Study Smarter, Not Harder

It's not enough to plan time for study. Studying for long periods in ineffective ways -- studying harder -- can waste your time. Before you begin, resolve to choose more effective study methods to make every available minute count. That's studying smarter! Here are some ideas:

- Analyze the professor's test technique. What types of objective questions can you expect? Are essay questions broad or very focused? How detailed are the I.D. questions?
- Make up your own practice test. What topics were stressed? Turn statements in text and lecture into questions, then answer them in your own words to assess your readiness and find gaps in knowledge. Then, try to teach someone else!
- Change your point of view from mere memorization to deeper understanding and higher level thinking. Once you have memorized facts, look at their application. What kinds of case studies could you be given? How might you evaluate a theory or experiment? Look for "thought" questions in text or study guide, or brainstorm with other students. Go beyond memory; analyze, synthesize, compare, contrast.

Reading and re-reading is NOT studying!

- Reading alone is only a short-term memory operation, insufficient for test preparation. To produce real learning and recall, you need ACTIVE REVIEW TECHNIQUES. Research shows these produce thorough, long-term learning in LESS TIME than passively re-reading texts and notes.
- Write: condense notes and text into summary sheets, write one-page summaries of articles or chapters, make flash cards, create time lines or comparison/contrast charts. The thinking and writing involved demand concentration, test your comprehension, and foster better memory. The physical action of writing brings words and concepts more sharply before your mind and better preserves them in your memory. Creating written study tools is often the single most productive action you can take.
- Recite aloud: state ideas aloud in your own words. Don't assume you can define a term or compare and contrast two concepts; make yourself explain in detail, in your own words, to guarantee that you have more than a superficial understanding of ideas. Looking over pages and seeing familiar ideas establishes passive recognition, not the ability to actively produce information on demand. LOOKING OVER IS NOT STUDYING! The true test of studying is this: IF YOU CAN'T SAY IT, YOU DON'T KNOW IT.

- Predict and answer possible test questions, aloud or in writing. This forces you to select the most important points, to actively process or re-think the information, and to perform under simulated test conditions. To prepare for essay or I.D. questions, make index cards with a brief question on one side and the key points of an answer on the other. Make up questions early, then quiz yourself repeatedly and have others test you as well. To generate questions, use old exams, the syllabus, your notes, textbook tables of contents, chapter summaries or reviews, chapter or study guide questions. Questions are doubly effective for test preparation: you must THINK through the material to come up with questions, then THINK again to produce answers.
- Study groups can enhance individual review IF all members first study independently and set an agenda for each group session. This is an excellent setting to predict test questions, to answer them individually, and then to grade each other's responses by comparing them to the text and lecture notes. For essays, collectively work out an ideal answer for each question, briefly outline key points, then memorize. For problem-solving tests in math, stat., or engineering, work practice problems, timing each other, then check each other's work.

To memorize effectively, get more senses involved:

- Put important facts/dates/formulas on FLASH CARDS, adding color to create a strong visual image. Test yourself, then have a partner quiz you. Then take 2 to 4 cards at a time and try to define and discuss the relationships among the concepts. Talk aloud so you can reinforce through speech and hearing.
- Or make a MASTER LIST -- fold a sheet of paper in half, then list terms on the left side and definitions on the right side. Cover each side and alternately try to define each term aloud and give the term for each definition. Use color to group and categorize. Test yourself aloud on individual items, and then consider several items at a time.
- If you recall best what you hear, RECORD dates or formulas and listen repeatedly until you can recite with the tape.
- Prepare all flash cards, lists, or tapes. Then start to review as far ahead of the test as possible. Each day, review and test yourself in several SHORT, INTENSE memory/review sessions.
- In each session, use ALL SENSES: see it, say it, hear it, write it (or trace over it) to use visual, auditory, and motion learning channels.
- Remember that the key to memorization is associating the new information with something we are already extremely familiar with.

