

Hi everybody!

Thanks for (again) the most feedback I've ever received. This is the first time that I've (largely) copied each statement while reading them, so we have 8 pages of quotes. There's no particular order although the Arial represents 3:00 class, and Times New Roman represents the 4:00 class. I move the ones to the top that I respond to herein.

There is a great diversity of responses ranging from celebration to expressions of being overwhelmed. I didn't collect student perspectives before I switched to a flipped classroom and parallel pedagogy (teaching concepts simultaneously), but past (end of quarter) student evaluations have always expressed a similar full spectrum. I say this because students often attribute their experience in the class with the different way I teach, while in fact much of this may just be physics, even just *college*. For instance, this class may be the first really demanding college class you take, so people may say, "Pete's teaching requires way too much time", when in fact it may be that "141 requires way too much time" or *really* that "college classes require way more effort than I expected." When I used to lecture in the traditional way, students in my class consistently indicated that they spent more time on my 141 class than students in other 141 classes did. However, this past year, students in my 141 class indicate that they spend the same amount of time as students in other 141 classes do.

I want to respond to each of these statements. However, I don't because I may sound as if I'm correcting you. This is your space to provide your experience and feelings and I want to honor them as such.

Thanks for being part of this experience, and I look forward to the next 5 weeks.

Pete

"The videos are also pretty confusing, and I don't like how I can't ask for clarification while I'm watching the video."

**Contrasts with**

"I hear this class is more fun than other physics courses, and I think that using videos rather than class time to lecture is easier for me as a student and I think it allows us to ask more questions in class."

"I think the class is going well, with the Problem Sets, Big Exams, and midterms, but the first video project is graded in a way that feels almost like a punishment (It's taking away the grade I have earned). Also, I feel like the projects don't enhance our understanding of physics at all. If the entire class didn't get full credit on a project, then maybe your expectations/explanations of the expectations don't match up in our eyes. Other than the problems with the projects, this class is fantastic." **I agree entirely with your perspective about the first project and I sincerely apologize for miscommunicating the grade situation. I don't know if I had wrong expectations, or inadequately conveyed them, or you just were not ready yet – but the video projects need some improvement (not punishment). So my response is to try again with (hopefully) clarified expectations. If you think this has adversely affected your grade, then I've miscommunicated:**

the “- ½” was meant to convey that the video project is not adequate as is... please resubmit **for full credit**. I think this way we all learn more.

“What is the protocol? I thought I was doing it.” This is the protocol for solving dynamics problems. It’s introduced in week 3, day 1. Please look this up and you will see it in green. Also in the first assigned video, “elevator dynamics video, I demonstrate the protocol between 3:40, and 9:15. Knowing this protocol is crucially important because more than ¼ of the problems for midterm II and final are going to involve dynamics. I’m grateful to have this reflection for communication and also curious as to why it took this long for the question to come up. Did this question come up in the group? Did none of the group members know? Maybe it just takes a little more time to pick up what is required.... See below.

“What was expected of me for protocol didn’t click until MT#1, and I think it affected my grade. I’m not sure if it wasn’t clear to me before or if I hadn’t been paying attention, but either way I expect to do better on the next midterm.” And

“I feel a lot more comfortable about dynamics problems now that I’ve been actively trying to follow our dynamics protocol.”

“This class is going adequately for me. I have begun to understand the concepts and how to apply them, but I am still really struggling with the problem sets. It seems that I understand topics about a week after we first discuss it. I could pay more attention to the videos but to be honest, I rewind the videos and I still don’t understand a lot of them.” I encourage students to come to office hours. The small group of students there seem to work effectively at learning concepts and solving problems.

“I’m really not understanding the material and I spend 3+ hours a day studying, watching videos, and rewatching, and looking at answers. I can’t go to office hours because I have class..... Every time. The time I put into this class is not going to show in my final grade and I come to this class utterly lost every single day and it is stressing me the hell out. This class is destroying me and consumes all my free time.” This is a tough situation. I normally encourage struggling students to come to office hours, but you aren’t available then. However, office hours are really just students working together. You may do well working with a group of students outside of office hours too and/or with Colin’s workshops. I’ve spoken with him and he is good with more students showing up: Both workshops are every Tuesday and Thursday. There are no workshops held during finals week. 6:10-7:30 pm and 7:40-9:00 pm in 20-128 (Engineering East). If you’d like to meet with me to discuss better strategies but can’t make any office hours, please Email me requesting an appointment outside of office hours.

