FLORIDA SOUTHWESTERN STATE COLLEGE

School of Pure & Applied Sciences

PROFESSOR: Dr. Marius Coman

OFFICE LOCATION: N 230 Collier

OFFICE HOURS: Posted in canvas under Announcements

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SEMESTER: Fall 2022

DELIVERY METHOD: Live Online

I. COURSE NUMBER AND TITLE, CATALOG DESCRIPTION, CREDITS:

PHY2054College Physics II (4Credits)

This physics course, based on algebra and trigonometry, is the second part of a sequence of two courses. The sequence covers the underlying principles and laws of classical mechanics, oscillations, waves, fluids, sound, thermodynamics, electromagnetism, elements of optics, and modern physics.

II. PREREQUISITES FOR THIS COURSE:

PHY 2053 and PHY 2053L with a minimum grade of "C" in each course

CO-REQUISITES FOR THIS COURSE:

PHY 2054L

III. GENERAL COURSE INFORMATION:

Topic Outline
Temperature and the kinetic theory of gases
Heat and thermodynamics
Thermal properties and processes
Electric field of discrete and continuous charge distributions
Electric potential
Electrostatic energy and capacitance
Electric current and direct-current circuits
The magnetic field and sources of the magnetic field
Magnetic induction
Alternating-current circuits
Maxwell's equations and electromagnetic waves

Properties of light, optical images, interference and diffraction
Aspects of modern physics

IV. ALL COURSES AT FLORIDA SOUTHWESTERN STATE COLLEGE CONTRIBUTE TO THE GENERAL EDUCATION PROGRAM BY MEETING ONE OR MORE OF THE FOLLOWING GENERAL EDUCATION COMPETENCIES:

Communicate clearly in a variety of modes and media.

Research and examine academic and non-academic information, resources, and evidence.

Evaluate and utilize mathematical principles, technology, scientific and quantitative data.

Analyze and create individual and collaborative works of art, literature, and performance.

Think critically about questions to yield meaning and value.

Investigate and engage in the transdisciplinary applications of research, learning, and knowledge.

Visualize and engage the world from different historical, social, religious, and cultural approaches.

Engage meanings of active citizenship in one's community, nation, and the world.

A. General Education Competencies and Course Outcomes

1. Listed here are the course outcomes/objectives assessed in this course which play an integral part in contributing to the student's general education along with the general education competency it supports.

General Education Competency: Evaluate

Course Outcomes or Objectives Supporting the General Education Competency Selected:

Use the kinetic theory of gases to distinguish between "heat" and "temperature"; interpret and apply the concept of energy per degree of freedom.

Interpret and apply the laws of thermodynamics to explain natural phenomena.

Recognize thermal properties and processes and use them to explain and interpret thermal phenomena.

Recognize the quantum nature of electric charge.

Explain the interaction between electric charges and use Coulomb's law to solve problems involving charge distributions.

Explain the concept of "field" and compare it to "action-at-a-distance" using forces.

Explain and draw the electric field configuration due to various discrete and continuous charge distributions.

Relate the theoretical interpretation of electric potential to everyday phenomena and use it to solve problems.

Explain the meaning of electrostatic energy and apply it to solve problems involving capacitance.

Identify the theoretical framework for electric current and apply it to solving problems on direct current circuits and alternating current circuits.

Explain and draw the magnetic field configuration due to various current distributions.

Analyze the concept of electromagnetic induction and use it to explain everyday physical phenomena.

Describe and use Maxwell's equations to solve problems in electricity and magnetism.

Investigate the interaction of light with matter and light's properties.

Compare and contrast the (special) relativistic view with the Newtonian view of nature.

Compare and contrast the quantum mechanical view with the Newtonian view of nature.

V. DISTRICT-WIDE POLICIES:

PROGRAMS FOR STUDENTS WITH DISABILITIES

Florida SouthWestern State College, in accordance with the Americans with Disabilities Act and the College's guiding principles, offers students with documented disabilities programs to equalize access to the educational process. Students needing to request an accommodation in this class due to a disability, or who suspect that their academic performance is affected by a disability should contact the Office of Adaptive Services at the nearest campus. The office locations and telephone numbers for the Office of Adaptive Services at each campus can be found at https://www.fsw.edu/adaptiveservices.

REPORTING TITLE IX VIOLATIONS

Florida SouthWestern State College, in accordance with Title IX and the Violence Against Women Act, has established a set of procedures for reporting and investigating Title IX violations including sexual misconduct. Students who need to report an incident or need to receive support regarding an incident should contact the Equity Officer at equity@fsw.edu. Incoming students are encouraged to participate in the Sexual Violence Prevention training offered online. Additional information and resources can be found on the College's website at https://www.fsw.edu/sexualassault.