To simulate the actual test:

- Alone or in a group, PREDICT AND ANSWER possible test questions. Use notes and text to construct answers; outline points to make in an essay answer. Discover what you don't know well; study those topics again.
- Work math or statistics problems against a TIMER to improve speed and confidence. Rework all questions MISSED on earlier quizzes, homework, and tests; tough ones often reappear in the same or similar form.
- Find a time when the space is available and study or take a practice test in the same classroom your final exam will be in, or another similar one. When taking a practice test, set a timer to pace yourself.

If TEST ANXIETY is a problem, you'll boost confidence by using the Finals Plan and calendar to budget time and plan systematic review. Pay special attention to adequate sleep, exercise, and nutrition during the weeks before and of finals. Use a meditation app or visit the Counseling & Psychiatric Services Center (2nd floor of Health Center) to learn breathing exercises, positive self-talk, visualization, and relaxation techniques. All these can help you control anxiety during exams.

The DAY OF THE TEST, get up early enough to be fully awake and alert. Eat a meal with protein and carbohydrate to fuel your mind and body. Arrive at the test location on time, fully equipped (pens, pencils, calculator, etc.). Avoid talking to anyone, and try to sit at the front of the room to block your view of others who may distract you.
Before starting, look over the entire exam and do a memory dump, jotting down any memorized information to get it off your mind and onto paper. Outline essay answers before you write to improve organization, ensure against forgetting, and ease the grader's reading. Answer easier questions first, then return to ponder more difficult ones. Use brainstorming and free association to improve recall. Three hours is plenty of time; work carefully and steadily, using deep breaths and positive self-talk to stay calm.
Save time to proofread, but change answers ONLY if you originally misread or misunderstood the question or have remembered a fact. Except in those cases, your first answer is likely to be correct; don't change from right to wrong!

Use all possible RESOURCES:
• See your PROFESSOR or TA for advice on effective test preparation.
• Find a TUTOR at A-LEC: www.smu.edu/tutoring
• Organize a STUDY GROUP to teach and quiz each other.
• Attend the PROFESSOR'S or TA'S REVIEW SESSION.
• Schedule a WRITING CENTER appointment via Canvas.

Brown's Memory System: A-A-R-S Attend, Associate, Rehearse, Support

Suggestions from Dr. Alan Brown, SMU Psychology Professor

Lack of ATTENTION is the greatest memory problem. To best remember, make the memory more interesting, intense, and personal. Some tips:

1. Familiarize yourself with the subject; build up your background knowledge.
2. Make the experience personal by relating it to something in your life.
3. Intensify sensory impact by speaking loudly, writing in bright colors, moving objects.
4. Use competition with someone else, but only IF you enjoy it.
5. Avoid self-talk; daydreaming and worrying steal time and energy.
6. Physically prepare to remember; be rested and fed before you start.
7. Minimize environmental distractions by studying where you can concentrate.
8. Find the right level to begin at, with easier material first, then the harder part.
9. Don't juggle too much at once; break the material up into small batches.
10. Finish one task before going on to another.

ASSOCIATIONS are memory catalysts that establish memory quickly and clearly. Allow time to create and repeat the association. Try a few of these association styles:

1. Visual associations include images, name tags, lists, maps, charts
2. Auditory associations include unusual or distinct sounds, music, rhythm, rhyme, tone, and volume.
3. Motion associations include flow charts, films, note taking; walking or exercising as you study. Motor techniques get the brain fired up and involves the whole person in learning.

Remember this:

1. Avoid multiple, interfering associations. Learn similar concepts separately with distinct memories.
2. Avoid too much passive information, such as television, which can dull attention.

