

THE UNIVERSITY OF PIKEVILLE
COURSE REQUIREMENT SHEET

Course Prefix & Number: PHY 223

Course Title: General Physics I

Course Credit Hours: 4 Credits

Official Course Description: Basic principles of classical physics, which will discuss mechanics and thermodynamics.

Course prerequisites: MTH 113 and MTH 114 or a pre/co-requisite of MTH 121.

Professor's Name: Dr. Robert Arts

Professor's Phone Number: 218-5476

- Leave a message if you call. Do not assume just because you tried to call that I know that you tried to call.

Professor's Home Phone Number: 437-0103

- As with the office phone, please leave a message if you call. Also, please do not call after 9:00 p.m. Eastern Time or before 9:00 a.m. Eastern Time.

Professor's E-mail: RobertArts@Upike.edu

- I do not generally check email past 9:00 p.m. So, please do not assume if you send a late message that you will get a reply that evening. Please plan ahead if you need to ask a question and expect a timely reply
- Also, please at least check for a reply if you send me an email. Far too often, I get the question "Did you get my email" and my response is "Yes, I sent you a reply" to which I get the response "Oh, I did not check." So, please do not send me a message unless you actually care about the response!

Professor's Office Location: Room 301B
Health Professions Education Building (HPE)

Professor's Office Hours: Monday = 1:00 p.m. - 1:50 p.m.
Tuesday = 12:00 noon - 12:50 p.m.
Wednesday = 1:00 p.m. - 2:50 p.m.
Friday = 9:00 a.m. - 9:50 a.m.

- Please feel free to schedule an appointment by using my online scheduler at <https://robertarts.youcanbook.me> for alternate meeting times if my scheduled office hours are not convenient for you and you wish to see me.

Required Text & Supplies:

- *College Physics* by OpenStax College. This is an open-source physics textbook available as a free PDF download from <http://openstaxcollege.org/textbooks/college-physics/get>. iBook and print versions are also available.

Professor's Website:

- <http://DrFizx.com> **Follow "The Courses I Teach" link to Physics 223**

THE UNIVERSITY OF PIKEVILLE COURSE REQUIREMENT SHEET

Course Outcomes:

Critical Thinking

Most students take this course to fulfill the related studies requirements for the biology and chemistry degree programs, so the level of instruction is not as rigorous as a course for students who plan to major in physics. However, you will be expected to comprehend fundamental concepts and apply physical reasoning to a variety of situations. Many students find physics difficult because it goes beyond memorization by requiring higher level thinking skills (levels 4 through 6 below). Learning physics is also like learning a foreign language since new words and symbols must be understood and applied correctly within the context of various physical situations.

Bloom's Revised Taxonomy of the Cognitive Domain:

1. Remembering - Recalling information
2. Understanding - Explaining ideas or concepts
3. Applying - Using information in another familiar situation
4. Analyzing - Breaking information into parts to explore understandings and relationships
5. Evaluating - Justifying a decision or course of action
6. Creating - Generating new ideas, products, or ways of viewing things

Not only are these skills needed for physics, but employers consistently rank critical thinking and problem-solving ability near the top of their list of desired traits in valued employees.

Upon completion of the course the student will have learned to:

- Analyze experimental data to determine patterns, relationships, perspectives, and credibility; use computer spreadsheets, and graphing programs to assist in quantitative analysis; and consider the possible effects of measurement errors on calculations. (Analyzing)
- Analyze the motion of an object in one and two dimensions. (Analysis)
- Apply Newton's three laws to predict the outcome of static and dynamic situations. (Applying)
- Integrate work, energy, and power to determine the relationships between these concepts. (Creating)
- Investigate the relationship between impulse and momentum in linear and two-dimensional collisions. (Analyzing)
- Analyze the conditions for equilibrium of a rigid body that is turning (torque and angular momentum). (Analyzing)
- Analyze the quantitative relationships among force, area, and pressure in fluids to specific situations related to buoyancy, hydraulics (Pascal's law), and Bernoulli effects. (Analyzing)
- Quantitatively and qualitatively predict the outcome of heat transfer. (Creating)
- Analyze the Ideal Gas Law in terms of the Kinetic Theory. (Analyzing)
- Apply the Laws of Thermodynamics to given situations. (Applying)

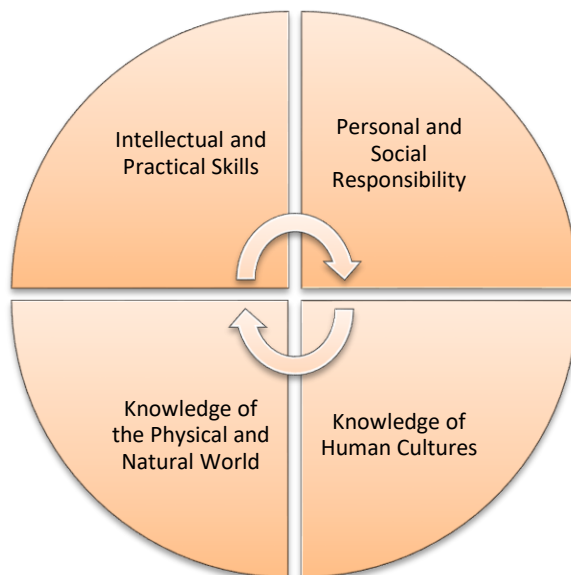
THE UNIVERSITY OF PIKEVILLE COURSE REQUIREMENT SHEET

Course Contribution to the General Education Outcomes:

The successful University of Pikeville graduate will learn how

- to think
- to learn
- to express (thoughts and learning).

These three goals overlap and nurture each other. They are aligned with 4 equally integrative Learning Outcomes, displayed in the diagram below:



Successful completion of PHY 223 will contribute to a student's being able to demonstrate these outcomes by:

- adequately writing answers to open response essay-type questions on each of the required examinations.
- applying specific mathematical equations to answer questions within each of the required assignments.
- by performing data analysis, concept application, and information synthesis in their analysis of physics concepts.
- by applying the student's knowledge of physics to real-world physical situations.
- by drawing together elements from chemistry, physics, engineering and mathematics.

