PHYS 102 – Principles of Physics II Spring 2027

Lecture	MWF 10:00 – 10:50 AM, location tbd
Instructors	Dr. Christoph Geiss McCook 216 Christoph.Geiss@trincoll.edu x 4191
Office hours	Tue 9AM – 10 AM Wed 1PM – 2 PM or by appointment
Text	College Physics by Knight, Jones and Field, 4th ed., either paper copy or e-text, no need to include access to Mastering Physics

Class Preparation and Homework Assignments:

The assigned time for this course is 39 class hours. The book provides material for a minimum of 49 hours. Since you guys all want to get out of here beginning of May (can't blame you), this presents a slight problem. I'll try to address it in the following way:

- I cut out a couple of chapters: Ray optics. optical instruments, quantum physics and relativity need to go.
- Some of the lost material (ray optics, optical instruments) will be made up in the labs.
- I ask you to do your part: the book is excellent, and you paid a lot of money for it. So, I am trying to save some time by not repeating the book verbatim. That means I expect you to **read the chapters before class** and **work your way through the worked exercises**. That means you should read through the chapter, do all the derivations (good way to start your notes) and really give the examples a try. Cover up the answer, read the question and really try to solve it in writing. Furthermore: when it says "Stop to Think" you might just do that. The answers to those problems are in the back of the book.

These strategies hopefully accomplish two things: it gets us to atomic and nuclear physics, which play a significant role in medicine, and it frees up some time which can be spent on more examples.

Homework assignments will be posted on Moodle. I am well aware that every single problem can be googled. In that case you probably will get yourself some guaranteed 15% of the total score. Nevertheless, I advise on doing the assignments yourself. What you gain in home works and pre-quizzes you'll be almost guaranteed to lose in quizzes and exams.

Syllabus:

The Moodle site serves as the syllabus for the course.

(Almost) Weekly Quizzes:

Most Fridays we'll have a very brief (10 min. max) quiz at the beginning of the lecture period. The date of the quizzes is noted on the Moodle site.

Exams:

We will have three hour exams. You can bring one sheet of handwritten notes (on my paper) to the exam, so you do not have to memorize any equations and formulas. These three hour exams mostly focus on the material covered since the last exam, but many of these problems have to be considered in context, so you may well be asked to relate recent material to problems covered earlier in the course. There will be a cumulative final exam as determined by the final exam schedule.

Make-up Exams and Extra Time on Exams:

Make-up exams are only available to students with legitimate reasons for missing exams, such as severe illness, death in immediate family, or participation in academic or college athletic event. If you must miss an exam please come see me **long before** the exam (or as soon as possible in case of an emergency) with **proper documentation**. There will be no exceptions to this policy. All you athletes in season: you know your schedule, so NOW is the time to talk.

If you are allowed extra time for exams or qualify for other accommodations, please come see me **soon** after the semester begins, **not** the day of the exam. I am more than happy to accommodate individual student needs but, in accordance with College policy, I must learn of these procedures ahead of time.

All these quizzes and exams serve several purposes: First, they give you immediate feedback on how well you are doing in class. Second they force you to keep up with the material throughout the semester, rather than studying just for the exams. Finally, they reduce the impact of one bad grade on your final score.

Class Attendance:

I expect you to come to class, but I will not take attendance. You are old enough to plan your own schedule, so you decide whether you want to attend class or not. Obviously you'll be missing out on whatever we cover that day and you are responsible to figure out what we did in class. If you were sick and could not attend I have no problem helping you out. If you overslept or just plain skipped – you're out of luck.

Vacation, extended trips over Trinity Days, cheaper spring vacation tickets etc. are no reason to miss class or an exam.

Grading Policy:

weekly quizzes		15%
homework		15%
3 hour exams	(10% each)	30%
final exam	(5/14/2027)	20%
Lab grade		20 %

Grades are not based on a curve, so you won't compete with your fellow students. I encourage you to study together and work on the homework problems together. Teamwork can help you to achieve this goal, but merely copying your colleague's homework assignment won't get you very far. To clarify this point further: it is OK to study together, explain the problems to each other, kick ideas around, and even arrive at a solution **together**. It is **not** OK to take a fellow student's ready-made solution and submit it as your own.

AI use – you are paying a ton of money to train **your** intelligence, not some AI model. Every single homework problem I post could be googled within seconds twenty years ago. AI makes it even easier these days. Just keep in mind: the homework is worth 15% of your grade. Weekly quizzes and exams are worth 65% of your grade. So, you do the math.

Academic (Dis)honesty:

I expect you to be honest and your own work. If you have any concerns about academic dishonesty, read the corresponding chapter in the student handbook or come and see me.

Mastering Physics and Homework Assignments:

I think Mastering Physics is great. I haven't met a student who doesn't hate it. So, let's try something new. Almost every week, I will assign 10 problems from the back of the book. These problems cover the material of a single chapter. Some problems are easy, at least one or two are harder.

Most Wednesdays you will submit your answers in class. Then we will roll the dice, picking the two homework problems I will grade in detail that week. You'll receive a perfect score on the remaining eight problems, and I'll post a detailed answer sheet covering all ten problems.

The average Mastering Physics score is easily in the 90's, so grading two out of ten problems will probably land you in the same grade ballpark.

Two rolls of the dice will give us numbers between 2 (two ones) and 12 (two sixes). Add them up, subtract one and you get the number of the problem I will grade. Repeat once more. If we roll the same number twice we'll repeat the process until we have the two problems for the week. If we roll two sixes we both win: you get a free 100%, I get to grade less. 😊

To get full credit for a problem I want you to follow good technique as outlined in the book. We'll talk about it in class.