Ineffective REHEARSAL (rote repetition) does not produce recall. To rehearse effectively:

1. Review immediately after initial learning -- (after a class, after reading a chapter.)
2. Space out later rehearsals, gradually increasing the time between them. Pay attention to each rehearsal.
3. Set daily and weekly rehearsal times of 10-15 minutes at a stretch.
4. Quiz yourself to force active attention to the information.
5. Use a rehearsal partner so you can quiz each other.
6. Use different sensory channels; if you originally heard the info, write it. The more senses used, the better.
7. State it another way: paraphrase, condense, and reorganize. Describe it to a friend, compare it with something known, define it, argue for or against it, categorize it, apply it to your life.
8. Review in different settings, including the room in which you'll be tested.
9. Put it on tape, then play it while you drive, jog, or wait.
10. Over-rehearse, beyond feeling that you know it. Continued practice makes the memory quickly accessible and less likely to be disrupted by stress (as of a test) or interference.

Memory SUPPORT stores information externally. Consider these external memory reminders:

1. Related reminders (put the phone out of place to remind you to make a call)
2. Unrelated reminders (tie string on a finger or move a ring to the wrong hand to remind you of a task)
3. Written lists (mental lists waste time and require constant revision)
4. Appointment books, planners, or calendars (find and carry one you like)

Remember this:

1. Diversify supports, trying two or three for extra assistance
2. Be consistent, using the same device to remember the same task (ex. move phone to recall phone call)

Prepare for Finals

	To Reading:	To Listening:	To Take Tests:

Attend	• Read at peak energy time
	• Warm up to material by considering prior knowledge
	• Begin with easier material
	• Use an appropriate study area
	• Use the SQ4R reading strategy
	• Survey first to decide how much time you need
	• Chunk information into parts
	• Choose logical breaks
	• Stop for a break when concentration lags
	• Use a dictionary for understanding
	• Use pencils for easy erasing
		• Organize unresolved work first
		• Avoid dividing attention
		• Arrive early to quickly review notes from prior classes
		• Do not bring unrelated materials
		• Sit close to the speaker
		• Fight drowsiness:
		  ◦ Chew gum
		  ◦ Breathe deeply
		  ◦ Tense & relax muscles
		  ◦ Change positions
		  ◦ Loosen / tighten a watch
		• Compare notes with a partner
			• Clarify important exam details
			• Determine the type and number of questions

Associate	• First read the outline and summary
	• Read twice: once fast, once slow
	• Visualize events and ideas
	• Underline in colors for memory accents
	• Speak aloud while underlining
	• Sketch diagrams and graphs
	• Link together mental images of key points
	• Discuss ideas with others
		• Ask the speaker to diagram or chart information
		• Ask questions
		• Ask for examples
		• Ask for opinions
		• Draw images in your notes
		• Form mental pictures of main points
		• Tie ideas to your own experiences
		• Tie ideas to other classes
			• Study within the same context of a test
			  ◦ Same time
			  ◦ Same day
			  ◦ Same pen / pencil
			  ◦ Same desk / table
			  ◦ Same food / drink
			• Reduce material to key points
			• Use mnemonic devices to support memory

Rehearse	• Generate and answer questions after reading • Summarize in writing • Re-copy or type an outline or notes	• Talk to the speaker 1:1 after class • Discuss with others who are interested • Teach someone else the material	• Recite aloud or write information repeatedly • Generate and answer possible test questions • Quiz a study partner to see what you know • Make and review flashcards

Support	• Avoid similar reading in the same study session
	• Add a personal index to your book or notes
	• Minimize interference – learn new information thoroughly
	• Pause after reading to recall
	• Mix easy tasks up with hard ones to pace yourself
	• Follow reading and memorization with sleep & rest
		• Record yourself speaking a summary of your notes
		• Add visual images to notes
		• Sit in the same place for each class
		• Use the same pen, notebook, etc. each class
		• Rewrite your class notes in a new way
		• Review your notes each day
			• Get plenty of sleep
			• Eat a balanced meal
			• Survey the test before starting to determine your pace
			• Write memory aids first
			• Outline key points in essays
			• Cope with temporary blocks:
			  ◦ Start with easy questions
			  ◦ Relax before returning to harder questions
			  ◦ Breathe slowly & deeply
			  ◦ Recall your study context

