

# MIT Department of Physics

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Physics Department Instructors

MIT

Dear Physics Undergraduate Instructors,

Following comments by Chair of the Faculty Rick Danheiser, I am writing to you regarding the assessments in our undergraduate courses this Fall. We will all face unique difficulties as courses start. I am confident that you and your instructional teams will deliver a MIT level instruction to our students, despite the the circumstances in which we find ourselves.

Here are some principles to keep in mind as you think about the design of your fall classes:

1. *Reduce workload* on students, faculty, and staff. Remember that remote learning takes more time for the same level of content. The difficulties of on-line collaboration for ``psetting``, among other things, contributes to this time expansion.
2. *Reduce stress* on students, faculty, and staff
3. *Ensure equity* between students in your class, including taking time zones into account.
4. Continue to *provide high quality assessments* for all of our students in much different circumstances that pre-COVID times.

I am encouraging all of you to consider the assessments of student mastery you will use in your subjects with an eye towards **reducing the number of assignments, reducing or eliminating ``high stakes`` assignments and avoiding on-line proctored exams**. As a working definition, a high stakes assignment constitutes 25% or more of the final grade.

I suggest reducing the total number of assignments for two reasons: first, reducing the overall flow of work that everyone has to do this Fall is consistent with Principle #1, as each assignment not only impacts student time in doing the assignment, but also the work of students and faculty who have to carry out the grading of each assignment. Second, every assignment will take more time; in order not to create additional work, fewer assignments will be necessary.

High stakes assignments run counter to Principle #2, as these are frequently exams that need to be proctored or would need to be administered on an honor system. Other high-stakes assignments (for example, a term project counting for 30% of the grade) could be broken into two parts counting 15% each. A term project could be broken into a rough draft segment that would just be a check that the student was progressing (a nod to Principle #1) and a 15% final draft that is graded.

Proctored exams will require the use of online proctoring services and run counter to Principles #1 and #2. Exams given only one time may disadvantage students in Asia or Europe (Principle #3). Exams could be given twice to account for time zones, making more work for everyone (Principle #1) and the instructional team would have to consider that students in the early exam may communicate with students taking the later exam (also Principle #1). If the instructional team really values the assessment brought by exams, they could consider several low stakes quizzes using the honor system.

A pre-COVID syllabus may have looked like this:

8.0666 Quantum Phrenology – Fall 2019	
10 weekly psets, 5% each	50%
Midterm (1 ½ hour)	15%
Final Exam (3 hours)	35%

The Fall, a COVID adjusted syllabus might be:

8.0666 Quantum Phrenology – Fall 2020	
5 biweekly psets, 10% each	50%
3 Quizzes (30 min, honor system)	30%
1 Term paper (5 pages)	10%
Final quiz (1 hour, honor system)	10%

The pre-COVID course has 12 graded assessments with two major assessments counting for 60% of the grade and requiring faculty grading. The COVID-adjusted course has 10 graded assessments. A TA could grade the short-answer quizzes, leaving the faculty to grade the term papers. This would meet Principle #4, providing quality, multi-faceted assessments while spreading the work (for everyone) out over the term.

Please give these ideas your consideration as you plan your classes for the Fall. The Department has a good history of quality and innovation in teaching and we can maintain our standards while relieving burdens on everyone.

Thank you for your engagement and support.

Thoughts and prayers,



Peter Fisher, Physics Department Head