



## COURSE OUTLINE

### PHY220 – Physics B

CRN: 37436	Mondays & Wednesdays 8 am – 9:40 am	Credits: 3	Modality: on campus, T15
Instructor: Glenda Denicoló (PhD)		E-mail: <a href="mailto:denicog@sunysuffolk.edu">denicog@sunysuffolk.edu</a>	
Websites: <a href="https://theexpertta.com/">https://theexpertta.com/</a> and D2L (most course material will be in D2L)			
Instructor office hours:  The instructor's schedule is also available in D2L.		Online hour (via e-mail, not on campus): Mondays 6pm-7pm	
		In office (T-218): Tuesdays 10am-11:50am	
		In office (T-218): Wednesdays 10am-11:50am	
		In office (T-218):	

### CATALOG DESCRIPTION

Second or third course in a three-semester sequence of calculus-based physics offered to majors in STEM. It covers fluids, mechanical oscillations, waves, thermodynamics, and optics. (4 hrs. lecture/recitation.)

Prerequisites: MAT142, PHY130. Corequisite: PHY222. *Note: Fulfills SUNY General Education Requirement for Natural Sciences.*

### COURSE LEARNING OUTCOMES

Upon completion of this course, students will be able to:

- A. Demonstrate knowledge of the physical principles that describe fluid mechanics, mechanical oscillations, waves, thermodynamics, and optics.
- B. Understand how physical phenomena can be organized into a few qualitative and quantitative models.
- C. Apply critical thinking skills in analyzing multi-step word problems and formulating solutions.
- D. Apply differential and integral calculus when problem-solving.
- E. Transfer successfully to a STEM program at a four-year institution.

### GRADE POLICY

Activity	Points
(12-2) homework assignments	20%
(4+1) tests (highest grade of 4 will count twice, making it "5 <sup>th</sup> " test)	80%
4 extra credit assignments (optional)	4%
TOTAL =	104%!!

The final course grade will be based on a combination of several homework assignments, and 4 non-cumulative tests. The highest test grade will count twice, making a total of 5 test grades for the computation of the final grade. The lowest homework grade will be dropped at the end. Any "curving" is provided by the 4 optional extra credit assignments. There will be no other form of extra credit in this course.

Make-up for lecture tests will be allowed only ONCE and will be ONLY given to students who show documentation proving an emergency, or extenuating circumstances communicated ASAP to the instructor: DO NOT WAIT. Communications done much later after the fact, may have no effect at all. Communications of extenuating circumstances only at the end of the semester will have no effect. Reach out and speak up at the start of the semester.

There will be **NO** curving of the grades in this course. Your final grade is non-negotiable. This is the letter grade breakdown that will be used throughout the semester (notice that this is already more generous than the college's breakdown):

$$89.5 \leq A \leq 100$$

$$84.5 \leq B+ \leq 89.4$$

$$79.5 \leq B \leq 84.4$$

$$74.5 \leq C+ \leq 79.4$$

$$69.5 \leq C \leq 74.4$$

$$64.5 \leq D+ \leq 69.4$$

$$59.5 \leq D \leq 64.4$$

$$F \leq 59.4$$

**Important Note:**

At the end of the course, once all the grades are in, a 69.1 for example, translates into a D+ and never to a C. Students must understand what it means when we say, "YOUR FINAL GRADE IS NOT NEGOTIABLE". It means the grade breakdown shown IS FIRM. A difference of even 0.1 point in your final grade is NOT NEGOTIABLE. You have been warned about this since the first day of class, so you must prepare accordingly. The main benefit of extra credit assignments is to help students bump up their final grades by up to a letter grade. At the end of the course, no other activity will be given in order to change your final grade: at the end of the course, after your last test, the conversation is OVER.

According to the Family Educational Rights and Privacy Act (FERPA), **grades will never be discussed by e-mail or phone, only in person or in video conference.**

**HOMEWORK** (to be done *INDIVIDUALLY* always)

Homework assignments will help you do well in exams. Some exam questions may be directly inspired on homework questions. Other exam questions are inspired on your textbook problems, which you also need to practice solving.