THE UNIVERSITY OF PIKEVILLE
COURSE REQUIREMENT SHEET

The **Approximate** Course Outline:

DATE	LECTURE MATERIAL	LAB
Monday, August 21, 2017	Class Policies and Procedures	No Lab
Wednesday, August 23, 2017	Introductory Material	
Friday, August 25, 2017	Introductory Material <ul style="list-style-type: none"> • HW #1 due by 10AM • Mini-Zam #1 	
Monday, August 28, 2017	One-Dimensional Kinematics <ul style="list-style-type: none"> • HW #2 due by 10AM • Mini-Zam #2 	Introduction to lab requirements and Logger Pro
Wednesday, August 30, 2017	One-Dimensional Kinematics <ul style="list-style-type: none"> • HW #3 due by 10AM • Mini-Zam #3 	
Friday, September 1, 2017	One-Dimensional Kinematics <ul style="list-style-type: none"> • HW #4 due by 10AM • Mini-Zam #4 	
Monday, September 4, 2017	No Class – Labor Day	No Lab
Wednesday, September 6, 2017	One-Dimensional Kinematics <ul style="list-style-type: none"> • HW #5 due by 10AM • Mini-Zam #5 	
Friday, September 8, 2017	One-Dimensional Kinematics <ul style="list-style-type: none"> • HW #6 due by 10AM • Mini-Zam #6 	

Monday, September 11, 2017	Vectors & Two-Dimensional Kinematics <ul style="list-style-type: none"> • HW #7 due by 10AM • Mini-Zam #7 	Understanding 1D Motion
Wednesday, September 13, 2017	Vectors & Two-Dimensional Kinematics <ul style="list-style-type: none"> • HW #8 due by 10AM • Mini-Zam #8 	
Friday, September 15, 2017	Vectors & Two-Dimensional Kinematics <ul style="list-style-type: none"> • HW #9 due by 10AM • Mini-Zam #9 	
Monday, September 18, 2017	Vectors & Two-Dimensional Kinematics <ul style="list-style-type: none"> • HW #10 due by 10AM • Mini-Zam #10 • UQAWA #1 due by midnight via Canvas upload 	Motion with Changing Speed
Wednesday, September 20, 2017	Forces <ul style="list-style-type: none"> • HW #11 due by 10AM • Mini-Zam #11 	
Friday, September 22, 2017	Forces <ul style="list-style-type: none"> • HW #12 due by 10AM • Mini-Zam #12 	
Monday, September 25, 2017	Forces <ul style="list-style-type: none"> • HW #13 due by 10AM • Mini-Zam #13 	Understanding 2D Motion
Wednesday, September 27, 2017	Forces <ul style="list-style-type: none"> • HW #14 due by 10AM • Mini-Zam #14 	
Friday, September 29, 2017	NO LECTURE <ul style="list-style-type: none"> • HW #15 due by 10AM • Mini-Zam #15 	

Monday, October 2, 2017	Forces	Shoot for your Grade Challenge
Wednesday, October 4, 2017	Forces <ul style="list-style-type: none"> • HW #16 due by 10AM • Mini-Zam # 16 	
Friday, October 6, 2017	No Class - Fall Break	
Monday, October 9, 2017	Forces <ul style="list-style-type: none"> • HW #17 due by 10AM • Mini-Zam #17 	The Atwood Machine
Wednesday, October 11, 2017	Forces <ul style="list-style-type: none"> • HW #18 due by 10AM • Mini-Zam #18 	
Friday, October 13, 2017	Work and Energy <ul style="list-style-type: none"> • HW #19 due by 10AM • Mini-Zam #19 	
Monday, October 16, 2017	Work and Energy <ul style="list-style-type: none"> • HW #20 due by 10AM • Mini-Zam #20 • UQAWA #2 due by midnight via Canvas upload 	Work and Energy
Wednesday, October 18, 2017	Work and Energy <ul style="list-style-type: none"> • HW #21 due by 10AM • Mini-Zam #21 	
Friday, October 20, 2017	Momentum <ul style="list-style-type: none"> • HW #22 due by 10AM • Mini-Zam #22 	

Monday, October 23, 2017	<p>Momentum</p> <ul style="list-style-type: none"> • HW #23 due by 10AM • Mini-Zam #23 	Linear Momentum
Wednesday, October 25, 2017	<p>Momentum</p> <ul style="list-style-type: none"> • HW #24 due by 10AM • Mini-Zam #24 	
Friday, October 27, 2017	<p>Momentum</p> <ul style="list-style-type: none"> • HW #25 due by 10AM • Mini-Zam #25 	
Monday, October 30, 2017	<p>Circular Motion</p> <ul style="list-style-type: none"> • HW #26 due by 10AM • Mini-Zam #26 	Sum of the Forces Challenge
Wednesday, November 1, 2017	<p>Circular Motion</p> <ul style="list-style-type: none"> • HW #27 due by 10AM • Mini-Zam #27 	
Friday, November 3, 2017	<p>Circular Motion</p> <ul style="list-style-type: none"> • HW #28 due by 10AM • Mini-Zam #28 	
Monday, November 6, 2017	<p>Rotational Motion</p> <ul style="list-style-type: none"> • HW #29 due by 10AM • Mini-Zam #29 	Centripetal Force
Wednesday, November 8, 2017	<p>Rotational Motion</p> <ul style="list-style-type: none"> • HW #30 due by 10AM • Mini-Zam #30 	
Friday, November 10, 2017	<p>Rotational Motion</p> <ul style="list-style-type: none"> • HW #31 due by 10AM • Mini-Zam #31 	

Monday, November 13, 2017	Rotational Motion <ul style="list-style-type: none"> • HW #32 due by 10AM • Mini-Zam #32 	Torque
Wednesday, November 15, 2017	Rotational Motion <ul style="list-style-type: none"> • HW #33 due by 10AM • Mini-Zam #33 	
Friday, November 17, 2017	Solids and Fluids <ul style="list-style-type: none"> • HW #34 due by 10AM • Mini-Zam #34 	
Monday, November 20, 2017	Solids and Fluids <ul style="list-style-type: none"> • HW #35 due by 10AM • Mini-Zam #35 • UQAWA #3 due by midnight via Canvas upload 	No Lab
Wednesday, November 22, 2017	No Class – Thanksgiving Break	
Friday, November 24, 2017	No Class – Thanksgiving Break	
Monday, November 27, 2017	Solids and Fluids <ul style="list-style-type: none"> • HW #36 due by 10AM • Mini-Zam #36 	Moment of Inertia Challenge
Wednesday, November 29, 2017	Solids and Fluids <ul style="list-style-type: none"> • HW #37 due by 10AM • Mini-Zam #37 	
Friday, December 1, 2017	Solids and Fluids <ul style="list-style-type: none"> • HW #38 due by 10AM • Mini-Zam #38 (No Rework Option) 	

Monday, December 4, 2017	Information on & Review for the Final <ul style="list-style-type: none"> • HW #39 due by 10AM • Mini-Zam #39 (No Rework Option) • HW#7 (Solids and Fluids) due by midnight to Quest ** Last day to submit extra credit work; 10 a.m. deadline **	No lab
Wednesday, December 6, 2017	Study Day – No Classes	
Friday, December 8, 2017	Comprehensive Final Exam	

- You are responsible for the complete content of anything said during each lecture. Online lecture notes are provided to you so you are aware of what is intended to be covered each day. You'll not need the text to completing your homework assignments but you may find it a useful reference to read in addition to the lecture and online lecture notes.

