In these notes we present a few tips that one can use to design effective exams. We separate the examination process into three distinct steps:

(1) Construction → (2) Administration → (3) Grading/Assessment

Exam Construction

1. It is extremely important you spend adequate amounts of time developing your tests. While planning a test keep the following in mind.
   - What skills/material you wish the test to measure.
   - What are the best types of questions that will help you asses how well a student knows the material.
   - The range of difficulty of the questions you wish to include in the test.
   - Length of test for your allotted time.
   - The format and layout of your exam (note that once you choose a format you should not change it throughout the semester).
   - Think about how the exam will be scored.

2. Match your test content to what you have been teaching!
   - Check to see that each question you plan on including in the test has a specific objective and what type of content it covers.
   - Create items/questions that cover subjects in alignment with what you emphasized in your lectures.

3. Check your exam before administering it.
   - Take the test yourself and time it. No cheating! Complete each question like you would like your students to do, you can use this as your answer key later.
   - Have a peer look over the test to make sure that your questions are worded appropriately, the test is not to long, there are no typos or mistakes etc.
4. Prepare your students for your exams and what your expectations are.

- **Be consistent/clear about your expectations**: If possible grade the homework with the same standards as the exam,

- **Quizzes**: prepare quizzes with questions structured similarly to the exam questions and spend time during class going over the solutions and what you expect of students.

- **Practice exams**: If possible give students a practice test a few days before the test, this will alert students of the important material they need to master for the test and also they can see what the test format will be.

- **Exam prep**: Give tips on how to best prepare for and take the test, i.e. you can state where you draw questions from such as homework, text book(s) etc.

- **Review**: If you have time during the semester allot some class time to review right before the test. If time is an issue you may also run review sessions out of class time. Paula will help you reserve a classroom!

- **Online help**: Post keys to past homeworks/quizzes in your website to help students review.

5. Clearly state your exam policies before the test.

- Make-up exams-what are your policies?

- Curving? When? How?

- Write out instructions for the test on the cover page and have peers check them to make sure they are clear.

**Test Administration**

- Declare when students can start the test before handing it out.

- Have students count all the pages of the test they received to make sure everyone has a complete test and so that students know how many questions they have to complete.

- Clearly state what items are allowed during the test, i.e. scratch paper, types of calculators, textbooks etc.

- State the time allotted for the test.

- Explain to students how they can quietly notify you if they have any questions during the test.

- Walk around/pay attention!
• Notify students a few minutes before the end of the test to encourage them to wrap up their work.

GRADING/ASSESSMENT

• Before you grade the test make sure you have assigned points for each part of a solution to your questions in the answer key- it will save you a lot of time!
• Grade consistently- check and recheck how your are grading answers for all students.
• Grade promptly!
• While grading write out comments when you take points off explaining what went wrong/how the answer could be improved.
• When all the test are graded always make sure to give it some time and then review your scores to make sure there are no mistakes.
• Take some time to discuss the test when you return them especially making sure to discuss grade distribution, common problems, address student concerns for the test etc.
• Have students share their opinions about the test. After the first test it is important to discuss with students what they feel would help to improve their performance on the next tests. More homework? More quizzes? Test was too long?
• Take time to think about the test after all the student feedback and examining the grade distribution- identify areas that need improvement.
• After the test make sure to allot some office-hour time to talk to students who might have concerns about their performance in your class etc.

MORE TIPS

Here are some tips from our past teaching experience.

• Prepare new exams each time you teach the course.

• Think of exams throughout the semester not the week before you administer it!

• Create a pool of questions from homework, quizzes, peers, students to use for future tests.

• Make your tests cumulative, try to bring in as many ideas as possible from various chapters to make sure students integrate and synthesize course content- it will make the final exam go much more smoothly and remove some anxiety.
• Offer students tips on how to best take the exams in your class: how much time to spend on each questions, give hints if necessary, explain partial credit etc.

• **Administer the first exam in your class before the drop date!**

• Order questions from easy to hard.

• Finally, it is extremely important you remain consistent throughout the semester. Do NOT change exam style/format unless absolutely necessary and you have given ample warning to your students.