“Also I know grades are a subject that seems to be avoided in this class, but I don’t really have any idea what my grade is. I’ve read the syllabus but there are so many factors that are unclear on whether or not they affect your grade” I think that we’ll all learn more (and do better in the class) if we spend our time and attention on physics concepts, so I don’t spend time talking about points. However, you should have an idea of where you stand; and if the syllabus isn’t clear, please let me know what needs clarification and I’ll do my best to improve it.

“I’m not sure how I feel about the video assignments. I’m super busy with other classes and I often forget to watch the videos on time. I don’t think not watching them on time should hurt our

grade. Cause I will more than likely watch them even if it's a day or two past due." This is a good point and I think it deserves a response. Philosophically, I totally agree with you. However, the day to day practical realities of what has happened is what motivated the graded requirement: I taught a few quarters allowing videos to be watched late. Many students watched them during class, effectively flipping the class back again to a normal format. Many students watched all of them the day before the midterms. The result disrupted effective group work in class. I find it more effective with folks arriving prepared. ...And this may seem very strange and wrong, but in my opinion you have a responsibility to each other to come prepared to class to engage in an educational, social experience.

"You're not a bad professor – physics is just really overwhelming and I'm not doing well." There is a small, but consistent group of students coming to many office hours. I think they recognize that this is beneficial for them to be working together. I'm around to answer questions when they arise.

Is this learning model appropriate for people who have had physics for the first time? I know this model is used by many high school teachers. In any case...

"The class is going OK for me. Honestly, I came in knowing basically no physics and I think I'm getting it slowly, but I feel at times like class is set up for people who already know this stuff, and I often feel like I'm at a disadvantage. The videos are helpful though and I guess I just need to put more effort in to actually understand."

**Contrasts with**

"As a first year with no conceptual understanding of physics coming into the class, this class has been very good for me. I find your exercises valuable, and your devotion to improving your teaching method respectable."

"I personally am always stressed by the mid-test talking breaks during Big Exams because it breaks my focus and makes me feel more stressed for time.."

**Contrasts with**

"I do enjoy the testing environment on how we discuss them and how they are taken." and

"This class has been pretty cool. I feel like I am learning more about physics and less about formulas. I enjoy helping other people learn too."

"This style of learning works incredibly well for me, now that I have the hang of it. I will admit that, after looking at your reviews, I was very nervous. However, after trying out this method of learning, I prefer it for learning physics."

"I really wish the videos can be presented in a more organized way."

"This class is going well. One thing that throws me off is the fact that often, not always, but often the videos don't relate to what we talk about in class or the problems we work on."

"The flipped classroom works pretty well for me in terms of video at home / collaborative work in class. I think the only thing that could enhance my learning in this class is to attend office hours so that's something I'll try to make happen."

“The midterm made me realize what I was doing wrong. The class is going a lot better now. I feel more confident and I’m starting to have fun. I’m more comfortable asking people for help.”

“Right now in week 5, I feel like I need to put in some more time into this class. I am behind on a few videos and I feel like I need to solidify the past concepts a bit better. I think I should be back in the groove of things next week.”

“I think the class is good but the problem sets take too much time and are complicated.”

“In the first few weeks of this class (1-3) I was optimistic about the way this class is taught, but it really wasn’t working for me. The moment I started really liking how the class works was when I started studying for the midterm. Having a combination of Big Exams, videos, and resources from last quarter really helped me understand all the concepts from a lot of different angles. It’s also going to be really helpful to have the videos when the class starts getting more difficult because class time will be devoted to explaining the concepts rather than confusing us with new ones.”

I’m not doing great in the class...I think? To me it makes more sense when I use equations. Apparently my explanations don’t make sense though, since the grades I get aren’t the best. So, I don’t know what to do. Physics is hard ☹️”

“I am liking the class so far. The videos are nice because it allows me to work at my own pace. I dig your teaching style.”

“The way the class is run at first was very difficult to go along with. However, now it is easier to understand because we have a specific routine.”

“Learning through the videos has helped me become more flexible with my learning, and I really appreciate being given this ability. I have a very packed schedule on MWF, so I spend TR watching the videos.”

“One thing that has actually helped me a lot is listening to the Interstellar soundtrack while watching videos, reading the textbook, and doing the problems. It helps me remember concepts for the exams! Plus, It is a really good soundtrack, if you like that sort of thing.”

“I think I have adjusted to the way this class works. I like how we are able to get points for explanations and our reasoning. However, for me I like a little more structure in the class.”

“I’ve noticed a dramatic difference in my grades from when I take my time watching the videos (taking notes, etc.) that when I rush through them.”

“I think grading us on the communication of physics really tests whether or not we know our shit. It’s more challenging than plug&chug, but I feel like I’m getting more out of the class.”

“I appreciate how much you take into account on feedback. It makes me feel like you care/put in time in effort into evaluating how the class is doing. Overall, the class is going well. (My life is great! Coachella was rad!”

