Components of Learning

There are several factors that are required to make a course “good” (by good, I mean a healthy combination of the intellectual and the affective). Below I have described my own ideas regarding several essential facets of any course, but particularly how I will operate within PHYS 104. The following descriptions also include my expectations of a student who is enrolled in PHYS 104.

Descriptions

ASPIRATION: Physics is a framework for observing and appreciating the universe, in as much as it is a manner of explaining the phenomena within it. Therefore, a few different levels of interpretation exist for the sentence, ‘I understand physics.’ I.e., do you observe physical phenomena?; do you appreciate physical phenomena?; are you able to explain the physical phenomena that are occurring?

My approach in this course is a “both/and” mentality, where both the conceptual observation (and dare I say, appreciation) as well as the problem-solving analysis can mutually coexist. I will provide the proper atmosphere and avenues so that neither of these necessary levels of understanding need to be sacrificed. My goal for you is that you will walk away with a deeper understanding in each of these contexts.

This course assumes no higher levels of mathematics than algebra and trigonometry, i.e., no calculus necessary.

OBJECTIVES: Below is a broad list of intended course objectives for PHYS 104. These objectives will be infused into every chapter, class, and assignment that is associated with this course. Therefore, the following objectives are a concrete example of the course aspiration given above. A more specific list of concepts covered can be obtained from the course outline (see last page) or at the Bb site under ‘Concept-related Outcomes’.

At the end of the course, successful students will:
(1) Identify underlying physical phenomena within the biological and chemical realm.
(2) Parse pertinent numerical information from superfluous within contextual physics problems.
(3) Attach and manipulate units as a viable source of knowledge about the physical world.
(4) Construct organized problem solutions that demonstrate logically connected steps of thought.
(5) Synthesize numerical information, physical assumptions, and previous concepts to correctly solve wave-related physics problems.
(6) Apply analytical thinking and physical modeling to other scientific arenas.

ATTENDANCE: Roll will be taken via PRS (‘clickers’), which are provided to you by the College for use in this class. We will regularly work problems, discuss, and take quizzes within the class hour, which will provide an opportunity to highlight a student’s absence. Due to the mathematically rigorous nature of the course, you may not miss more than four classes without a legal excuse (court, hospital, police, etc.). Late
arrivals greater than 5 minutes will constitute an official absence. A fifth unexcused absence will result in a automatic drop from the course. Besides the ‘Participation’ portion of the grade, one makes the best case for a “+” with a history of regular attendance.

OFFICE HOURS: Besides the normal class hours, my office door is open to each student (at least) five more hours each week. If you are unable to meet with me during these times and still desire some help, please make an appointment with me. Drop-ins (aka. ‘drive-bys’) are at the total mercy of my daily schedule, wherein I have the freedom to say, “I’m too busy right now; please make an appointment.”

BLACKBOARD (Bb): The information found within the Bb environment is an essential component to the course itself. Notes, announcements, assignments (and solutions), links, and course documents will all be placed within the Bb pages for the course. Please do NOT forget to check the Bb before you come to class or if you have a question about previous assignments.

ACADEMIC INTEGRITY: I want to foster a mutual respect for the classroom hours that we have together. In light of this, please remember to turn off cell phones, PDAs, etc. during the class (including laptops unless you receive permission) and come prepared (e.g., book, paper, and pencil). Plagiarism exists when someone takes personal credit for another’s creative (usually written) work and will not be tolerated. Please refer to the “Integrity” page and links on Bb.


Modes of Learning

Rubric

Your grade is determined according to the following distribution.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam (3)</td>
<td>30%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20%</td>
</tr>
<tr>
<td>Lab (104L)</td>
<td>15%</td>
</tr>
<tr>
<td>Quiz</td>
<td>13%</td>
</tr>
<tr>
<td>Homework</td>
<td>12%</td>
</tr>
<tr>
<td>Participation</td>
<td>5%</td>
</tr>
<tr>
<td>Colloquium</td>
<td>5%</td>
</tr>
</tbody>
</table>

Descriptions

EXAMS: All exams are planned (by me) for completion in 1.0 hour, however, you will have up to 1.5 hours to complete each exam. Since the class begins at 8:30 a.m., each student has the option to arrive at 8:00 a.m. and begin the exam. All exams will contain comprehensive material from the previous chapters, most probably the most missed problems from the previous exam/quizzes. Make-up exams will only be allowed as a result of a discussion with me beforehand or an emergency note (death, hospitalization, misdemeanor, etc.) signed by a governing official (medical doctor, parent, law enforcer, etc.).

QUIZZES: Weekly quizzes (FRI) are completed individually in class and graded. They will consist of one problem from the homework and/or class discussion, which contain the more important concepts and/or
phenomena.

**Homework:** I will assign ONE (or two) problem that is general enough to incorporate several principles from the chapter (i.e., 'the accuracy problem'). I will grade this problem for correctness and offer partial credit (of course) where applicable. Having received an unsatisfactory grade for the problem graded for accuracy, I will accept the remainder of the assigned problems as a measure of your effort, which will be worth SOME extra partial credit (i.e., 'the completion problems'). NOTE: A maximum grade of 18/20 (90%) will be acquired with the inclusion of your completion work when the accuracy problem is incorrect.

**Labs:** You MUST be enrolled in the laboratory portion (Physics 104L) in addition to the current course. Physics 104L operates as a separate course (and is taught by a different instructor), but it counts as 15% of the course grade for Physics 104.

**Colloquium:** The MCSP department offers a series of discussions that appeal to a broad range of physics-related interests. Students in this course are invited to all offerings, but participation in at least two is required. After attending and within one week of the meeting, you will submit a one-page (single-spaced, normal margins) thoughtful reflection on the Colloquium. Please note that a reflection is NOT summative, but it selects specific portions to provide a personal and/or intellectual elaboration on the material. Any substitutions with other physics-related discussions must be agreed to before attendance.

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**Philosophy**

We all operate under a philosophy of life, i.e., a meta-narrative or a 'lifepath.' Because I spend a lot of time teaching (and even more time thinking about teaching), I also have a philosophy of education. Although the whole spiel is on-line, I've included a portion of it below so you understand (partially) my expectations as an Instructor:

Education is a two-way, relational venture. The teacher is responsible to initiate learners in the process of education, but at some point, the learner must stake personal claim in the educational endeavor. Education results when individuals open themselves transparently to the subject at hand and to the community of learners.

Education involves transformation and extends much further than information, merely acquiring a grade. If you are not convinced, or at least the slightest bit curious, that education (and therefore, this physics course) is a holistic journey (emotional, physical, intellectual, and spiritual) then this class is not for you. Not this year with me as your teacher. My goal and purpose is not just to present the material. If that is what you want from me, then you will be disappointed and frustrated.