

2020 Spring/Summer
PHYSICS 222: CRN 51335
INSTRUCTOR: Robert C. Keeton
rkeeton@wccnet.edu

Class Time and Location

Time: TWR 6:00 PM to 9:25 PM (May 26 —Jul. 30, 2020)

Virtual Location: GotoMeeting

Physical Location: Wherever you are, however, I will be at Casa De Keeton

Required Materials

- “**FUNDAMENTALS OF PHYSICS VOLUME 2,**” (any edition from 7th through 10th) By Halliday, Renick & Walker
- Microsoft Word®, Excel®, PowerPoint® (all WCC students have free access).

Course Description

This is the second of a two-course sequence in calculus-based Newtonian physics for students intending to major in science or engineering. Physics 222 will cover the concepts of electricity, magnetism, light and modern physics.

Laboratory exercises are included to assist students in understanding the above topics and to develop skills in data analysis methods. While performing the labs, students will advance their abilities of working with word processors, spreadsheets and presentations.

Course Objectives

Students will demonstrate a basic understanding of the physical concepts covered in the course topics. Evaluations will be in the form of exams, labs and homework.

Expectations

Students are required to attend class on time and to have completed the assigned homework, and to be prepared to discuss the homework problems and exercises. Homework will consist of selected problems relevant to the material covered in class and the textbook.

All assignments must be submitted via Blackboard through the assignment unless otherwise instructed. Do not submit your assignment via email as it will not be graded unless the Blackboard site is having technical difficulties.

Guidelines to Succeed

- ***Read Before Lecture!*** Read the material ahead of class. In any class, you should have the present chapter and the next chapter read ahead of the class. Exposure to the material ahead of the lecture will make the lecture more effective. It is not possible for me nor am I required to cover 100% of the material in the textbook.

- **Lecture Is Review!** The purpose of the lecture is to provide clarity to the material the textbook did not cover in-depth, provide alternative approaches to solving problems and to answer questions regarding the material.
- **Divide and Conquer!** Many students do not start assignments until the last minute or until they think they have sufficient time to complete the assignment in one setting. Studies have shown that students succeed more often when utilizing multiple, shorter time windows to study and complete assignments. For example, (6) 30-minute study windows are more effective than a single 3-hour window.
- **Budget Time!** On average, during a normal term, the amount of time a person should dedicate to a subject of average difficulty is 2.5 hours/credit/week in order to receive a passing grade (i.e., “C”). During a condensed term, this increases to 4 hours/credit/week. This course is a 5–credit course. Therefore, expect to spend 12.5 hours/week (or 20 hours/week spring/summer term) outside the classroom working on this class. Student may need more time if this material is more difficult relative to other courses, or if they wish to achieve a higher grade. This heuristic is not unique to this course and is a good guideline for all college courses.

Jobs and Other Classes

It is very common for many students to take on jobs or internships. I applaud those that work and go to school as I realize how difficult this is to manage successfully. However, I will not make special accommodations for labs and quizzes due to people using work as an excuse. Therefore, work-related absences regarding labs will result in a zero grade. The same applies to conflicts with other classes. I understand that it is common for some universities to schedule multi-class evening exams. You will not be excused from activities in this class due to conflicts with other classes.

Final Grades

Your grade is based upon 1,000 points. Collectively, a student might earn a maximum of 1,035 points, depending on any class cancellations. Grades are based on the following earned percentages and will not be rounded or curved:

A	A–	B+	B	B–	C+
Min 93%	Min 90%	Min 87%	Min 83%	Min 80%	Min 77%
C	C–	D+	D	D–	F
Min 73%	Min 70%	Min 67%	Min 63%	Min 60%	< 60%

Lab Minimum Grade Requirements

You are required to earn a minimum of 150 combined points between the lab quiz, mid-term and lab final, otherwise, you will automatically receive an “F” for the course.

If you believe this is not fair, I will remind you of the training and testing required for obtaining a license to operate a vehicle: many hours of classroom lecture learning about laws, safety, etc. and fewer hours behind the wheel practicing execution. In the end, the overall assessment primarily hinges upon how well one drives.

Effort Grade

The effort grade is a system I have developed to quantify your effort and is strictly used to determine the curve you will receive on unit exams only (not lab exams). The effort grade is an equally weighted average of the three parts:

1. Participation as determined by algorithm analysis of chat window,
2. Homework scores (online, unlimited attempts),
3. Conceptual quiz score (online, unlimited attempts).