VI. REQUIREMENTS FOR THE STUDENTS:

This course will be offered live online; https://www.fsw.edu/online/standards
Technology Requirements: laptop or desktop computer with an up-to-date OS; stable high speed internet. USB External Camera with built-in microphone.

Quizzes

There will be weekly online quizzes covering the material.

Exams

During an exam some formulas and constants will be provided. If you miss an exam you will receive zero points for that exam unless you have a substantiated unforeseen occurrence or a **written** excuse from a physician, the Dean, or an academic advisor.

The final exam is cumulative and **may** be proctored. All exams will include calculated/numerical questions, multiple choice questions and a few short answer questions, and a request to interpret some drawings/graphs or to construct them.

Cheating on an exam, quiz or lab report will result in you getting a zero. In addition, a report will be filed with the Dean's office.

All work should be your original work. Cheating includes giving or receiving unauthorized aid or information by copying, by using materials not authorized, by attempting to receive credit for work performed by another, or by otherwise failing to abide by academic rules. The person who aids an individual in cheating will be held equally responsible. Plagiarism is an act of academic dishonesty that involves a scholar committing one or more of the following actions: portraying any portion of another's work as the scholar's (including turning in work that an individual other than the scholar prepared, regardless of the willingness of the individual), portraying another author's idea(s) as the scholar's, misrepresenting a source's meaning or content, or inadequate citation or missing citation.

VII. ATTENDANCE POLICY:

Attending classes/live sessions is mandatory. You are also responsible for the discussions taking place in the classroom. Part of your grade is derived from participation in classroom tasks and discussions. Classroom interaction is vital for the understanding of the major concepts in this course.
If a student has to miss a class for any reason, it is the responsibility of the student to make up the missed work promptly.
All assignments are due at their assigned times, regardless of absence. If a class is missed, it is your responsibility to obtain, from a fellow student, any material covered during the session.
If you miss more than two classroom sessions the instructor will expect you to schedule an appointment to discuss the situation.

VIII. GRADING POLICY:

Your final grade is calculated as a weighted average; the weight for exams and homework/assignments is specified in the following table:

Item	Weight in %
3 Exams	40.0
10 Quizzes/Assignments	35.0
10 Classroom tasks	25.0
Total:	**100**

$$FinalGrade = \overline{Exams} \times \frac{40}{100} + \overline{Quizzes} \times \frac{35}{100} + \overline{Tasks} \times \frac{25}{100}$$

$$\overline{Exams} = \frac{(Exam_1 + Exam_2 + Exam_3)}{3}$$

Letter grades are assigned as follows:

Grade Percent	Letter Grade
90 - 100	A
80 - 89.9	B
70 - 79.9	C
60 - 69.9	D
Below 60	F

There are no "Make-ups" for examinations. (Note: The “incomplete” grade [“I”] should be given only when unusual circumstances warrant. An “incomplete” is not a substitute for a “D,” “F,” or “W.” Refer to the policy on “incomplete grades.)

IX. REQUIRED COURSE MATERIALS:

Recommended: 11/e (2018) (Custom), Serway and Vuille
(e-Pack/Loose-Leaf Version/WebAssign Instant Access/12-months)
ISBN: 9781337741637, CENGAGE

X. RESERVED MATERIALS FOR THE COURSE:

None.

XI. CLASS SCHEDULE:

Week	**Chapter name and Lecture Topics** *** Optional (If time permits)**
1	Syllabus presentation; Chap 10: Thermal Physics. Temperature and the Zeroth Law of Thermodynamics. Thermometers and Temperature Scales.
1	Thermal Expansion of Solids and Liquids. **used to assessing the General Education Competency listed on (IV) A.** The Ideal Gas Law. The Kinetic Theory of Gases.
2	**Chap.** 11: Energy in Thermal Processes. Heat and Internal Energy. Specific Heat. Calorimetry. Latent Heat and Phase Change. Energy Transfer.
2	**Chap.** 12: The Laws of Thermodynamics. Work in Thermodynamic Processes. The First Law of Thermodynamics. Thermal Processes in Gases. Heat Engines and the Second Law of Thermodynamics.
3	**EXAM 1**
3	**Chap.** 15: Electric Forces and Fields. Electric Charges, Insulators, and Conductors. Coulomb's Law. Electric Fields. Electric Field Lines.
4	**Chap.** 16: Electrical Energy and Capacitance. Electric Potential Energy and Electric Potential. Electric Potential and Potential Energy Due to Point Charges. Potentials, Charged Conductors, and Equipotential Surfaces. Applications. Capacitors. Combinations of Capacitors. Energy in a Capacitor.
4	**EXAM 2**
5	**Chap.** 17: Current and Resistance. Electric Current. Current and Voltage Measurements In Circuits. Resistance, Resistivity, and Ohm's Law.
5	**Chap.** 17 cont.: Temperature Variation of Resistance. Electrical Energy and Power. **Chap.** 18: Direct-Current Circuits. Sources of emf. Resistors in Series. Resistors in Parallel. Kirchhoff's Rules and Complex DC Circuits.
6	**Chap. 19:** Magnetism. Magnets. Earth's Magnetic Field. Magnetic Fields. Motion of a Charged Particle in a Magnetic Field. Magnetic Force on a Current-Carrying Conductor. Magnetic Torque. Ampere's Law. Magnetic Force Between Two Parallel Conductors. Magnetic Fields of Current Loops and Solenoids
6	**Chap.** 20: Induced Voltages and Inductance. Induced emf and Magnetic Flux. Faraday's Law of Induction and Lenz's Law. Motional emf.
7	**Chap.** 21: Alternating-Current Circuits
7	**Chap.** 22: Reflection and Refraction of Light.
8	Modern Physics: selected Topics.
Final Exam	**Cumulative: Tuesday, December 6**, 2 PM-3:45 AM

