17 – V | Prepping for Exams

One of my favorite whining complaints from students is, “I’m just not good at taking exams.” I laugh every time I hear this, and I ask, “Well, how often do you practice taking exams?” to which they respond, “Never.” Lmao

Okay-okay. So, if you were to learn a musical instrument and had to perform in front of a live audience on stage, do you think your daily practice would suffice as preparation for this live performance?

It becomes pretty clear quite readily when put this way, as most people would practice on stage and in front of others before putting on a concert. The fear of stage fright and the confidence in absolute precision are necessary for such a task.

An exam is like the Super Bowl or performing at a concert. It could be like getting the next belt color in a karate class. You've got to practice taking the test before you take it!

Suppose you are taking a proctored exam with no notes or calculator, or it is held at a time you wouldn’t typically want to think critically. There are coughing, sneezing, sniffling, nose picking, farting, and stinky college kids surrounding you in a cramped, uncomfortable room; you probably should recreate these conditions to prep for the exam. Right? Don’t put on a candlelit, hot cocoa-accompanied environment to take practice exams; make it similar to the proctored scenario—stressful. The questions are not as important as the environment.

Use the 3-3-3 methodology of practice exams:

1) 3 practice exams per week,
2) 3 questions per exam,
3) 3 levels of difficulty.

Each exam should be 15 minutes, timed, with no calculator – just like a proctored exam. It is unlikely you will finish it. That is not the point. You must train yourself to work under pressure. If your exams are handwritten, you should write them in the same manner as they are administered—stressful. You must complete homework in Microsoft Word (not LaTeX) professionally, but you take exams by hand. Also, take a question you solve to office hours and have the professor grade it in the same manner they would an exam. This way, you can see how they want the solution structured to maximize points on the exam.

Also, don’t waste your time getting 100s on homework when it only accounts for 5-10% of your grade. Complete enough work so that you can submit it and then take practice exams with the following questions.

- Questions that are done in lecture.
- Questions that are in the reading of the text (the examples).

- The question from homework that everyone gets wrong, and the question everyone is not supposed to solve, but still gets correct because they cheated by using the internet.

i. Which Problems to Focus on For the Final

The age-old question, "What will be on the exam?" To make it simple for you, when prepping for an exam, be strategic. Do not try to know or understand sixteen weeks of material and study sixteen weeks of material one week before the final exam. No, assume there are 10 questions on the final exam, and you can take an educated guess about which ones will be on it. Then, find a pool of twenty to thirty questions guaranteed to be potential questions for the exam. Master these twenty to thirty strategically picked questions. Then, statistically speaking, you probably guessed right on eight or nine of them, and then you wing the one or two you didn't quite know and get 50% credit. After a grade adjustment, you end up with an A. I have literally helped students with F's in the course, and no understanding of the topic, ace the final and finish the class with a B or higher in just a week or two following this method. All they did was memorize a pool of strategically picked questions. Statistically, they would show up on the exam, so probabilistically, they would do well on it, and they did!

How do we know which problems to choose? If it is a cumulative final exam, you can assume that 50-70% of the exam will be questions from the last two assignments (not necessarily questions from the assignments, but the material), as cumulative (in math) means you apply all knowledge in one question. Sometimes they include questions from every section, but usually not. The questions to choose:

1. The questions you struggle with the most on homework.
2. The questions from the two most recent assignments.
3. Any questions solved during lecture.
4. Any example questions worked in the sections and chapters of the book.

ii. Practice Exams

Oh, how much easier an exam is if you regularly take practice exams!

Have you ever been in a proctored exam and just couldn't figure out the solution to a problem you knew how to do, only to walk out of the exam and instantly recall it? Then, you never forget how to solve that problem again? Wouldn't you like to have that experience before you take the exam?

It seems like a lot of work to study a few sections ahead of the class and take a practice exam each week. I won't lie; it is more work for the first couple of weeks. But once you have a grip on the material's flow, it is a fraction of the amount of work. And taking practice exams each week reinforces your knowledge 100x better than studying for 20 hours with references.

"When you do homework, you get really good at doing homework. When you take practice exams, you will get better at taking exams!"—Me

Suppose you spend all your time solving problems as you do when doing homework. In that case, all you do is get better at doing homework. If you want to ace exams with ease and zero stress, you should take many exams. Duh, right? Easier said than done.

There is no free energy. The stress and energy it takes to do a practice exam is a lot, but that is why it is more efficient. Students who do not put in about 10 hours of study each day, 5 days a week, in STEM usually fail in junior year.

Remember- The more homework problems you solve, the better you'll be at doing homework (worth only 5-10% of the grade—generally). The more exams you take, the better you'll be at taking exams (worth 90-100% of the grade).

iii. Grading Practice Exams

*This is extremely important. You can take as many practice exams as you like. Still, you are wasting time if you don't understand how the professor or teacher's assistant will grade them.

The flow of a test solution: Assume each question is worth 10 points.

1) 5 pts – Write down the appropriate formulae, theorems, and or definitions. [Without even making a calculation, you already have half credit—that is, assuming you attempt the rest.]
2) 4pts – The solution. It goes QUESTION → FORMULAE → SOLUTION → ANSWER. [The solution is the most critical part, but second to the formulae]
3) 1pt (if any) – The answer. [The answer is irrelevant – anybody can plug a question into a computer and get the answer]

Neatness and clearness: Females often get better grades on exams simply because their handwriting is neater than that of most males. Why would this matter? Remember, a grader is an emotional and irrational being; if they get irritated by sloppy handwriting and messy solutions, their emotions will show in their grading. That shouldn't be allowed, you say. I agree entirely, but humans are still very primitive animals. Go look in the mirror!

"Always-always remember: Whatever bothers you about someone else or anything for that matter, is your subconsciousness telling you that you are seeing yourself."—Me.