Homework assignments are mandatory and worth 20% of your final grade. The assignments are available online when you register for **The Expert TA** at: <http://goeta.link/USU34NY-EB6358-331> (**you only need to use this link to register for the first time**). The access to **The Expert TA** costs \$35 for a semester: you should know that paid online homework is commonly adopted by colleges and universities. Further information about registration: <https://theexpertta.com/how-to-register/>

Once you are registered, you will access your homework assignments via login: <https://theexpertta.com> Please always check that you are in the correct class: PHY220. Homework assignments *typically* have 10-15 questions, which are estimated to take you 90-120 minutes to solve (although there is no time limit for submission). You will receive confirmation of whether or not your answer is correct immediately after the submission for each question. You will be given a maximum of three (3) attempts to reach the correct answer, and there will be no penalty up until the third trial. All assignments must be submitted by the deadlines shown in the course schedule. No late submission is accepted (zero), but you will be able to correct access the answers afterwards.

**GUIDELINES FOR SUCCESSFUL TESTS**

Your grade will come from step-by-step *complete solutions*. This is how you will be graded:

- You *must* clearly show your work for each step of each problem, no matter how trivial the step might be.
- You *must* show your reasoning in a mathematical or numerical manner, even if the problem does not explicitly say so.
- You *must* show that each step follows logically from the previous one. If you have tried several different ways of doing the same problem, you will *not* get partial credit unless your work shows a logical progression.
- You *must* present your work in a legible manner.
- You *will not get any credit even if the final answer is correct but the work shown does not support it.*
- You will lose points anytime there is a conceptual mistake at an intermediate step even if the final answer is correct.

## **E-MAIL COMMUNICATION WITH THE INSTRUCTOR**

E-mail is the preferred means of communication with your instructor. The instructor will reply to your question/request within 24 hours (with the exception of weekends and holidays). If your instructor does not reply within 24 hours it is because you did NOT succeed in sending the message, and it is YOUR RESPONSIBILITY to check whether you typed the correct e-mail address or any other simple mistake as such.

- *In person classes: in case of emergency*, you are allowed to submit one assignment by e-mail before the deadline (only once!) but a printed paper copy of your work should ALWAYS be provided to the instructor in the following class.

Notice that in the case of an emergency, the instructor may also try to get in touch with you via e-mail. The instructor will always write an e-mail to your official college e-mail address (ending in @sunysuffolk.edu). This is the e-mail address you should be reading at all times concerning SCCC official announcements.

## **WITHDRAWAL POLICY**

This instructor will NOT grant “W” after the cutoff date to any student, unless a very well justified case comes up, with documentation proving this extreme case. **The “W” cutoff date for Spring 2024: Thursday, April 4.** Only students who submit a [course withdrawal form](#) on or before this date are guaranteed a grade of “W”. Please note that this means if you stop attending class without officially withdrawing in the time period provided, you will very likely be given an F by your instructor. It is common courtesy to communicate to your instructor the fact that you are leaving the course. If you have a failing (F) average after the mid-semester cutoff, you will be given an F rather than a W as your final grade, even if you stop attending class.

## **VACCINATION & COVID-19-RELATED REQUIREMENTS FOR ON-CAMPUS STUDENTS**

### **Mandatory COVID-19 Safety Measures**

The safety, health, and well-being of students and the College community are Suffolk County Community College’s primary concern during the COVID-19 pandemic. Compliance with these mandatory safety measures will help reduce the risk of on-campus transmission of COVID to assist in keeping our campus safe so we can continue face-to-face classes and student activities. Failure to comply with the COVID-19 safety measures will result in referral to the Office of the Campus Associate Dean of Student Affairs for potential disciplinary action.

### **Vaccination Requirement for Face-to-Face Courses**

In alignment with the SUNY Student Vaccine Policy, COVID-19 vaccinations are mandatory for all students engaging in face-to-face classes and having a regular presence on campus. Students are required to provide the College with documentation verifying their vaccination status. **Students may apply for an exemption from the mandatory vaccination requirement for medical or religious reasons using the process outlined [here](#); exemptions are not guaranteed.**

### **Masking Requirements**

Currently, the College is following a “Mask Optional” policy, and students are not required to wear masks in the classroom, nor in any College buildings. However, masking continues to be an option for all members of our community. Students are encouraged to wear a mask should they wish to do so. The College will not tolerate harassment of any member of our community for their choice to wear a mask. Furthermore, wearing a well-fitted mask is required in the following circumstances:

- 1) If you were in close contact with someone with COVID-19, you must wear a well-fitting mask for 10 days from the date of your close contact with such an individual. It is strongly suggested that you get tested at least 5 days after exposure.