Prepare for Finals

Sustaining Concentration: Your Mind

- First and foremost, see the work to be done as an opportunity--not an obstacle. A positive outlook helps prepare our brains for productive study sessions.
- Set goals. Before you begin an assignment, write down the starting time, your expected finishing time, and the amount of work (pages, problems) you intend to complete in that time.Keep your notes on the goals you set and try to improve your pace from day to day.
- Set sub-goals, as well, for work that is difficult to concentrate on. Divide your assignments into small units. You could divide a chapter into quarters or sub sections. Set a time to finish the first page or the first section. In math, set a time goal for finishing each problem. Plan to study in blocks of time long enough that the material is meaningful, but short enough that you don't get saturated. Plan breaks, maybe five minutes every half hour or ten minutes every hour. Take breaks when it fits into the material -- perhaps at the end of a chapter -- or when needed.
- Overview the material as you set goals. Survey a chapter by reading the title, introduction,headings, sub-headings, and end-of-chapter summary. Recall background information -- what you already know about the topic -- to warm up to the new information. Concentration doesn't happen instantly. If you use the first ten minutes of a study session to quickly review the last chapter and to briefly overview the new material, you will warm up and get ready to dive into serious learning.
- Organize the information and your approach to it. Use the chapter's order or structure to identify key ideas and to relate details to the big picture. You'll concentrate and remember more if you have a clear sense of where you are and where you are going.
- If your mind wanders, stand up and face away from your books. Don't just sit there not concentrating! Take a break that involves moving. Walk down the hall, jog up and down a flight of stairs, go get a drink/snack, do a few stretching exercises. Then return to studying.
- Stop at the end of each page or section to check your concentration and comprehension. Do you know what you just read? Are you ready to go on, or should you re-read and re think about these ideas first?
- Try the check-mark technique: each time that your mind wanders, whether while you're reading or while you're in class, make a check-mark in the margin of your book or notes and jot down the time. The first time you try this, you may have a lot of check-marks. As you pay attention to your concentration, you are likely to find that those check-marks are fewer and further apart.

- Learn actively. Avoid passive learning, where your eyes just drift down the page while your mind is somewhere else. Ask and answer questions, either your own or those provided in the book or study guide. Recite, answering those questions aloud, to at least double your attention and recall. Use the Cornell note taking system and the SQ4R study-reading method to smoothly incorporate questioning and recitation into your studying.
- Write. Read with a pen in hand, and make brief notes in your own words after each paragraph or sub-section. Rather than highlighting, actively annotate the book by jotting key ideas, in your own words, in the margins of each page. *If you do not own the book, use a pencil or write in a notebook!*
- Keep a "later list". We all have those important, but untimely, thoughts that come up, but we MUST learn to set them aside long enough to complete our work. Keep a sheet of paper nearby as you study. When you are distracted from study by a problem (ex. "Oh no, I forgot to pay the phone bill!"), pull out the worry page and jot down what you need to do about the problem later, after you finish studying (ex. "pay phone bill"). Then tuck the page out of sight, under your book or notebook, literally out of sight and symbolically out of mind. Add more items as they come to you. After studying, you will have a list of tasks to be done, but you will not have allowed them to stop your work.
- Boring material needs to be dealt with directly. Work on it under ideal conditions -- the right time,the right place, when you are rested and fed. Work to develop an interest; read easier supplementary material to develop some background, then read the more difficult textbook. Above all, don't fall behind! Do a little bit of the tough stuff every day to avoid having a mountain of it to learn before an exam.
- Don't work alone; work with another person who is more involved. Visit the professor during office hours to ask questions; review with a study partner from class who plans to major in this,an A-LEC tutor who loves it, or the TA who is a whiz. Their interest may be contagious!
- STOP constructively. Try to end at a logical point, at a section or chapter end. If you stop because of confusion, note what confused you so you can ask for help on that point before you begin again. And each time you want to stop, challenge yourself to go just a little further -- to read one more paragraph, complete one more problem, etc. If you continually try to stretch your concentration span, you will see improvement.