Course Structure:

We will be meeting MWF week to discuss aspects of physics that range from the basics of linear and rotational motion to buoyancy.

Assignments

HOMEWORK: This course makes use of the web-based Quest content delivery and homework server system maintained by the College of Natural Sciences at The University of Texas at Austin. **This homework service will require a \$30 charge for its use, which goes toward the maintenance and operation of the resource.** At some point during the second or third week, when you log into Quest, you will be asked to pay via credit card on a secure payment site. You have the option to wait up to 15 days to pay while continuing to use Quest for your assignments. If you are taking more than one course using Quest, you will not be charged more than \$60/semester. For payment questions, email quest.fees@cns.utexas.edu.

- *There is usually a 24-hour processing time for payments. So, do not wait until the last minute to pay (like the day a HW assignment is due) or you will not be able to submit work and your assignment will be counted as a zero.*

THE UNIVERSITY OF PIKEVILLE COURSE REQUIREMENT SHEET

You are responsible for downloading the homework and submitting the assignment answers, back to the web, prior to the due date and time. You begin the process by following the procedure below:

- a) You must obtain an electronic security ID from the University of Texas. You begin this process by linking to the following web site: <http://quest.cns.utexas.edu>
- b) You will follow the directions listed on that page.
- c) You will need to enter the unique ID number for this course which is "00223."
- d) Download: Students' Instructions (if so desired)
- e) Access/Download the "Getting Started" question.
- f) You may revisit the HW site by using the link: <http://quest.cns.utexas.edu/student>
 - Correctly submit the answer to the "Getting Started" question before the next class meeting; this way I can see that everyone has registered with the system okay and is not experiencing any major problems.
 - **If you do indeed complete this step (registration, download, and submission of the CORRECT answer to the "Getting Started" question) before the beginning of the second day of class (Wednesday, August 23, 2017 @ 10:00 a.m.) then you will be rewarded with 5 extra credit points to begin your semester!!**
 - The "Getting Started" question is not figured into your course grade in any way. It is intended as a procedural check only.

The homework for the course is being designed as a form of Formative Assessment. Formative assessment is a range of assessment procedures employed during the learning process to modify teaching and learning activities to improve student attainment. It typically involves frequent feedback for both student and teacher that focuses on the details of content and performance.

There are several purposes to formative assessment:

- to provide feedback for teachers to modify subsequent learning activities and experiences
- to identify and remediate group or individual deficiencies
- to move focus away from achieving grades and onto learning processes, to increase self-efficacy and reduce the negative impact of extrinsic motivation
- to improve students' metacognitive awareness of how they learn
- frequent, ongoing assessment allows both for fine-tuning of instruction and student focus on progress

Because of this instructional methodology, homework assignments will be assigned **DAILY** and are generally comprised of one multiple choice question (worth up to 10 points) AND one open response question (worth up to 25 points) related to the day's lecture material. More conceptual topics will likely not have an open response (numeric) question and as such a larger number of multiple choice questions will be assigned with the total points = 35.

THE UNIVERSITY OF PIKEVILLE
COURSE REQUIREMENT SHEET

- The assignments are due by 10:00 A.M. eastern time (the beginning of class-time) on the day (MWF) after the lecture material for that homework assignment has been covered. Each assignment's due date and time are indicated with the homework set. The UT computer will not accept late work for any reason....so get the problems in on time!
 - Problem sets are generally posted between 12 noon – 1PM on the MWF following lecture.
- There are thirty-nine (39) homework assignments scheduled to be given this term worth up to 100 percentage points each (based on the 35 possible points available on each homework assignment). The average of the **BEST** thirty-seven (37) of these homework assignments comprises 12% of your final course grade. However, if fewer than thirty-nine homework assignments end up being assigned, the total homework percentage for the semester is still 12% for the group of homework assignments completed, minus the lowest TWO that will still be dropped!
- I am willing to assist you in any way I can with the homework assignments; short of just giving you the answers. If you want help, please ask!! My willingness to be helpful decreases as the due date/time gets closer. The assignments are useful learning tools and should not be treated as just a thing you want to get a good grade on.
 - For example, if at 9AM the morning an assignment is due you send a message that you need help with the problems, I'm not going to be very sympathetic. Each day in class I will cover enough information for you to complete the given set. I suggest you start the problems the night after we cover the material and not wait till the last minute and realize that you have a bunch of questions.

FINALLY, with respect to the homework:

- Keep all decimal places when doing each calculation step and when entering your final answer. The UT system automatically compares your answer to what it calculates and marks it incorrect if it is greater than $\pm 1\%$ of the true answer.
- When entering very large or very small numbers, it is best to use scientific notation. When entering scientific notation into the UT system, you will need to use the following convention:
 - 5×10^6 goes into Quest as **5e6**
 - 5×10^{-6} goes into Quest as **5e-6**
- You do not have to include the units in the final answer you submit. The system assumes that any number you enter has the units the question asked for.

THE UNIVERSITY OF PIKEVILLE COURSE REQUIREMENT SHEET

UQAWA: A Universal Qualitative Analysis Writing Assignment (UQAWA) is a method of assessing and enhancing a certain aspect of your critical thinking skills, namely, the ability to

1. Determine which physical quantities are relevant to understanding a given physical situation;
2. Determine which equations relating those quantities are relevant to understanding the situation;
3. Use those equations to qualitatively describe how the physical situation will play out.

For example, if you're asked why a block of lead is heavier than an equal-sized block of aluminum, you should know first that the densities, masses and volumes of the two blocks are the relevant quantities. Next you should recall that density ρ is the ratio of mass (m) over volume (V). Hence, for blocks of equal volume V , the mass of the lead block is $m_{Pb} = \rho_{Pb} V$ while the mass of the aluminum block is $m_{Al} = \rho_{Al} V$. So, the fact that $\rho_{Pb} > \rho_{Al}$ makes the mass of the lead block greater, and hence it feels heavier.