- 2) If you test positive for COVID-19, and have completed your required 5 days of isolation, upon your return to campus, you must wear a well-fitting mask for the next 5 days.

The College reserves the right to change the masking protocols described above, course modality or other guidance based on the local COVID-19 rates, or as required by New York State, SUNY, and the Suffolk County Department of Health Services. Students who cannot wear a face mask due to a medical condition or disability, or who are unable to remove a mask without assistance, should seek an accommodation through the [Office of Disability Services](#).

### **Course Modality Changes**

While unlikely, your course may need to transition to remote instruction should the need arise due to more restrictive local, state, or federal guidelines that compel the College to pause face-to-face instruction or due to classroom exposure related to COVID-19. Please look for announcements on Brightspace or your Suffolk email.

### **ABSENCE POLICY**

Students are advised to report COVID-positive test results, via email or phone, to the Health Services Office located on the campus where they are attending class:

- a. Ammerman [healthserv-ammr@sunysuffolk.edu](mailto:healthserv-ammr@sunysuffolk.edu) 631-451-4047
- b. Eastern [healthserv-east@sunysuffolk.edu](mailto:healthserv-east@sunysuffolk.edu) 631-548-2510
- c. Grant [healthserv-grant@sunysuffolk.edu](mailto:healthserv-grant@sunysuffolk.edu) 631-851-6709

A PCR, or a rapid test taken at a facility, or a home test, will all be acceptable. Students must provide a copy of the test result along with a copy of a photo ID.

Students should contact their instructor(s) as soon as possible if they miss class for any illness to discuss reasonable adjustments that might need to be made. When possible, students should contact their instructor(s) before missing class.

The College expects that each student will exercise personal responsibility with regard to class attendance. All students are expected to attend every class session of each course for which they are registered. Students are responsible for all that transpires in class whether or not they are in attendance, even if absences are the result of late registration or add/drop activity at the beginning of a term as permitted by college policy. The College defines excessive absence or lateness as more than the equivalent of one week of class meetings during the semester. Excessive absence or lateness may lead to failure in, or removal from, the course. Absences due to religious observance will be deemed an excused absence with no negative consequences.

Any student who enters a class after the first meeting, regardless of reason, is accountable for all course requirements including assignments and attendance.

A student may be required to drop or withdraw from a course when, in the judgment of the instructor, absences have been excessive. A student may also be withdrawn from a course by the Associate Dean of Student Services or the Student Conduct Board following a disciplinary hearing for violating the Student Code of Conduct as described in the [Student Handbook](#).

### **ATTENDANCE ON RELIGIOUS OBSERVANCE**

As provided for in New York State Education Law §224-a, student absences from class necessitated by religious observance will be deemed an excused absence, with no academic consequences. Students must notify their professor in advance of their religious observance, via their College email accounts or otherwise in writing, of

their intention to be absent from a particular class due to a religious observance; notification should occur at least one week prior to the religious observance. Observing students shall be granted reasonable arrangements and/or be permitted a reasonable amount of time to make up missed quizzes, tests, assignments, and activities covered in their absence. Please refer to the College's [Religious Observance Policy](#), which is available on the Office of Legal Affairs' website, for additional information.

### **SERVICES FOR STUDENTS WITH DISABILITIES**

PLEASE SELF-IDENTIFY TO THE INSTRUCTOR AT THE START OF THE SEMESTER.

Suffolk County Community College provides reasonable accommodations to registered students with disabilities who have self-identified and been approved by the Office of Disability Services. Once approved for reasonable accommodations, such students will be provided with a laminated letter, describing the specific accommodations. Students must present this laminated letter to each of their professors before accommodations can be provided. Students who have, or think they may have, a disability are invited to contact Disability Services for a confidential consultation. Students are encouraged to contact the office by email this semester.