Setting the Stage for Concentration: Your Environment

- Set aside a fixed place for study and nothing but study-- think of it as your office where you go to do the work of your job as a student. Or find a few specific places that work for you for different tasks (ex. Fondren Library stacks for research, Business Information Center for writing a paper, Hamon Art Library for long reading assignments).
- Be sure that your study area has:
  - good lighting (what is best for you? -- how bright? overhead or desk lamp? fluorescent?)
  - good ventilation and temperature (not too hot or too cold; have a jacket just in case!)
  - a comfortable, supportive chair (but not too comfortable, or you'll fall asleep!)
  - a desk or table large enough to spread out and organize your work
  - the right sound level (do you need total silence? a little background noise?)
- Be sure your study area does NOT have:
  - a bed
  - a good view (of attractive scenery or people -- guess what you'll pay attention to?)
  - a phone (at the very least, turn on silent/do not disturb, etc.)
  - loud music (whether yours or next door); if you must have music, instrumental is best
  - a TV (guess what you'll pay attention to?)
  - a sociable roommate or friend (guess what...)
  - a refrigerator stocked with your favorite food (guess how many breaks you'll take?)
- Set a certain time to begin studying-- Developing a habit of study at a regular time can help you get down to work more easily. Example: "I'll start my calculus homework before dinner each day that I have calculus class. I'll read the Poli. Sci. assignment the afternoon before each class, so it's fresh in mind and I'm ready to join in the class discussion."
- Relax before you begin-- Stress kills concentration! If you relax first, you will learn and recall more, and you will reduce test anxiety by associating the material with a relaxed state of mind.
- Eyestrain can make concentration impossible-- If you are doing much more reading than usual, it may be time to have your eyes checked or to use those reading glasses. If you're having to look at a computer screen a lot, look into some blue-light-blocking glasses.
- A simple ritual may help you settle down to work-- Choose a symbol that you use each time you study. Maybe wear a particular baseball cap, arrange five special pens on your desk, grab a specific water bottle or coffee mug, or say a short encouraging comment aloud.

Study Distraction Analysis

STEP 1: List the three places where you usually study (ex. Fondren Library, study lounge, room).
STEP 2: Circle the letter after each statement that applies to each of these three places. (T = true F = false)
Tip: Respond to all statements for one location at a time.

Statements to Consider:	***Place 1:***		***Place 2:***		***Place 3:***	
	True	***False***	***True***	***False***	***True***	***False***
Other people often interrupt me when I study here.	☐	☐	☐	☐	☐	☐
Much of what I see here has nothing to do with studying.	☐	☐	☐	☐	☐	☐
There are things to do here that take me away from studying.	☐	☐	☐	☐	☐	☐
I often here music or TV when I study here.	☐	☐	☐	☐	☐	☐
I think I take too many breaks when I study here.	☐	☐	☐	☐	☐	☐
My breaks tend to be too long when I study here.	☐	☐	☐	☐	☐	☐
I tend to start conversations with other people in this location.	☐	☐	☐	☐	☐	☐
I don't study here at a regular time each week.	☐	☐	☐	☐	☐	☐
I spend time on my phone that I should use for studying here.	☐	☐	☐	☐	☐	☐
Temperature conditions make studying difficult.	☐	☐	☐	☐	☐	☐
The chair, table, and or lighting make studying difficult.	☐	☐	☐	☐	☐	☐
I dislike studying here.	☐	☐	☐	☐	☐	☐
Noise levels make it hard to study in this location.	☐	☐	☐	☐	☐	☐
I am especially aware of others who are not studying here.	☐	☐	☐	☐	☐	☐
Total:	___	___	___	___	___	___

STEP 3: Total the number of Ts and Fs you circled for each study location.