UQAWA's should be concise, i.e., they should be short, but all of the necessary pieces should be included. Most UQAWA's should be less than two pages of type-written material. Which brings me to another point: UQAWA's must be typed. You will need to get to know how to use the equation editor on your word processor. Ask for help if you need it.

All UQAWA's will be divided into the following four sections:

- Description of Phenomenon
- Relevant Quantities
- Relevant Equations
- Explanation of Phenomenon

There are three UQAWAs scheduled to be assigned this semester; corresponding to the topic areas we're going to cover. Each UQAWA assignment is worth up to 100 percentage points each and the total of the three assignments comprise 9% of your total course grade. If fewer than three UQAWA's end up being assigned, the total UQAWA percentage for the semester is still 9% for the group of UQAWA's completed.

- UQAWA's will to be submitted via a link within our Canvas course room.
- A more complete UQAWA Description, a UQAWA Example, the UQAWA Grading Rubric, and a UQAWA submission template are each available for download from our course website.
- If you send me a draft, I am willing to provide feedback regarding your UQAWA assignment. It may be as simple as "good job" or "you might want to consider..."; something to give you an idea if you're on the right track. I'll not grade a draft or tell you what sort of score you will be given; nor will I tell you exact items to change.
 - For example, if my response to your draft is "Looks fine, no additional comments necessary", what I'm indicating is that you have "A" work shown (90+ %); this does not necessarily mean you have 100%!

THE UNIVERSITY OF PIKEVILLE COURSE REQUIREMENT SHEET

- Additionally, you are permitted no more than TWO draft submissions per UQAWA assignment. This is not an exercise in how much feedback you can get from me but rather how well you can put together the information provided.
- **Finally, I will provide NO feedback / advice / help / answers / etc. within 27 hours of the due date/time. I'm willing to provide comments on your work if you're willing to start on it ahead of time and not wait till the last minute to get it done. Keep this in mind!**

MINI-ZAMS: These mini-zam items are being designed as a form of Formative Assessment. Formative assessment is a range of assessment procedures employed during the learning process to modify teaching and learning activities to improve student attainment. It typically involves frequent feedback for both student and teacher that place the focus on the details of content and performance.

There are several purposes to formative assessment:

- to provide feedback for teachers to modify subsequent learning activities and experiences
- to identify and remediate group or individual deficiencies
- to move focus away from achieving grades and onto learning processes, in order to increase self-efficacy and reduce the negative impact of extrinsic motivation
- to improve students' metacognitive awareness of how they learn
- frequent, ongoing assessment allows both for fine-tuning of instruction and student focus on progress

These mini-zams will generally be one multiple choice question (worth up to 10 points) AND one open response question (worth up to 25 points) related to the previous day's lecture material; including any relevant connecting material. To receive full credit for a multiple-choice question, both the correct answer and a reasonable explanation must be given. To receive full credit for an open response question, a full (all steps shown) and reasonable explanation must be given.

- The mini-zams will be given **EVERY CLASS DAY** during the last ten to fifteen of the lecture. If you have prepared for the mini-zam by reviewing the previous lecture day's material, worked the associated HW problems, and attempted several related sample problems, then you should be able to complete the mini-zam in the assigned time frame. They are designed for you to spend approximately 3 minutes on the multiple-choice item and approximately 7 minutes on the open response item. **NOTE HOWEVER, ALL mini-zams will be collected by 11AM...no exceptions! It is not fair to those that would like to have had more time but had class following our course. So, study and be prepared!!**
- Finally, you MAY NOT take your mini-zam using RED ink; any other color is fine! **Anything written in red ink will not be graded!**

THE UNIVERSITY OF PIKEVILLE COURSE REQUIREMENT SHEET

There are thirty-nine (39) mini-zams scheduled to be given this term worth up to 100 percentage points each (Based on the 35 possible points available on each mini-zam). The average of the **BEST** thirty-seven (37) of these mini-zams comprises 50% of your final course grade. However, if fewer than thirty-nine mini-zams end up being administered, the total mini-zam percentage for the semester is still 50% for the group of mini-zams completed; with the lowest two still being dropped.

Missed Mini-Zam Policy: A missed mini-zam can be made up (assuming the "late assignment policy" notification is followed). However, due to the nature of these assessments, they **MUST** be completed **BEFORE** the next regular class meeting (9:50AM completion deadline)! So, for example, if you miss a Monday's mini-zam and assuming you contacted me and provided a valid excuse, you will have until 9:50AM on Wednesday to complete the makeup. After that time, you will have forfeited the points for that missed mini-zam. This policy is in place if you had a valid reason for not being in class...however, if you begin to abuse this policy (greater than 10% of the mini-zams having to be made up), then you will run the risk of not being able to make future ones up at all. Basically, the more you are in class the better off you will be in this course!

- As with taking a mini-zam in-class, there is a completion deadline for all make-ups as well. Based on the in-class schedule, a make-up mini-zam is allotted a maximum of 20 minutes from start to the turn in time. You are not permitted, nor would it be fair, to award extra time for attempting this assessment outside the normal class time.
- *If you miss the final mini-zam of the semester (given on the last day of the course) you will have 24 hours to complete this make-up.*

LABORATORY: In the laboratory, you will learn based on your own direct observations of physical phenomena and what you can infer and reason from these observations in collaboration with your fellow students and the laboratory instructor. You will learn science as you do science. You will reinforce and apply your new ideas in homework and other in class activities as well as pulling elements from those exercises into the laboratory. You will realize that thinking scientifically is not mysterious but a process that can help you better understand the world around you.

- **Required Text:** Arts, R. (2017). Laboratory physics: Part I. Pikeville, KY: Published by the author.
 - *Available for download from the course website*
 - You **MAY NOT** print your laboratory assignment in the lab itself. This is a waste of the laboratory resources. So, please plan. If you want a printed copy, please get one before you arrive.

THE UNIVERSITY OF PIKEVILLE COURSE REQUIREMENT SHEET

There are eight formal laboratories scheduled to be completed this semester along with three scheduled challenge laboratories. The formal laboratories will be graded based on the pre-laboratory assignment and the laboratory reports that are completed during the semester. Each of the formal laboratories is worth up to 100 percentage points each and as a total group comprises 8% of your total **course** grade; if fewer than eight formal laboratories end up being assigned, the total formal laboratory percentage for the semester is still 8% for the group of formal laboratories completed. The challenges will be graded based on your in-lab participation and note taking completed during the challenge; as well as your result. Each of the challenges is worth up to 100 percentage points each and as a total group comprises 6% of your total **course** grade. If fewer than three challenge laboratories end up being assigned, the total challenge laboratory percentage for the semester is still 6% for the group of challenge laboratories completed. The total of the formal laboratories and the challenges comprises 14%** of your final **course** grade.