#### **Disability Services Contact Information**

##### **Ammerman Campus**

Call the Disability Services Office at 631-451-4045 or email the Office at [disabilityA@sunysuffolk.edu](mailto:disabilityA@sunysuffolk.edu)

### **DIVERSITY**

In alignment with our institutional mission and strong support of diversity, equity and inclusion, Suffolk County Community College reaffirms its commitment to providing access to higher education and a welcome environment to **all** students. No matter your age, race, ethnicity, national origin, gender identity or expression, sexual orientation, family status, U.S. citizenship status, religion, socio-economic status, political ideology, military-connected status, or intellectual or physical ability - you belong here. Therefore, in this class, we will maintain an atmosphere of mutual respect, civil discourse and cross-cultural communication. The college prohibits discrimination and harassment and you can read more at:

[www.sunysuffolk.edu/nondiscrimination](http://www.sunysuffolk.edu/nondiscrimination).

### **SCCC CARES**

At Suffolk, we are **CREATING AWARENESS** and **READINESS** to **END STIGMA** about mental health issues and we know that the past year has presented unprecedented challenges to our mental health and wellness. Please know that if you need support related to your psychological, emotional, or social well-being, there are resources available to you through Mental Health & Wellness Services. To learn more about MHWS or for other wellness related resources, visit MHWS on the SCCC website under the Experience Student Life tab.

If you would like to connect with a MHWS counselor at SCCC, for **free and confidential** counseling, email us at [mentalhealth@sunysuffolk.edu](mailto:mentalhealth@sunysuffolk.edu). You can also reach out to one of us directly:

**Ammerman Campus** – Sarah Boles (451-4530/[boless@sunysuffolk.edu](mailto:boless@sunysuffolk.edu)) or Evan Haun ([451-4060](tel:451-4060)/[haune@sunysuffolk.edu](mailto:haune@sunysuffolk.edu))

## ACADEMIC INTEGRITY

### I do not tolerate dishonesty.

If I'm sure, I'll give a failing grade. If it's serious, I'll report it. If it's bad enough, you could be expelled. Examples of dishonesty include plagiarizing, falsifying data, copying another's work without acknowledgement, or receiving help from someone on a quiz or exam. See the SCCC Academic Integrity and Plagiarism Guide (see excerpt below). **Any work you represent as your own must be your own work.**

Suffolk County Community College provides students with the opportunity to demonstrate their knowledge by submitting coursework that is uniquely theirs and giving proper attribution to the work of others. Participating honestly in the SCCC academic community ensures that students can take pride in their education and their contributions to scholarship. Without academic integrity, students gain unfair advantage over others and prevent their own intellectual progress. As a student in this class, you are expected to uphold the SCCC core value of Integrity and understand the Special Procedures for Academic Dishonesty in the relevant sections of the [SCCC Student Code of Conduct](#).

The Code prohibits academic misconduct, which includes any action that results in students giving or receiving unauthorized assistance in an academic exercise, or receiving credit for work that is not their own. Academic exercise includes all forms of work submitted for credit. Academic misconduct includes, but is not limited to, the following behaviors: **cheating** on exams; **plagiarizing** - using another person's work or ideas without crediting them; **complicity** - helping a student, or being helped, to engage in academic misconduct; **multiple submissions** - submitting the same work for credit in more than one course without the instructor's permission; **falsification and forgery** - inventing information or falsifying the identity of a student.

Information about the Student Code of Conduct, plagiarism and the citation process is in the [Academic Integrity and Plagiarism Guide](#).

**Cell phones, online browsing and communication tools in general are not allowed during any test.**

**Chegg and services alike are cheating and plagiarism services**: it is an academic crime to use them to search for answers to your exam questions during an exam (that should be common sense!), or reproduction of any work that is supposed to be done by you alone. There are many ways to get help without copying or having someone else solve things for you! Yes, you can still browse the web to get help during homework and while studying (obviously NOT during exams), but you should not be looking to copy answers, you should be learning how to do something on your own, after some examples and practice. Create a study group, ask questions to the professor or SCCC tutors, follow their advice on how to study, and do not depend on those services. By the way, this professor is enrolled in Chegg's Honor Shield™ Proctoring Support Tool, where the tests are preloaded and monitored during an exam to prevent requests. Thus, this crime will not pay, don't even attempt it.

**Homework assignments must be the result of your individual work.** Students cannot share their responses. Can you work in a study group while solving the homework? Yes, but it is a fine line between working collaboratively, and just copying from one another. Be careful.