Zoom sessions:	**Video lectures posted online:**
Aug 23, 30	Aug 25,
Sept 13, 27	Sept 6, 8, 15, 29
October 4, 11, 18, 25	Oct 6, 13, 20, 21
Nov 1, 8, 15, 29	Nov 3, 10, 17
Dec 1	Dec 3
College closed	**Sep 5, Nov 11, Nov 24- 27**

XII. ANY OTHER INFORMATION OR CLASS PROCEDURES OR POLICIES:

Students who cannot afford an external camera can take exams in a Proctorio room found on each campus. The location and hours of operation of those rooms are available here https://www.fsw.edu/online/testing. Sharing of video recordings is restricted only to enrolled students.

CHECK LIST FOR TAKING A PROTORIO EXAM in a SCIENCE COURSE

A. Equipment requirements

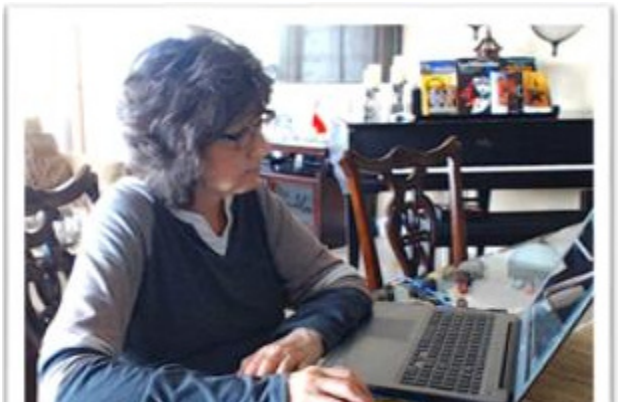
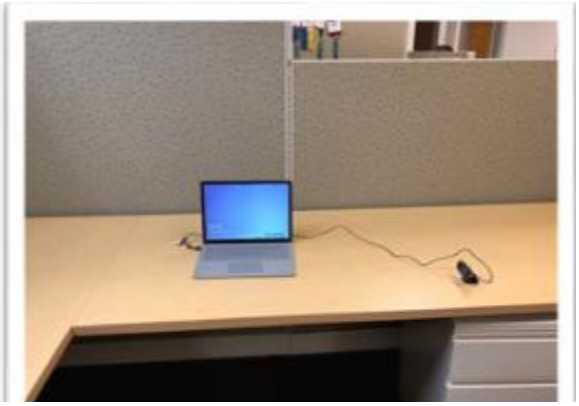
1. Access to an external web camera with built-in microphone. (The web cam built into your laptop computer **is not acceptable** to use)
2. You have an option of purchasing your own camera or borrowing one from a friend
3. You cannot take the practice proctored quiz or proctored exams without one.

B. Setting up your workspace

1. Find yourself a desk or tabletop to set up your computer; (Do not take an exam in your bed).
2. Your desk/tabletop must be completely cleared off.
3. Nothing should be within two feet of your computer except for your mouse.
4. No notes, phones, papers, whiteboards, earphones, earbuds, etc. are allowed in the room
5. Music and/or TV must not be playing in the background.
6. Make sure you have adequate lighting; you should be easily visible (not a dark shadow)

C. Setting up your external camera

1. Your camera must be set up so that your FACE, HANDS, KEYBOARD, COMPUTER SCREEN, & DESKTOP SURFACE are visible throughout the entire exam
2. If you can't see your face, hands, keyboard, and computer screen, then adjust your camera so that you can.
3. You will be able to see yourself in the corner of your screen on your computer.
4. To accommodate this, place your camera off to the side, as if it is looking over your shoulder as you take the exam. (see photo below)
5. The complete working space must be visible
6. Do not to have the camera set on zoom.