*****You MUST pass the lab (based on the points earned from the total points available in the laboratory; formal labs and challenges) with at least a 60% in order to pass the entire course. A total laboratory grade lower than 60% will result in an overall failing grade for the entire course!***

- PARTNERS: All work in the laboratory will be done with partners in groups of three - four. It is important that partners engage in discussion of their experiences and ideas and avoid working in different sections of the laboratories as isolated individuals. Additionally, we WILL change group members for EACH lab during the semester. If you feel strongly that you are unable to work with someone in the class, please discuss this with me as soon as possible.
- LAB REPORTS: Lab work will be evaluated on your ability to not only perform each laboratory experiment but to communicate those results in written form. Report writing is a required part of many occupations. Professional scientists and engineers, for example, after carrying out a design or analysis task, typically write up the results in the form of a report. Good report writing is therefore an essential skill in modern society. In all cases, the written report is a vehicle for dissemination of information. Bear in mind that I will read your report, and that you want me to understand what you are trying to say. A good report must therefore be written in a clear and concise style, and must convey the information in a logical step-by-step sequence so that I am led inexorably to the same conclusion that you arrived at.
- In the experiments proposed in this course you will be given specific objectives towards which to work. To meet those objectives, you must develop a logical argument, which culminates in a conclusion. The report should therefore follow a carefully considered, step-by-step logical sequence to arrive at that conclusion. Along the way you must convince me at each stage that you have done the right thing and that you have made the correct interpretation of your results. When writing your reports, it may help to imagine that I know nothing about the experiment. That is, you must then provide the necessary background, inform me of what you did, and persuade me of your conclusions. If you develop a logical and complete argument, then I will arrive at the same conclusion.

THE UNIVERSITY OF PIKEVILLE
COURSE REQUIREMENT SHEET

- A general “Physics Laboratory Report Expectations” document is available on the course website. Specific and appropriate sections of these expectations will be discussed for each laboratory assignment. Please ask me if you have any questions regarding these expectations.
- Each of your laboratory reports will be scrutinized very carefully for completeness, the comprehensiveness your conclusions, and the final percentage error/difference that you find (if applicable). A grading rubric can also be found on the course website.
- **Each group will complete a SINGLE lab report for each laboratory; principally working together to not only collect the data but to analyze and report findings. Basically, I am changing your goal in the Education Game from “Get a higher grade than my classmates” to “Get to the best answer.” This also requires you to make new rules for completing the final laboratory report. Obviously, when you make the rules there is no reason to cheat. So, cooperation will be required, participation on everyone’s part is essential, and the final score will be the same score received by all lab partners.**
- There is also a PRE-LABORATORY ASSIGNMENT associated with each formal laboratory to be completed this semester; this should be done as an individual effort and will be submitted individually for each of the nine formal laboratories. I expect that you have read and are at least moderately familiar with the laboratory to be completed each week; with the theory behind the experiment(s) we are conducting and the basic procedure that you will follow. To better prepare you for the lab and to encourage you to read the lab prior to walking in the door, a pre-laboratory assignment will be completed prior to the beginning of each laboratory. The assignment will generally consist of several questions related to the lab; its theory, and/or procedure. The answers to all the questions can be found in the corresponding lab; so, if you have actually read through the lab, you will have no trouble answering the questions. 10% of each of your formal laboratory report grades will come from the evaluation of this pre-laboratory assignment.
 - All the pre-laboratory assignments for the semester can be found on Canvas as an online assignment. Each week, one week ahead of the next lab, a new pre-laboratory assignment will be loaded into Canvas and completed online (multiple choice, fill-in-the-blank, etc.). The score will automatically be generated and logged into the Canvas grade book once completed by all students. You will have until the Sunday night before that scheduled lab for the week to complete this pre-laboratory assignment. The system will automatically shut down at midnight on Sunday and no further pre-laboratory submissions will be accepted for that week’s lab!

THE UNIVERSITY OF PIKEVILLE COURSE REQUIREMENT SHEET

- For the "challenges".....you will again work with your lab partner(s) to work toward achieving the goal of each specific challenge within the time limit of the laboratory. Generally, these challenges are exploratory, i.e. no specific instructions will be given as to what to do to reach your goal. You and your partner(s) will have to recall the underlying physics, develop the experimental technique that you wish to use, conduct your experiment(s), and attempt to achieve the goal of the challenge.
 - After introducing you to the challenge and goals, I will set you free in the lab. My role will be purely as an observer and as an aid in retrieving supplies, measuring devices or anything else you might request. I will generally offer no advice or recommendations. Your group will have to decide on everything, from what to measure....to how to measure what you need to achieve the goal of the challenge.

Each laboratory session is scheduled for a three-hour block of time. As such, the nine formal laboratories have been designed to allow you the time to not only complete the experiment(s) ask of you but to complete the required report/summary of conclusions as well. Thus, at the end of each laboratory period, you will submit your final work prior to leaving the lab. In addition, all work for the challenge activities will be completed and handed in before leaving the laboratory on those corresponding days as well.

- For the nine formal laboratories, it is assumed you finish the laboratory report and submit it prior to leaving the lab; each lab is designed for this to occur. If, for some reason, you do not finish in the three-hour time limit and would need to take the lab home to complete, your group will incur a 5% penalty.
- Additionally, the challenge labs must be completed within that three-hour time limit as well; however, there is no take-home option. If your group does not submit the lab within the three-hour time limit, there is a 1% per minute late penalty that is applied.

FINAL EXAM: There will be a **comprehensive** final exam administered at the end of the semester. It is anticipated that this exam will likely consist of one multiple choice and one open response question for each topic covered during the semester. The final exam is worth up to 100 percentage points and comprises 15% of your total course grade.

- As with the mini-zams, you **MAY NOT** take your final using **RED** ink; any other color is fine! **Anything written in red ink will not be graded!**
- Note that the final exam will **NOT** be returned to you. You are welcome to view and discuss your results in my office but the original exam will remain with me. No photocopies of the exam will be permitted either.