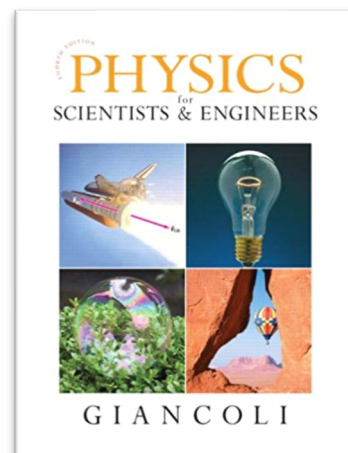
## REQUIRED TEXTBOOK:

**Physics for Scientists & Engineers, 4<sup>th</sup> edition****Douglas C. Giancoli****Pearson**

Please acquire the complete version, avoid splitting into volumes.

**PHYSICS IS ABOUT PRACTICE & ADAPTATION, NOT MEMORIZATION.  
PRACTICE IS THE KEY TO SUCCESS IN PHYSICS.**

**LOOKING AT SOLUTIONS IS MEMORIZATION, NOT PRACTICE.  
ONCE YOU UNDERSTOOD A TOPIC, USE A BLANK SHEET OF PAPER  
TO SOLVE NEW PROBLEMS FROM SCRATCH: THIS IS PRACTICE.**



## IMPORTANT PROBLEMS TO PRACTICE:

All problems of levels I and II in Giancoli are within what is fully expected of PHY220 students. You should practice all those, *even if they are not explicitly listed below*. Below is a list of essential problems: practicing the list below is a very good start.

**TO DO WELL IN TESTS, YOU MUST STUDY TEXTBOOK PROBLEMS, NOT ONLY THE ONLINE HOMEWORK.**

**Test 1****Chapter 13: Fluids**

Problems: 1, 7, 10, 13, 16, 21, 26, 27, 28, 31, 39, 43, 44, 47, 49, 55, 57

**Chapter 14: Oscillations (up to 14.5, including 14.5)**

Problems: 10, 11, 13, 14, 15, 16, 18, 19, 25, 33, 37, 38, 39, 45, 52, 72, 73, 74, 78, 85, 88, 89

**Test 2****Chapter 14: Oscillations (14.7 and 14.8)**

Problems: 56, 58, 59, 60, 61, 62, 63, 64, 65, 67, 69, 90

**Chapter 15: Wave Motion**

Problems: 8, 9, 10, 12, 13, 19, 28, 29, 32, 35, 37, 41, 43, 54, 62, 63, 67, 87, 88

**Chapter 16: Sound**

Problems: 55, 57, 64, 65, 66, 74, 90, 108, 109

**Test 3****Chapter 32: Light: Reflection and Refraction**

Problems: 4, 13, 17, 18, 19, 24, 25, 26, 43, 45, 47, 49, 53, 61, 63, 73, 75, 76, 77, 81, 83

**Chapter 33: Lenses and Optical Instruments**

All problems level I and II in sections 1, 2, 6

**Test 3 continued****Chapter 34: The Wave Nature of Light; Interference**

Problems: 7, 9, 11, 13, 17, 19, 20, 25, 27, 28, 30, 31, 37, 40, 42, 43, 44, 48, 49, 55, 56, 57, 61

**Chapter 35: Diffraction and Polarization**

Problems: 1, 7, 9, 12, 13, 19, 21, 25, 27, 31, 35, 37, 43, 49, 55, 57, 58, 59, 60, 61, 67, 73, 74, 79

**Test 4****Chapter 17: Temperature, Thermal Expansion and the Ideal Gas Law**

Problems: 37, 43, 49, 55, 67, 73, 79, 85

**Chapter 18: Kinetic Theory of Gases**

Problems: 1, 7, 13, 19, 22, 25, 31, 37, 43, 49, 55, 61, 67, 73

**Chapter 19: Heat and the First Law of Thermodynamics**

Problems: 1, 7, 13, 19, 24, 25, 31, 32, 37, 38, 43, 49, 51, 52, 53, 54, 55, 61, 67, 69, 70, 72, 73, 79, 80, 85

**Chapter 20: Second Law of Thermodynamics**

Problems: 1, 6, 7, 13, 19, 25, 31, 37, 39, 42, 43, 44, 49, 55, 61, 63, 64, 67, 72, 73, 79