“I feel largely lost. I wish there was a little more structure? More indication of what I need to know and study. Despite that, I’m making it work for me. I do really enjoy the class, despite my confusion. I’ve made some friends, and love the topics before I even understand what’s happening. I like how quirky and excited you are Pete, you make the class even better! I’m worried about my grade, but it’s largely due to the fact that I don’t practice enough. I do the Problem Set, then forget about it. I’m stressed but alive. Thanks Pete!”

“This is definitely my favorite class. I really like how you use videos to teach and enable us to work collaboratively instead of making us sit through a lecture. There is nothing that I can think of that should be changed about the class. I am happy you incorporate humor. It makes a big difference for me.”

“After talking to you and visiting you during office hours, it helped, and I hope I improve a bit.”

“I’d like to be doing better and understanding things more. I know (I hope) I can if I put in more effort, but I get confused and give up sometimes.”

“I am enjoying this style of class a lot. I like how we come into class and you’ll have some sort of demonstration, or other crazy facts for us. My life is great.”

“*Hey, how are you doing?* On another note, so far this class has been OK. I was very disappointed with the Midterm grade of D+. I was able to do all questions on the practice exam and even looked back on the MT\_1s from other quarters. I just felt the exam wasn’t very similar to what I studied for the problems I worked to study. Other than that I’ve been working hard to watch all videos. I usually leave PS questions for the weekend.”

“I feel that this way of teaching is starting to grow on me a bit more. I like the fact that we are going over more problems on the board.”

“I have been pretty frustrated since the last midterm because I studied really hard but only got a C. I hope to get at least a B on the next midterm and final.”

“Really enjoying the ‘flipped classroom’ approach. However videos at times too lengthy/wordy to be understood well, along with issues with questions during the videos (ie: correct answers marked wrong, etc.) cause confusion and stress.”

“Hard to get used to the very specific requirements for test answers (ie: whole dynamics protocol)”

“I actually like how you are forcing us to look at problems in a different ‘light’ than most physics professors. Keep it up!”

“I’ve enjoyed this class a lot. I feel like I have a strong understanding of the concepts. I feel engaged in class and I always have a good time during each class. Although I enjoy working in groups, it can be difficult to work while everyone is talking.”

“I think the class is going better than it was on the last reflection. I feel like I have seen a good variety of physics problems and am comfortable approaching questions. I think sometimes we still go a little fast in class but I understand that is intended in a flipped classroom.”

“Physics is super hard and confusing and frustrating and I feel really dumb in class.”

“I think I learn the most from problem sets with other people, and correcting big exams and midterms.”

“I should rewatch the videos, but I don’t, so that should be something I need to do.”

“I really like that we are learning the concepts instead of just memorizing equations. I feel like I am learning a lot more!”

“I am not sure how I feel about this teaching style. I don’t feel like I have learned very much, and I am really struggling with knowing not to actually solve a problem. I would benefit from more lecturing and traditional teaching style. I took honors physics in high school and got an A in the class but I still feel like I am very behind and confused in this class. The material is all over the place.”

“I don’t feel like I am fully learning concepts. Instead, it feels like I am learning just a little bit of everything very vaguely. The structure of the class seems all over the place too. Also grades are very objective. There have been multiple times where everyone in my group writes the same thing and gets different grades. I do like the group work, though.”

“After receiving the midterms back, I’ve realize that I’m not a fan of the grading system just being letter grades. It seems objective to me.”

“Pete, I really like how this class is taught. I learn well from this style of teaching. The large amount of discussion we do with our classmates about the coursework has been crucial to my progress in the class.”

“Some of the videos relate to off topic things, like the music video, are honestly a waste of time.”

“I’m having a hard time adjusting to the style of this class... even if some confusion is clarified I always end up 10 times more confused over something else.

The groups help, but obviously not enough since I’m still confused all the time.”

“I enjoy the group dynamic; Being able to work on the problems with others and having the opportunity to collaborate on things. This has helped me learn things from others, as well as better my understanding trying to work on problems in a group.”

“I also feel that I have learned more than I already knew, just further developing upon the basic concepts. I am more comfortable when going through problems that I feel lost on; I just have to go through all the lenses (or the protocol), which makes things a bit more feasible.”

“So, I’m enjoying this class because the more interactive I become, the more profound my understanding gets. I make sure to watch the videos multiple times. I really need to start raising my hand during class to share my ideas.”

“I like the set up of the class and find the class discussion to be very helpful, also I feel I get to work on the lectures at my own time.”

“I’m enjoying the class overall but struggling with physics in general. Some of the concepts aren’t coming very easy. I think the videos are helpful but personally I find that I still have a hard time knowing how to do some of the in-class stuff and practice problems. I think I’m going to start coming to office hours more.”