THE UNIVERSITY OF PIKEVILLE COURSE REQUIREMENT SHEET

Formula Sheets (for Mini-Zams and Final)

- These are provided on the course website. They are organized by topic. You may use them for any of the Mini-Zams or the Final.
- ONLY the printed, online formula sheets may be used, NOT the PowerPoint slides, the online lecture notes, or your own lecture notes. Additionally, while you MAY write formula variations on the printed sheet, you MAY NOT have any figures, diagrams, or sample problems, etc. Violations of these rules, at minimum, will result in the confiscation of the formula sheet and a possible zero for the assessment.
- **You will only be permitted to view the formula sheets in their printed form.**
- **NO electronic viewing will be allowed!**
- **Additionally, NO sharing will be allowed...you must have your own copy of the formula sheets if you intend to use them!!**

Academic Assistance Center:

The Academic Assistance Center at the University of Pikeville provides academic support for students. The center is staffed by faculty, staff and students and offers individual or group peer-tutoring services. Students are also welcome to visit the center to study, complete assignments, or work with a study partner or group. All services of the center are provided at no cost to University of Pikeville students, and the University encourages all students to take full advantage of these services.

The Academic Assistance Center is located on the ground floor of the Allara library. Hours of operation and tutor availability are posted in each classroom building and are communicated to faculty and staff at the beginning of each semester. Services are provided on a drop-in basis according to posted information. Students may contact Libby Shockey, 218-5328, for more information.

Use of Technology:

The course is a lecture format but utilizes a significant number of online resources.

- You may view the course lecture notes and related course materials by accessing the course web page:

<http://drfizx.com/courses/physics/223/physics223.html>

- Additionally, several assignments will be available and/or submitted from our course site in Canvas.

THE UNIVERSITY OF PIKEVILLE
COURSE REQUIREMENT SHEET

Course Requirements & Evaluation:

The anticipated final course grade will be based on the breakdown below:

Homework:	12% (37/39 anticipated)
UQAWA:	9% (3 anticipated)
Mini-Zams:	50% (37/39 anticipated)
Lab:	14% (8 anticipated formal labs @ 8.0% + 3 anticipated challenges @ 6.0%)
Final Exam:	<u>15% (1 scheduled)</u>
TOTAL:	100%

- Course grades are kept in Canvas and updated weekly.

** Grade Determination Scale: The grade scale for the class is based on the 10% grade range listed below:

<u>Grade Range</u>	<u>Letter Grade</u>
100.0% - 90.0%	A
89.9% - 80.0%	B
79.9% - 70.0%	C
69.9% - 60.0%	D
59.9% - 0.0%	F or FN

- Important to the determination of your level of participation is the Failure for Non-attendance/Non-participation grade (FN). For Physics 223, the FN grade will be assigned if you receive a failing grade for the course AND you had missed 11 or more total class days ($\approx 25\%$) or have failed to complete 25% of the required assignment points. This ONLY applies to those that FAIL the course.
- Your final average in the class will include the points from any extra credit that you complete. Extra credit can only serve to help move you into a higher-grade bracket.
- I reserve the right to move you into a higher-grade bracket if you have a border-line grade and if it is deemed appropriate.
 - For example: Say you earn a final course grade of 68%; clearly that is a "D." Whether I would consider bumping that grade to a "C" is based solely on YOUR semester-long, course performance. Did you submit all the required HW assignments and UQAWA's? Did you make up all missed mini-zams? Did you attend and participate in all laboratories? Was it just that a few of your completed assignments were below average and dropped your overall score or was it that you elected to not submit one or more assignments? Basically, if you've done everything you were supposed to do and just missed the mark a bit, then I'll likely give you a bump. However, if your score includes missing work then you clearly "dropped the ball" and could have earned a higher course grade on your own; as such your final percentage will have also to stand on its own.
 - I've already done my part ahead of time by dropping two mini-zams, dropping two homework assignments and offering extra credit. So, the rest is up to up!

THE UNIVERSITY OF PIKEVILLE COURSE REQUIREMENT SHEET

Late Assignment Policy: As all the material is important to your understanding of the course, absence from the lecture requires you to make up or submit any missed assignments. I will only give permission for a make-up provided a valid excuse is presented within **24 hours** of the missed assignment. In addition, if you are aware of an upcoming lecture meeting that will be missed due to prior obligations, please contact me ahead of time to make arrangements to complete or turn in any assignments that are due that day. I acknowledge that many of you have additional responsibilities outside of this class (work, family obligations, university functions, etc.) or unforeseen reasons for missing may arise (family emergency, illness, weather, etc.). However, this is no excuse for missing class and/or missing class work. I do not distinguish between an excused vs. an unexcused absence...not being in class and missing work is the same regardless.

- If you know you're going to be missing "several" times for a known reason (sports, cheerleading, academic team, scheduled medical procedures, etc.), then don't miss class for NO reason (sleeping in, didn't feel like coming, etc.). I'm not going to be very sympathetic to your missing for seemingly legitimate reasons if you're missing for not-so-legitimate reasons!

Do not assume that I will ask you to make up or submit any missed work; because I will not. It is your responsibility to contact me and make these arrangements! Finally, if you are aware that you will not be in class on the day when an assignment is due, you are still responsible for submitting that assignment on time! This means that you have three options:

- Submit the work early
- Send your work with a friend to drop off for you
- Understand that there will be a deduction if you submit the assignment after the due date/time.

The penalty for late work is as follows (which includes weekends, holidays, etc.):

- Not on time but less than 12 hours late (< 0.5 day) = -10%
- 12 hours (0.5 day) - 24 hours late (1 day) = -20%
- 24 hours (1 day) - 36 hours late (1.5 days) = -30%
- 36 hours (1.5 days) - 48 hours late (2 days) = -40%
- 48 hours (2 days) - 60 hours late (2.5 days) = -50%
- 60 hours (2.5 days) - 72 hours late (3 days) = -60%
- 72 hours (3 days) - 84 hours late (3.5 days) = -70%
- 84 hours (3.5 days) - 96 hours late (4 days) = -80%
- 96 hours (4 days) - 108 hours late (4.5 days) = -90%
- Greater than 108 hours late (> 4.5 days) = -100% = Zero Credit

Based on the assignments listed for this course, this policy primarily applies to the submission of your UQAWA assignments and the online HW.

THE UNIVERSITY OF PIKEVILLE COURSE REQUIREMENT SHEET

Attendance Policy: All the material is important to your understanding of the concepts presented. In addition, the pace of the class is quite rapid. Therefore, you are strongly encouraged to attend all classes. Failure to attend class will only serve to hurt your chances in the course.

- One bit of assistance here is your ability to access Dr. Arts' class notes from a missed lecture. While you can certainly get notes from your friends, my annotated slides from each day's lecture can be requested by email. This way you know exactly what slides were covered and what you're essentially responsible for the next class day's mini-zam.