# PHY220 – Physics B

Mon Wed 8 am – 9:40 am, T15  
CRN 37436

## DATE COVERED TOPICS

### Week 1

Mon	Jan 22	§ 13.1 – 4
Wed	Jan 24	§ 13.5 – 7

### Week 2

Mon	Jan 29	§ 13.8 – 10
Wed	Jan 31	exercises in Chap 13, § 14.2

### Week 3 H1 due Sun Feb 4 @ 11pm

Mon	Feb 5	§ 14.1 – 2
Wed	Feb 7	§ 14.3 – 4

### Week 4 H2 due Sun Feb 11 @ 11pm

Mon	Feb 12	§ 14.5
Wed	Feb 14	§ 14.7

### Week 5 H3 due Sun Feb 18 @ 11pm

Mon	<del>Feb 19</del>	(no classes)
Wed	Feb 21	TEST 1 (EC1)

### Week 6

Mon	Feb 26	§ 14.8, § 15.1
Wed	Feb 28	§ 15.1 – 4

### Week 7 H4 due Sun Mar 3 @ 11pm

Mon	Mar 4	§ 15.5 – 11
Wed	Mar 6	§ 16.1 – 4

### Week 8 H5 due Sun Mar 10 @ 11pm

Mon	Mar 11	§ 16.5 – 9
Wed	Mar 13	§ 32.1 – 3

## DATE COVERED TOPICS

### Week 9

		H6 due Sun Mar 17 @ 11pm
Mon	Mar 18	TEST 2 (EC2)
Wed	Mar 20	§ 32.4 – 7

### Week 10

		(official W cutoff date: April 4)
Mon	Apr 1	§ 33.1 – 2, 6
Wed	Apr 3	§ 34.1 – 3

### Week 11 H7 due Sun Apr 7 @ 11pm

Mon	Apr 8	§ 34.5, § 35.1, 4
Wed	Apr 10	§ 35.7, 11

### Week 12 H8 and H9 due Sun Apr 14 @ 11pm

Mon	April 15	TEST 3 (EC3)
Wed	April 17	§ 34.6 – 7, § 35.8, 10, § 17.1 – 3

### Week 13

Mon	April 22	§ 17.4 – 9, § 18.1 – 2
Wed	April 24	§ 18.3 – 7, § 19.1 – 5

### Week 14 H10 due Sun Apr 28 @ 11pm

Mon	April 29	§ 19.6 – 9
Wed	May 1	§ 19.10

### Week 15 H11 due Sun May 5 @ 11pm

Mon	May 6	§ 20.1 – 4
Wed	May 8	§ 20.5 – 10

### Week 16 H12 due Sun May 12 @ 11pm

Mon	May 13	TEST 4 (EC4)
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**IMPORTANT DISCLAIMER:**

General rules are printed in your Course Outline. But even if a rule is not *specifically* printed here, it may be announced only in class and it is a valid new rule that must be followed. If there are changes to any existing rules, these too will be announced in class whether or not they are in print.

Students are responsible for apprising themselves of ***anything*** that transpires in class whether or not they are in attendance. **All students need to be aware of all announcements whether or not they are in attendance:** 1) ask another student; 2) e-mail the professor and ask to update you on any new announcements. If you have missed a class, you have to ask, it is YOUR responsibility to ask.

Professors are not “babysitters”, i.e., they will not remind you all the time of the requirements presented in the course outline: you have the responsibility to know what is strictly expected from you.

All students are personally accountable for all submitted work.

You must keep track of your own progress in class. Calculate your average grade at all times; estimate your own final grade: this only requires basic math knowledge!

YOU are responsible for the grade you receive.

Your final grade is not negotiable.

Your final grade will not be tweaked/rounded at the end. Any “rounding” will be done by you as you submit extra credit assignments, for example, and extra get points for this extra work. Furthermore, pay attention to the letter grade breakdown on the first page of our Course Outline: that breakdown is already more generous than the standard college letter grade breakdown (search the college catalog). These are the reasons why once your final grade is computed it will not be altered, not even by 0.01 point.

Finally, understand that professors are just messengers in the classroom: the grade you get is not “given” to you by the professor – it is **the grade that you gave to yourself**, in direct correspondence to how much YOU have studied and learned about the subject. Taking responsibility for your own acts and taking responsibility for your own work is a good rule for life.

cut here ✂

Please return this signed slip within the first week of classes.

cut here ✂

**I read and am aware of all the information contained in the course outline of PHY220.**

Name (please print): \_\_\_\_\_ Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Your signature: \_\_\_\_\_