**Final Exams Recommendations:**

While all methods for examining students remotely that we have tried have limitations, we recommend using Canvas Quizzes for your final exams. We have attached an instruction sheet for how to set up your exams. Should you run into issues, we would be glad to help you. Please contact Martha Oakley, and she will get you set up with an expert promptly.

We will work to get a reliable remote proctoring program in place by the fall semester, as we will probably offer exams remotely for large classes, even if we have some in-person elements to our instruction.

The most important thing to remember is that it will take your students longer to take their exams remotely, especially for those with poor internet or old digital devices. ***Please make your exams considerably shorter than they have been in past years! We recommend offering exams that are at most 50-65% as long as your typical exams.***

The major issues we have run into with Canvas quizzes are:

1. Cheating. C341 and C342 have both reported that approximately 10% of their students used the website Chegg on assignments that were used to replace exams. The way this site works is that students send the questions into Chegg, and their workers answer them in real time. Answers can be posted in as little as 30 minutes. Fortunately, Chegg answers led to a pattern of errors and the use of reagents with which our students are not familiar, which made it relatively easy to catch students. Physics has reported an even greater percentage of students cheating on Chegg in a take-home exam in a previous semester. We are happy to check to see if your exam materials are on Chegg and to provide you with their answers for comparison with your students’ work.

The problem has been most severe in large-enrollment classes, but there have been a couple cases in upper-level classes, too. These have been more likely to involve collaboration on the exam itself with other students.

1. Technical issues. The biggest problem is that any interruption in the internet will kick students out of the exam. In addition, if you want students to hand-write their answers and submit them, Canvas quizzes will only accept a single file per question, so students need to consolidate their answers into one pdf form.
2. Accessibility. We do have students taking exams on their phone and who do not have phones with cameras.

Suggestions for minimizing these issues:

***Cheating:***

1. Use a limited time window. We have to do this for final exams, anyway, as we need to stick to the exam schedule.
2. Use test banks with many questions of the same difficulty level on the same topics so that each student gets a different test. This is time-consuming, but it is particularly important for multiple choice exams.
3. Even if you don’t use a test bank, scramble the order of the answers so that the correct answer corresponds to a different letter for different students. See attached document for the appropriate settings.
4. Do ***not*** offer students multiple attempts to take an exam. Instead, you or an AI should monitor e-mail in real time and deal with individual connection problems as they arise (see attached).
5. ***Consider*** locking each question after a student has finished it. The Teaching Faculty are divided about whether or not to recommend this option. On the one hand, it is the best way to prevent cheating. A student will not have time to await an answer from Chegg. On the other hand, it makes it hard for students to divide their time appropriately as they take the exam. It also means that if a later question provides a stroke of insight, the student will not be able to return to it. In other words, this option makes your exam harder for honest students. ***Should you choose to lock questions after they are answered, it is imperative that you explain this to students and provide them with clear advice about how much time to spend per question.***

***Technical Issues:***

1. You or an AI needs to monitor e-mail carefully so that students who get kicked off the exam can be re-admitted. Please the attached set of instructions.
2. If you have short-answer questions that do not lend themselves well to typing, have students write them out on a piece of paper and submit them as a PDF form. ***We strongly recommend making students practice this ahead of time!*** Offer a few bonus points for a simple exercise. It will save you a lot of headaches later.
3. iPhone photos are not readable on Canvas in the default mode. Students must use a pdf or jpeg file.
4. Many of our students have found Genius Scan to be easy to use. They need to download the app on their phone ahead of time. They can find instructions for use here: <https://www.youtube.com/watch?v=GXqjI9uuDiE>​
5. Be sure to offer a backup plan—either allow students to e-mail you their answers or, better yet, provide an assignment on Canvas that allows them to submit answers if they had trouble during the normal window of the exam. The submission will be time-stamped, making it easy for you to see if they submitted it shortly after the exam ended. We want to assess their understanding of chemistry, not their internet speed!

***Accessibility:***

1. DSS students. When you assign the due date for your exam, Canvas allows you to set up a different time limit for groups of students. See the attached instructions.
2. Please survey your class well in advance of the final so that you can make alternate arrangements for students whose internet access or digital equipment does not meet the standard needed for your exam. Let Martha Oakley know if you need help resolving any of these issues.