In addition, attendance is required for all laboratories. By not attending a laboratory you only serve to hurt your chances for a good grade in the course. Don't expect to make up a missed laboratory unless you submit a valid excuse within a 24-hour period.

Additionally, due to the nature of the group work and the schedule for the laboratories, arriving to lab late will have a negative effect on your laboratory grade as well. If you cannot attend a scheduled class meeting, please contact me prior to your absence.

- If you do miss a lab...ideally you are able to attend one of the other sections offered during the week. You do need permission to attend a section that you're not registered for so I can verify that space is available. Please do not just "show up" as I may have to turn you away.
 - If this solution is not an option, then you'll have to schedule and complete a make-up for the missed laboratory within one week of your originally scheduled laboratory section; otherwise, you will receive a zero for that missed lab.

Withdrawal Policy:

- You may drop and add classes until 5:00 p.m. on the Thursday of the first week of classes. A class dropped prior to this date/time does not appear on the transcript and does not receive any grade or count as an attempt. After this date, all processed withdrawals from class will result in a grade of "W" being assigned. All course withdrawals must have your advisor's signature and must be processed in the Registrar's Office before 5:00 p.m. on the last day of classes. Note that a "W" counts as an attempt and you are only allowed to attempt a course three times; in some cases, only twice. A withdraw form is available from your academic advisor.
- From the University: "For financial aid purposes, students are required to participate (attending, taking exams, turning in work, etc.) in all of their classes. At the end of the semester, a student who has all final grades of FN, F, I or W may be subject to the University's Unofficial Withdrawal Policy -- withdrawal initiated for financial aid purposes -- which can result in a significant portion of the student's financial aid and scholarships being returned to the appropriate aid source. In turn, the student will be responsible for reimbursing the University for returned aid. To avoid loss of financial aid and the incurring of additional debt to the University, any UPIKE student who no longer wishes to remain in classes must complete the academic withdrawal process."
- However, in the unlikely event that you wish to withdraw from the course I'd appreciate you contacting me first. I will do what I can to help keep you enrolled in the course; if there is anything that can be done.

THE UNIVERSITY OF PIKEVILLE COURSE REQUIREMENT SHEET

Academic Conduct:

University of Pikeville is an academic community, and like all other communities, it can function properly only if its members adhere to clearly established goals and values. Essential is the commitment to the principles of truth and academic honesty. In order to articulate fully its commitment to academic honesty and to protect members of its community from the results of dishonest conduct, University of Pikeville has adopted the following policies to deal with cases of academic dishonesty.

Academic dishonesty includes, but is not limited to, the following acts:

- (a) Cheating: intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise.
- (b) Plagiarism: the deliberate or accidental taking of another's ideas, work, or words as one's own without properly documenting or crediting the original source in any academic exercise.
- (c) Fabrication: the deliberate falsification or invention of any information or citation in an academic exercise.
- (d) Facilitating Academic Dishonesty: intentionally or knowingly helping or attempting to help another violate any provision of this policy.

If an act of academic dishonesty is determined to have occurred, sanctions will be imposed depending on the perceived intent and extent of the offense.

Possible sanctions may include, but are not limited to, the following actions:

- (a) giving a warning;
- (b) reducing the grade for the academic exercise;
- (c) giving an "F" or zero for the academic exercise;
- (d) giving a failing grade in the course with the inability to withdraw;
- (e) reporting the matter to the Dean of the College of Arts and Sciences for further possible action.

This means don't copy your friend's UQAWAs, homework solutions, or pre-labs and keeping your eyes on your own paper during course assessments! Do your own work!

- **Giving your UQAWA/HW/Pre-Lab to another student to copy also violates this policy; this includes, but is not limited to, text, figures, diagrams, equation steps, etc. If this occurs, BOTH the original author and the copier will receive a zero for the assignment in question.**
- **Note that, all UQAWA work will be scanned and compared for originality with available websites and internet documents as well as between each student enrolled in the course. The scanning feature in Canvas does this electronically and automatically. Plagiarized work will receive zero points for ALL parties involved!**
- **There have been instances in the past of students paying other students to do their work (online HW, UQAWA, etc.); this, obviously, is an unethical and unacceptable practice. Anyone caught involved in such a venture will be removed from the course!**

THE UNIVERSITY OF PIKEVILLE COURSE REQUIREMENT SHEET

Students with Disabilities

- The University of Pikeville is committed to providing students with disabilities the same educational programs and services offered other students, in accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990 and the ADA Amendments Act of 2008. Students with disabilities requiring accommodations should contact the Disabilities Resources Office located in the Administration Building room ADM 204. Accommodations are made on an individual basis according to documented need. Additional information can be found in the University Catalog and the Student Handbook.

Contact Information:
Kathy Petot, Disabilities Resource Counselor
katherinepetot@upike.edu
(606) 218-5232
Office: ADM 204

Sexual Assault and Harassment Prevention Statement:

- The University of Pikeville is committed to providing a supportive learning environment and fostering safe, healthy relationships among our students, faculty and staff. As such, the institution and members of our community will not tolerate the offenses of sexual assault, dating violence, domestic violence, harassment or stalking. To view the UPIKE Sexual Misconduct Policy, please visit:
- <http://www.upike.edu/UPike/media/UPike/Documents/Student-Services/Sexual-Misconduct-Policy-11-13-15.pdf>
- If you have questions or concerns, please immediately contact your Title IX Coordinators listed below.

Bethany Bowersock
Title IX Coordinator
606-218-5344
bethanybowersock@upike.edu

Michael Pacheco
Deputy Title IX Coordinator
606-218-5326
michaelpacheco@upike.edu

Beth's office is in the Administration Building, Room 203, Pikeville, KY 41501.
Mike's office is located at 119 College Street, CTC Building, Room 210, Pikeville, KY 41501.