This system allows an unbiased mechanism to determine curves for exams. The maximum potential curve for exams is calculated as follows (e.g., max curved grade of 64% is 80%):

$$\text{Max Curved Grade\%} = 10\sqrt{\text{Grade\%}}$$

Actual curve is calculated as a function of the max curve and the effort grade. The curve equation is calculated as follows, with all grades in decimal format (e.g., 98% = 0.98):

$$\text{Curve Grade} = (\text{Effort Grade})(\text{Max Curved Grade}) + (1 - \text{Effort Grade})(\text{Raw Grade})$$

In summary, no effort means no curve.

Exams: 690 Total Points+35 Extra Credit

There will be five exams that cover material from lectures, textbook and material from prerequisite courses. Each exam is worth 40 points per chapter. Each exam will cover lectures and material from three to four chapters of the textbook. Since this is a virtual course, exams will be available for one 24-hour period and occur on a normally scheduled class day. There will be no class on exam days. You must complete each exam in one sitting. There is a time limit of 50 minutes/chapter. All exams will be unique for each student. If you have a medical reason which may cause issues with this policy, please contact me so arrangements can be made. Only bereavement or medical issues qualify for extensions. ***There will be no early exams!***

Approximate Test Schedule (Subject to Change)

Test	Date	Material
1	June 9, 2020	Chapters 21 through 23
2	June 23, 2020	Chapters 24 through 27
3	July 8, 2020	Chapters 28 through 30
4	July 21, 2020	Chapters 31 through 33
5	July 30, 2020	Chapters 34 through 36 with 37 as extra-credit.

At the end of the term, a student may opt to take a cumulative final exam that will replace the scores of all examinations. The optional final exam will not be curved. ***Students must have an overall effort grade of at least 70% to qualify for the optional final exam.***

Homework: 50 Total Points

I will randomly select one homework problem to which you will have 15 minutes to take a picture of your work and upload it to Blackboard. The expected content of your submission is a derivation of the equation with the

unknown characteristic as the dependent variable and only constants and supplied quantities represented as independent variables in the expression. All work must be shown for credit. Expression must be simplified and contain no complex fractions. Submission dates will be the class after exams 1 through 4, and the class before lecture 5. See example for a guideline.

Example: What is the diameter of a circle with an area of 10 mm²?

A: area
D: diameter

$$A = \pi r^2 \quad D = 2r$$

$$D = \sqrt{\frac{4A}{\pi}}$$

Lab Quizzes/Mid-Term and Final Exam – 310 Points

Due to the present circumstances, labs will be pre-recorded labs conducted by one the WCC faculty. Each student is expected to watch the video and take sufficient notes to be able to demonstrate an understanding of the lab.

- Identify objectives from the associated Lesson Plan on Blackboard related to the lab.
- List sequence of steps to properly execute the lab.
- Derive mathematical models being analyzed by the experiment.
- Identify a scenario that may result in erroneous lab results.

There will be a single lab quiz, lab mid-term exam and cumulative lab final exam.

Approximate Lab Exam Schedule (Subject to Change)

Test	Date	Material
Quiz	June 4, 2020	Lab 1: Electrostatics
Mid-Term	June 25, 2020	First 6 labs
Lab Final	July 29, 2020	All (10) labs

There will be no make-up lab exams!

Incomplete/Withdraws/Audit Policy

If you stop attending class and do not officially withdraw, you will receive an “F” grade. If you elect to drop the class, you will receive a grade of “W”. There will be no incompletes (“I”) or withdraws (“W”) given for this course without special circumstances. Poor performance and changes to a major are not examples of special circumstances!

If you elect to change your status from credit to audit or to withdraw, you must do so within the period established by WCC. If you elect to audit the class, such election will require my approval and continued attendance in all class sessions.

Participation

In accordance with school policy, students who do not attend one of the first two class sessions will be dropped from the class.

If you miss a class, you are responsible for that day's material and any announcements. You are also free to leave the classroom at any time. However, there will be no replication of the the materials or announcements that you miss while not in class for your sole benefit.

Since I can only assess attendance via interaction in the virtual classroom, I have developed an algorithm that analyzes the chat window responses. Throughout the lectures, there will be random multiple-choice response questions to gauge if you are actively viewing in the virtual classroom. You will be expected to supply an answer in the chat window. If you do not interact, you will be marked as absent.

Language

All reports, presentations and responses to essay questions must be in American English. Other languages will not be accepted, and thus, the assignment will be graded as missing or incomplete. We will use a combination of the English and Greek alphabets to represent variables in the mathematical formulae as well as other common mathematical symbology.

Miscellaneous

The usage of cell phones and similar devices are discouraged during class. If you need to take a call, please step into the hall and use the nearby lobby areas. If you frequently leave the class for various reasons or absent for 15 minutes or longer, you will be marked as tardy/absent. Do whatever you want on your cell phone in virtual classrooms!

