

# Professor Porter's Study Tips

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## Avoid distractions.

Choose a quiet place to study. Avoid music, TV, and headphones. Select someplace where there are no people around. In short, select a boring location, with nothing to entertain you, with nothing to pay attention to.

## Concentration and focus are critical.

We always remember what we are paying attention to. Constant interruptions may seem acceptable but will disrupt the memories you are trying to create.

## Don't let your attention wander.

If your mind is wandering, you need to either take a break or redouble your efforts to pay attention to what you want to learn. If you read a paragraph while thinking about something else, you will remember very little of what you read. You need to re-read the paragraph or stop and take a break.

## Enjoy studying.

We all do much better at the tasks we enjoy. Things will stick in your memory better if you are happy, interested, and engaged. One trick is to do your studying when you find yourself in a good mood. When you notice that your mood is not good, then switch to another task—like cleaning or working—that requires less concentration. Manual labor is a great way to work through bad moods. Then go back to studying when you can concentrate.

You may think studying is unpleasant, boring work, but remember this: Studying is more enjoyable than manual labor. One reason you are going to college is to learn how to work with your mind as well as your hands. It is nonsense to compare studying with watching a movie or going out with friends. You might enjoy studying more if you remind yourself that you are aiming toward a career using your mind, not a lifetime of manual labor. If you really dislike studying, then just drop out and get whatever job you can.

## Re-read the everything you want to remember.

While new material is more interesting, we tend to remember the things we've seen several times. T.V. tries to be entertaining by being constant new and surprising. Studying is not

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entertainment; it is a form of work. For best results, read the chapter once, then re-read it a couple of days or weeks later. Your ability to recall the material will be vastly improved.

### Think about and use the material you are learning.

In order to really learn something, you need to use the knowledge in some way. For example, if you read that "Cows prefer to be near other cows." you might remember this fact. But if you think about why this might be true, or about what it means, you'll be far more likely to remember the fact.

### Think actively about what you read.

One trick is to ask yourself "Why" after reading something. After reading a paragraph, you would ask yourself "Why is this true?" Another trick is to decide whether you agree with a statement or not. Or you might ask yourself "If this is true, what does it imply? Do horses like to be near other horses?" Each act of active thinking will help integrate the knowledge into your brain.

Another approach is to underline the most important parts of each paragraph. The trick is to select the most relevant, important sentences or phrases. The act of deciding which words are important will help cement them into your memory.

Yet another approach is to take notes, copying or paraphrasing what you are reading. This is especially helpful since it requires you to think about the knowledge to decide what to write. Then it requires you to remember the information long enough to write it down. This small act of memory and recall is the start of long-term memory and ability to recall the memory.

### There are two types of memory: recognition and recall.

We see a lot and we are pretty good at recognizing whether we have seen something before or whether it is new material. Consider watching an episode of your favorite TV show. After watching a couple of minutes, you can easily tell whether you've seen it before or not. But try this: turn off the TV and then try to recall and recite the plot. Usually pretty difficult.

The key with studying is to learn material beyond being able to recognize it as familiar. You need to do more than learn to tell after seeing something, whether it is new material or old material. Instead, you need to be able to recall the material without seeing it. You need to be able to pull the information out of your head with only a small cue.

### You can't "recall" a memory that comes from only one exposure.

It is very difficult to re-create a memory of information that you have only been exposed to once. It is occasionally possible when the first exposure was highly emotionally charged, but schoolwork is usually not so interesting. Instead, to be able to recall the entire memory from a small cue, such as a word or question, you need to have encountered the material more than once. This is why re-reading a chapter is so good at helping you remember it. The first time you

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read a chapter, you are laying down the memories that allow you to know, later, whether you have previously read the material. The second time you read the chapter, you are thinking about it more deeply and laying down additional memories that will help you recall and re-create the material from scratch.

### Get plenty of sleep.

Your mind works much better when you are rested. You are smarter when you are well-rested. When you are sleepy, your mind doesn't work as well and you make mistakes. Studying late at night, past your normal bedtime, is not as effective. And by all means, get a good night sleep before any exams. Staying up late to study before an exam is counterproductive. It is harder to remember things when you are sleepy.

### Figure out when your best hours are and use them studying.

Your mind works better sometimes than others. Learn to recognize when you are at your sharpest. Recognize when you are "on" and your mind is working well, when your thoughts are clear and remembering things seems easier. Use this time to study.

### Live a healthy lifestyle.

Drinking, drugs, staying up late, lack of exercise, and so on are not good for your brain, in case you didn't know.

### Study 25% more than you need to.

Research has shown that people believe they will remember more than they actually will. If you think you know the whole chapter after spending 1 hour studying it, then you will benefit greatly from spending an additional 15 minutes "going over" the material and practicing recalling it. The only way to get all the answers right is to "over-study" the material, until you not only know it, but know it backwards and upside down.

### Take breaks but don't overdo it.

It is reasonable to get up and walk around or have a snack after a long study session. A 15 minute break every 2 hours is fine, but a long break after a few minutes of studying is silly. It just wastes your time. You will do better to studying in longer sessions and then go out with friends later.

### Use your study time effectively.

If you want to learn the material, you will need to study. But you can learn more and spend less time studying, if you spend your time really studying. Set yourself a goal—such as "read all of chapter 5" and then sit down and do it. You'll be able to go out with friends sooner if you don't waste your study time thinking about "how boring the material is" or "how this chapter is not important" or fantasizing about what you are going to do on the weekend.

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### Read all the assigned material.

If the instructor assigns a chapter, then read the entire chapter. You shouldn't skip over material. Don't try to guess what is important to know and what is not important. Read every single word.

If you must skip—due to time constraints—then at least scan over the material. Read the headlines, look at the pictures, and read the highlighted words. This will give you an idea of what material you've skipped. If you come to some material that seems especially important or unfamiliar, then you can slow down and read that part thoroughly.

It may also help to look at the clock. See how many minutes it takes to read 10 pages; this will help you plan how much time you'll need later on for other reading assignments.

### Look at all tables and figures.

If the main text refers to something in "Figure 4-6", then find that figure on the page and look at it. Take the effort, so that you can read on and look at the figure to make sense of the words. Don't ever assume that you know what this figure or table contains.

### Ignore external references.

If the text says something like "For more info, check out this web page...", then ignore it, unless it is particularly interesting or important to you. It takes a huge amount of time to chase down external references, such as websites or other papers or books. If you really want to look at an external reference, then make a note of it and do it later. You can look it up after you have finished reading the chapter, but don't interrupt thoughtful reading and studying with mindless web surfing or paper shuffling.

If the textbook says, "For more info, see page xxx, where we'll look at this in greater detail", then ignore it. If the reference is to a page further on, then you'll get there eventually. If the page is something you've already read, then you've already read it. Again: don't interrupt thoughtful, productive thinking with page turning.