THE UNIVERSITY OF PIKEVILLE
COURSE REQUIREMENT SHEET

Extra Credit:

- **Research Paper:** 3-5 pages, typed (12-point Times New Roman font & 1" margins), double-spaced, and three or more unique references. The paper must relate directly to physics but can be biographical, historical, or subject oriented. Worth up to 10 points
- **Journal Article Summary:** Select a PHYSICS article from a scientific journal from which to do a summary. The summary includes reading the article, summarizing it, and evaluating it in a logical, clear, and scientific manner. The summary is to be no less than two typed (12-point Times New Roman font & 1" margins), double-spaced pages. Worth up to 5 points
 - The topics/sources for the papers and article summaries are to be approved by me prior to their onset. The papers/article summaries must include a cover page, a copy of the article (if applicable), and a bibliography (if applicable).
- **Out-of-class activity/laboratory:** Occasionally, topics have practical applications to the real world. For these topics, I will have out-of-class laboratory projects (or a corresponding physics-related activity) available that will provide a practical demonstration of a concept. Worth up to 20 points
- **Mini-zam Rework:** Upon receipt of a graded mini-zam, you may rework the mini-zam **on a separate sheet of paper** if you did not receive 100%. The rework should include the complete solution or explanation of (if no mathematical solution is necessary) the missed problem(s). Rewriting the question(s) is not required. Points are awarded based on the completeness and accuracy of the rework. Reworks are to be submitted, **stapled to the FRONT of the original mini-zam**, within **ONE WEEK** after the initial graded mini-zam has been returned.
 - Which mini-zam rework is due on a day is easy to calculate. If you look at the course calendar for the mini-zam number scheduled for that day, subtract four (4) and that will give you the mini-zam rework number due that day!
 - Please do not ask to turn these items in any later...it is only beneficial to you to complete this work within a dedicated and focused period after its initial attempt. Worth up to 1 point each.

THE UNIVERSITY OF PIKEVILLE COURSE REQUIREMENT SHEET

The points generated from the extra credit will be credited to your final course grade. The most extra credit possible, in any combination of the previously listed items, is 100 points. The 100 points of extra credit correspond to a **3.0%** increase in your final course grade. Whatever fraction of the 100 possible points that you submit will be factored into a proportional extra credit percentage; for example, 50 points submitted = 1.5% of extra credit added to your course grade. Failure to do the extra credit assignments will not lower your grade in any way. They are intended to help you not hurt you. **No more than ONE extra credit assignment can be completed/submitted for any class day, unless I indicate otherwise.**

FURTHER, no extra credit should be done at the expense of your required course work for this or any other course. Extra credit is optional and should be treated as such. If you are caught abusing this policy (skipping classes, etc.) for the sake of completing extra credit assignments you will lose your ability to acquire extra credit for this course.

Cell Phone Policy:

You are permitted to have your cell phone with you in class. However, the cell phone **MUST** be either set to vibrate or turned off; I do not want to hear it ring nor do you really need to have it out at all. Further, unless you are expecting an emergency call, and have cleared it with me ahead of time, you are **NOT** to answer your phone during class time. This also includes sending text messages during class time. You'll get one warning if any of these inappropriate actions occur; after which you will be asked not to return to class.

This includes **TEXTING** during class! It is rather obvious when both of your hands are under the table and your eyes are points downward that you're texting while I'm trying to lecture. While it is not disruptive to what I am doing, it is disruptive to what you are in class to accomplish...which is paying attention, taking notes, and generically trying to learn the material.

- **Additionally, you may NOT use your cell phone as your calculator. Some, but not all, assessments (mini-zams and the final) may need you to complete calculation work. It is expected that you plan ahead and have a scientific calculator with you at all times.**

You'll get one warning if any of these inappropriate actions occur; after which you will be asked not to return to class.

You might say that "it's okay, I can do more than one things at a time," but research has shown that students that attempt more than one task at a time score lower than those that focus on a single task. I will refer you to the multitasking document posted on the course website...it is an eye-opening read!

THE UNIVERSITY OF PIKEVILLE COURSE REQUIREMENT SHEET

Email:

You are **REQUIRED** to use your University of Pikeville email address for this course during the semester!! I will send email to you from time to time and you are responsible for timely responses to these emails. DO NOT say that you did not get the message because you do not use your UPIKE email...this is not an excuse. You are being told that you must use this email account for this course! I would ask that you check your UPIKE email at least once a day and I will agree to do the same. This way, if there are issues that need to be addressed, we can do so quickly.

Syllabus Acknowledgement:

Once you have downloaded and read this syllabus, and have had an opportunity to ask any questions, you are required to acknowledge the syllabus by posting in the discussion area created for this purpose in Canvas. Basically, this is an acknowledgement that you have downloaded, read, and understood the policies and procedures associated with this course, as outlined in the syllabus.

- If you do not complete this item by a set point in the course (usually near the end of the first week of class), your name will be submitted to the Registrar's office as a no-show and you will subsequently be dropped from the course. It is not sufficient that you have merely attended class; you **MUST** complete this acknowledgement to be considered enrolled!! So, take care of this ASAP to avoid any problems down the road. There will be a Canvas announcement addressing this and the associated date.

Inclement Weather:

There are instances when the university must cancel or delay classes because of weather-related emergencies. In preparing for such eventualities, the university has developed an inclement weather plan. Complete details of the plan can be found here: <http://www.upike.edu/Student-Services/inclementweather>

For our Physics 223 course, in the event of a delay, the following will serve as a reference for our meeting schedule:

<u>Meeting Times:</u>	<u>Regular</u>	<u>Delay Snow Schedule</u>
Lecture (MWF):	10:00 a.m. – 10:50 a.m.	11:30 a.m. – 12:05 p.m.
Monday Lab (Section A):	3:00 p.m. – 5:50 p.m.	3:15 p.m. – 5:50 p.m.
Tuesday Lab (Section B):	8:00 a.m. – 10:50 a.m.	10:00 a.m. – 12:10 p.m.
Wednesday Lab (Section C):	3:00 p.m. – 5:50 p.m.	3:15 p.m. – 5:50 p.m.

THE UNIVERSITY OF PIKEVILLE
COURSE REQUIREMENT SHEET

Final Thoughts:

Studying for the Mini-zams and the Final

On the course web page, I have provided you with sample homework assignments, mini-zams, old-style quizzes, and old-style midterm exams; each of which contain a solution. DO NOT assume by simply taking or memorizing these samples that you will be able to pass the in-class assessments; or do exceptional well on a homework assignment. They are provided as examples of sample questions relevant to the course material NOT necessarily the questions you will see. Certainly, those questions are good ones and they may show up on a class assignment but do not assume so. Read the notes, come to class, pay attention, ask questions, and generally attempt to understand the material covered for each assignment. Basically, STUDY!!

- Again, you are responsible for the complete content of anything said during each lecture. Online lecture notes and PowerPoint slides are provided to you so you are aware of what is intended to be covered each day. You'll not necessarily need the required text to complete your homework assignments but you may find it a useful reference to read in addition to the lecture and online lecture materials.

Disclaimer

The schedules and policies associated with this course may be subject to revision or change because of changing circumstances or events. I will provide you with reasonable notification prior to any major changes in course policies or procedures.