~~During exams, all cell phones must be in silent mode and placed face down on the table. If you leave the room during an exam with any cell phone or Wi-Fi capable device, you will not be permitted to complete the exam. This includes using someone else's cell phone, laptop, and any other resources outside the classroom during an exam.~~

Office Hours and Correspondence

Answering any questions, you may have, and helping you to understand the material is important and I consider it an essential part of my job. I am always available to answer your questions by e-mail, which I will endeavor to answer promptly. I can also arrange to confer directly with you, preferably at either the hour prior to, or the hour immediately following the class. If these times are not possible for you, other arrangements can be made. Contact me by e-mail no later than the day prior to the desired meeting so that we can establish a time.

Grades are important and it is my hope that each of you will attain the grade you seek. However, please understand that I can only give you the grade you have earned. To do anything other than give you the grade you have earned would mean treating your classmates unfairly and inequitably.

I will only respond to correspondence from @wccnet.edu accounts.

Safety & Security

~~Your safety and security is important to us. Here are some important safety tips for the upcoming semester. Also watch your WCC email for safety tips throughout the semester.~~

EMERGENCY NOTIFICATION SERVICE: We encourage you to sign up for the Emergency Notification Service in MyWCC. You will receive timely notifications if the College is closed due to weather or other emergency.

FIRE: If there is a fire or other reason a building needs to be evacuated, the fire alarm will ring. Exit the building using the nearest stairway. Do not use elevators. Make sure you stay at least 150 feet from the building until the all clear signal is given.

TORNADO: If a tornado warning is issued for the WCC campus area, the tornado siren will activate outside and an emergency message will broadcast throughout campus. Please seek shelter in the closest room/area designated as a tornado shelter. If you are unable to find a marked tornado shelter, seek shelter in an inner hallway or restroom, away from exterior windows.

PROPERTY SECURITY: Do not leave laptop computers, smart phones, tablets or other valuables unattended. If parking on campus, roll up your windows, lock your doors and keep personal belongings out of sight.

CALL CAMPUS SAFETY (734-973-3411 or 3411 from a College house phone) to report any suspicious activity or safety concern.

Student Conduct

The Board of Trustee Policy 4095 provides information on overall Student Rights, Responsibilities, and Conduct Code including Academic Dishonesty:

All forms of academic dishonesty including but not limited to collusion, fabrication, cheating, and plagiarism will call for discipline.

Collusion is defined as the unauthorized collaboration with any other person in preparing work offered for individual credit.

Fabrication is defined as intentionally falsifying or inventing any information or citation on any academic exercise.

Cheating is defined as intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise. This includes online resources (e.g., chegg.com, study.com, coursehero.com, slader.com).

Plagiarism is defined as the appropriation of any other person's work and the unacknowledged incorporation of that work in one's own work offered for credit.

The full policy is available at <http://www.wccnet.edu/trustees/policies/4095/>.

Accommodations

If you have a documented disability or used an IEP in high school, contact Learning Support Services as soon as possible to discuss accommodations. Learning Support Services is located in room LA 104.

Pregnant Students

The College recommends that pregnant students be proactive in communicating their situation with their instructor and WCC support offices. Pregnant students should contact the Ombudsman office (ombudsman@wccnet.edu) as soon as possible if they encounter medical situations that are impacting their ability to attend classes. Options for adjustments become limited with time.

Pregnant students should contact Learning Support Services to discuss accommodations, if needed, during their pregnancy. Additional information is available at:

<http://www.wccnet.edu/services/ombudsman/pregnant-student-rights/>

Lactation Room

~~In support of our students and employees who are nursing mothers, a lactation room is available for your use. The room offers a secure and private place for the mother to express milk for their nursing children.~~

~~Students may make arrangements to use the lactation room by contacting:~~

~~Student Resources Center (SRC) on the second floor of the Student Center building 734-677-5158.~~

~~Additional information is available at:~~

~~<http://www.wccnet.edu/services/ombudsman/lactation-room/>~~

Sexual Misconduct/Title IX Disclosure

Washtenaw Community College seeks to provide an environment free of sexual misconduct. If you are, or have been, the victim of sexual misconduct on campus or within a WCC educational program or activity – contact the Ombudsman office at ombudsman@wccnet.edu.

Information on sexual misconduct prevention, awareness, reporting methods, and victim resources are available from the WCC website at:

<http://www.wccnet.edu/consumer-information/sexual-misconduct/>

Report a Concern

The WCC Care Team can receive online reports for any concern at

https://publicdocs.maxient.com/reportingform.php?WashtenawCC&layout_id=4

or use the Report a Concern link from the WCC home page.