“- Office hours seem to help a lot.... I wish I could make the more often; it’s kind of hard to configure my schedule to meet up with the office hour buddies outside of class... oh well.

- Problem sets really do help.
- Video projects have me really concerned.... Not really sure I know what’s expected of them exactly? And I want them to be good but it’s kind of hard to balance on top of everything.
- Sometimes the videos have me really confused.
- Gravity stuff is confusing.
- Still wish there was a little bit more explicit structure to the curriculum.”

“- I’m worried that students don’t have the opportunity to turn their grade around if they’re bad at test taking but spend countless hours learning this subject.

- I fear that I’m going to have no idea what to study for the next exam.
- I know that there is a limited amount of concepts, but it seems as though there are a million possible questions we could be asked.
- I also have a concern about the amount of time students must spend studying / learning about this course outside of class on some days it is almost impossible to put aside 2 to 4 hours to watch and actually absorb the ideas. This is a vicious cycle because if we skip one day, then the next day we must put aside twice that time.”

“I have found the videos to be a lot more helpful than the readings. However, I do not do very well with conceptual questions as opposed to mathematical questions, so I need to

figure out a better way to understand the way these questions are written and what they are asking.”

“I think I am finally adjusting to this style of teaching. I did very bad on the first midterm, I prepared simply through notes and videos instead of practice. I am planning (hoping) to do better on the next MT and final. I have not used the problem sets as big of a resource as I should, so I am starting to utilize those more. I got an A on Big Exam #3 though. 😊”

“So far, I’m getting more used to the flipped classroom design but I probably need to focus more and take more in-depth notes on the video. One issue I’m still having is knowing exactly the topic of each problem we do is. Another is when we get homework on tests back, it can be very hard to see what mistakes we made.”

“While I didn’t do so great on the midterm 1, I’m going to office hours every Friday and seeking outside help such as tutoring. I also have been making sure to participate in discussion with my team members and asking questions even if it might make me feel embarrassed. I’ve also changed my method when I watch the videos and no longer take notes the first time I watch it. I’m hoping all of my efforts allow me to do better on midterm 2 and a deeper understanding of each lens.”

“Your teaching style can be very frustrating, but I think that’s the point. I’m pretty sure I got marked down on the midterm for not bluntly saying my lens, even though I made it apparent what lens I was using and that’s very frustrating to be penalized on something I deemed trivial to state when I make it clear in my work. i.e. using the dynamics protocol w/o stating dynamics lens. I won’t make that mistake again that’s for sure. I do, however realize that I have learned a shit ton about conceptual physics and I can really appreciate that and applaud your teaching for this.”

“I think I haven’t done nearly as well with keeping up with homework and problem sets. I often find myself doing it before big exams rather than being turned in on time. But I think it’s still going well. I feel far less lost in this class than I started. I know a lot of my classmates don’t like the “communication” of physics as opposed to the answer being graded. But I like it and I think that it works better for me. I often don’t know the equations right off and have to think through the lenses before being able to get the ‘answer’. All is well, thank you!”

“I thought the class was working very well for me until I received the first midterm grade. I believed my communication was above par. However, I received a C+. The test seemed like your answers are correct WITH justification. I’m starting to realize that the justification has to be presented in a certain order/form. Up until the next midterm I’m going to work on how I answer questions and change my approach to consider all lenses rather than getting tunnel vision.”



"I feel that I am slowly understanding the best way to study for this class and that it is good to review what I have learned so far every day. Also, I need to explain my reasoning on problems."

"I'm feeling better about this class as it goes on. It's still really difficult for me to understand the concepts, but it is also really rewarding when I do, I'm determined to make this class work for me."

"I still really enjoy the group interaction. It gives me confidence when I can explain a concept to my peers. I also get a better understanding for things when they correct me."

Also managing time a lot better and feeling less overwhelmed."

"A lot better than the last time I did the reflection. I think if I dedicate the appropriate time to really take in the videos and ???, I will continue to do well. I also think the workshops are very beneficial because it lets me really focus on things I may have not have understood in class."

"This class is going pretty well for me. I have been stressing with the lessons a little bit but through working with my group it has gotten a lot better."

My life ??? ??? has been pretty stressful but I have been able to stay above the water."

"I like doing the problem set in class, because once I get working on it on my own, it goes a lot more smoothly. Thank you for sparking dialogue during off hours, but I hope to have a little more direction during this time."

"The class is overall excellent and has been a great opportunity to think more deeply about how to interact with problems. However, due to the deep think it takes some time to incorporate an answer. Otherwise this class has been going well."