Activity	**Percentage**	**Points**
Quizzes	40%	200
Midterm Exam	20%	100
Live Class Participation and Attendance	20%	102
Final Exam	20%	100
Total	**100%**	**502**

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

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 PAGE

Missouri State University Institutional Policies

Withdrawing from the Course

Grades of Incomplete will not be issued. Should it become necessary to withdraw, it is the student's responsibility to do so according to MSU-West Plains guidelines which can be viewed at http://wp.missouristate.edu/recreg/withdrawl-procedures.htm

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

Online Student Academic and Student Support Resources

Missouri State University-West Plains provides a full-range academic and student support for online students. To learn more about specific academic and student support and how to access the resources, go to http://online.wp.missouristate.edu

Attendance Policy

Missouri State University believes that students must attend class in order to achieve the best learning results. In the case of VESTA online courses, attendance is defined as active participation in the form of attending synchronous class meetings (if applicable), completing reading/writing/testing assignments by assigned deadlines, and maintaining regular communication with course instructor via the online course site and communication tools designated by the instructor. For courses with a practicum/workshop component, students must participate and complete the number of hours of practical experience required. Instructors may assign attendance grade as part of course grade if they choose to do so. MSU expects instructors to be reasonable in accommodating students whose absence from class resulted from: 1) participation in University-sanctioned activities and programs; 2) personal illness; or 3) family and/or other compelling circumstances. The University's attendance policy can be found at http://www.missouristate.edu/registrar/catalog/attendan.html

Make-up Policy and Special Instructions

The exams can be made up only in the event of an excused absence where the instructor has prior knowledge of the absence. Allowance of make-up tests will be at the discretion of the instructor and will be taken on the date of the student's return to class.

Emergency Response Statement

At the first class meeting, students should become familiar with a basic emergency response plan through a dialogue with the instructor that includes a review and awareness of exits specific to the classroom and the location of evacuation centers for the building. All instructors are provided this information specific to their classroom and/or lab assignments in an e-mail prior to the beginning of the fall semester from the Office of the Provost and Safety and Transportation. Students with disabilities impacting mobility should discuss the approved accommodations for emergency situations and additional options when applicable with the instructor. For more information go to: http://www.missouristate.edu/safetran/51597.htm and http://www.missouristate.edu/safetran/erp.htm

Religious Accommodation

The University may provide a reasonable accommodation based on a person's sincerely held religious belief. In making this determination, the University reviews a variety of factors, including

whether the accommodation would create an undue hardship. The accommodation request imposes responsibilities and obligations on both the individual requesting the accommodation and the University. Students who expect to miss classes, examinations, or other assignments as a consequence of their sincerely held religious belief shall be provided with a reasonable alternative opportunity to complete such academic responsibilities. It is the obligation of students to provide faculty with reasonable notice of the dates of religious observances on which they will be absent by submitting a Request for Religious Accommodation Form to the instructor by the end of the third week of a full semester course or the end of the second week of a half semester course.

Statement of Grading Policy

Faculty have the choice to utilize either the standard grade policy or the plus/minus grading option but are required to indicate their grading scale on their syllabus. The University's plus/minus grading system can be found at http://wp.missouristate.edu/recreg/grade-policies.htm

Academic Integrity Statement

Missouri State University is a community of scholars committed to developing educated persons who accept the responsibility to practice personal and academic integrity. You are responsible for knowing and following the university's student honor code, Student Academic Integrity Policies and Procedures, available at http://www.missouristate.edu/academicintegrity/ and also available at the Reserves Desk in Meyer Library. Any student participating in any form of academic dishonesty will be subject to sanctions as described in this policy.

Statement of Nondiscrimination

Missouri State University is an equal opportunity/affirmative action institution, and maintains a grievance procedure available to any person who believes he or she has been discriminated against. At all times, it is your right to address inquiries or concerns about possible discrimination to the Office for Institutional Equity and Compliance, Park Central Office Building, 117 Park Central Square, Suite 111, 417-836-4252. Other types of concerns (i.e., concerns of an academic nature) should be discussed directly with your instructor and can also be brought to the attention of your instructor's Department Head. Please visit the OED website at http://www.missouristate.edu/equity/

Statement on Disability Accommodation

To request academic accommodations for a disability, contact the Director of the Disability Resource Center, Carrington Hall, Room 302, 417-836-4192 or 417-836-6792 (TTY), www.missouristate.edu/disability. Students are required to provide documentation of disability to the Disability Resource Center prior to receiving accommodations. The Disability Resource Center refers some types of accommodation requests to the Learning Diagnostic Clinic, which also provides diagnostic testing for learning and psychological disabilities. For information about testing, contact the Director of the Learning Diagnostic Clinic, 417-8364787, http://psychology.missouristate.edu/ldc