D. Computer Requirements

1. FIRST make sure your computer is working well and battery **fully charged** or connected to power.
2. If you lose connection, you will not be able to re-enter the exam. Make sure you are located at a place where you have strong internet service.
3. Before starting your exam. Clear your **cache** and make sure you have enough memory for Proctorio to run.
4. **Close down** all other applications running on your computer and switch off all notifications such as messaging etc.
5. DO NOT **hide your toolbar**. It must be visible showing only **CHROME** as open.
6. The Proctorio agent checks your ID and a picture is taken showing your toolbar is visible and NO other APPS are open.

PC- chrome open is underlined in blue. Any other blue lines will indicate other apps open.

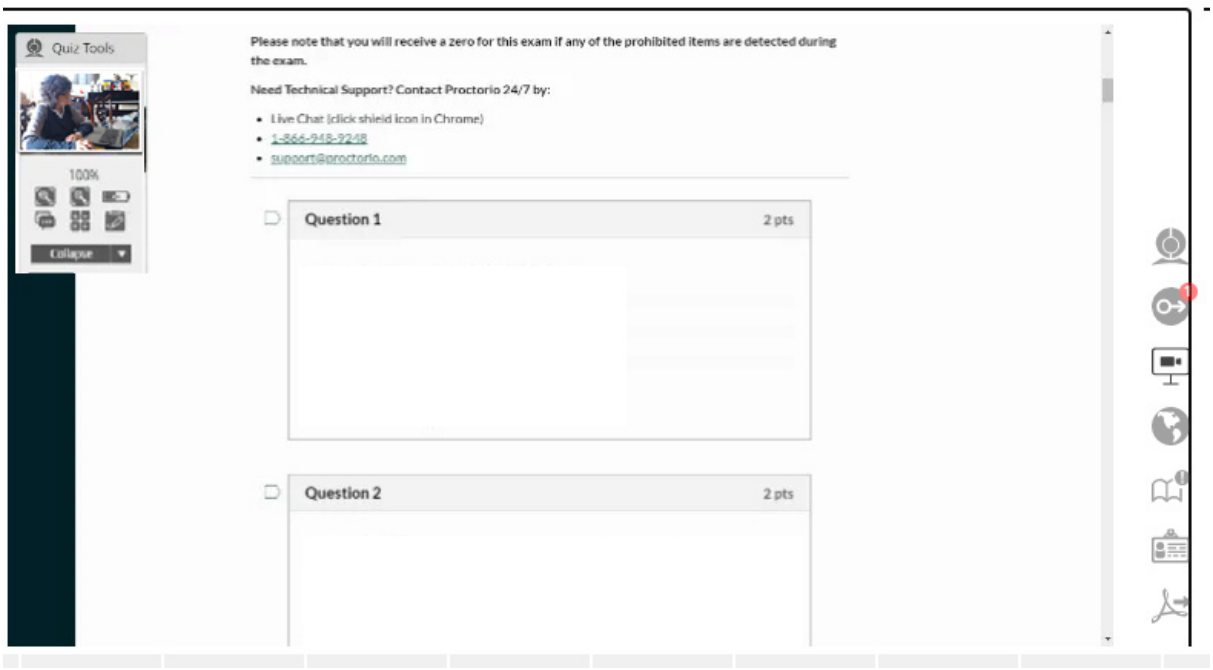
Mac – Chrome only open indicated by a black dot under icon.

7. The Proctorio video will flag you as **suspicious**
    a. If you have too much eye movement,
    b. If there is any outside noise
    c. If you are typing excessively.
    d. If you try to log into a different page on your screen, copy/paste,
    e. if you try to change anything on your computer at any time, it will log you out of exam
    f. If you lose connection, you will not be able to re-enter the exam, so make sure you are located at a place where you have strong internet service and that your computer is working well and battery fully charged or connected to power.
    g. Avoid taking exams with storms in the area

E. Scan check list

The scan is prompted **after** you have been given permission to open your exam and the timer for your exam starts. When prompted to do a scan

1. You **must use** the external camera
2. Scan slowly, STOP and count 5 sec when showing the FRONT SCREEN of your computer and behind your computer.
3. Your work area, where your computer is sitting, must show up clearly,
4. If you must have a mouse pad, lift it so I can see that nothing is under it!
5. Nothing should be on your desk/tabletop except for your computer and your own formula sheet.
6. It is up to you to show us there is **NOTHING** suspicious in your EXAM environment
7. Make sure to **PLACE** your camera back into the side view position as demonstrated in the image shown below.



12. **You MUST** be able to see your set up in the corner of your screen on your computer when your test resumes. If you **lose** this camera image at any time, immediately stop and ask Proctorio for assistance. Remember, if any of the testing rules are not followed completely, you will receive a zero for the exam.