The column which has the most "false" statements is likely to be the least distracting -- and thus the best -- place for you to study. Try to do your toughest work in that place.

Previous Test Analysis *2 pages*

Successful test performance involves both forethought (preparation before the test) and after-thought (reflection after the test). Use your test results as feedback to improve future performance. If you do poorly on an exam, don't get bitter- get better. View your mistakes in terms of what they can do for you. A poor test performance can be turned into a productive learning experience, particularly if it occurs early in the course when you're still learning the rules of the game.

Use your test results as a valuable source of feedback for improving your future performance and final grade.

Although all factors won't apply to every test, a thorough analysis of prior tests can help you raise future test grades. Honestly and objectively consider the aspects below:

Course:_____ Test: _____

Part 1:

What grade did you receive?

_____

What grade did you expect?

_____

What grade will you aim for on the next test?

_____

Part 2:

Looking back on your last test, analyze any errors:

	Yes	No
1. Did you make mistakes on material from readings?	☐	☐
2. Did you make mistakes on material from class?	☐	☐
3. Did you remember information generally but not in detail?	☐	☐
4. Did you forget information that you thought you knew?	☐	☐
5. Did test anxiety cause you to go blank?	☐	☐
6. Did you change any correct answers to incorrect answers?	☐	☐
7. Did you have trouble finishing the test?	☐	☐
8. What else caused you to lose points?		

Part 3:

To evaluate your preparation for the prior test, check all that apply:

1. I downloaded all online notes and reviewed them before class_____ ☐
2. I took thorough lecture notes in ALL classes_____ ☐
3. I reviewed notes within 24 hours of taking them_____ ☐
4. I reviewed notes weekly, adding each new week's notes_____ ☐
5. I reviewed textbook highlighting weekly, adding each new week's notes_____ ☐
6. I studied away from distractions, where I could concentrate_____ ☐

1. I procrastinated and had to cram the night before the exam_____ ☐
2. I pulled an all-nighter_____ ☐
3. I did not review until the week of the test_____ ☐
4. I reviewed some, but not enough to do well on the test_____ ☐
5. I did not realize how much studying I would need to do to earn a good grade_____ ☐

Previous Test Analysis, continued

To improve on your next test, evaluate the steps you took to prepare for the last test.

Before the last test, did you:	Yes	No	Points for Yes
1. Attend all classes and/or labs?	☐	☐	1
2. Edit and summarize your lecture notes after each class?	☐	☐	3
3. Read all text material before it was covered in class?	☐	☐	2
4. Study read the text using SQ4R or a similar system?	☐	☐	3
5. Read/review/study the course 3 or more times each week?	☐	☐	3
6. Have at least one conference with the professor/attend office hours?	☐	☐	1
7. Develop study tools such as flash cards, time lines, drawings, or charts?	☐	☐	1
8. Memorize key terms, definitions, formulas, events, dates, names, theories?	☐	☐	1
9. Use materials other than the textbook to improve background knowledge?	☐	☐	1
10. Attend tutoring or review sessions?	☐	☐	2
11. Use self-tutorial materials from the A-LEC, the professor, or online?	☐	☐	2
12. Develop a list of possible test questions (and try to answer them)?	☐	☐	2
13. Ask questions during class or office hours?	☐	☐	1
14. Study a prior exam, if available?	☐	☐	1
15. Connect with a study group to fill in gaps in understanding?	☐	☐	2
16. Avoid a last-minute cram session?	☐	☐	3
17. Sleep at least eight hours the night before the test?	☐	☐	1

All points earned for YES answers: _____

Bonus: Estimate the total hours you spent preparing for the test, including all study done during the weeks before the exam. If the total is MORE THAN 20 HOURS, add an extra point for EACH HOUR OVER 20 to the total score.

Total Points_____ + Bonus Points _____ = Updated Points _____

Penalty: For each hour of sleep you lost by cramming the night before the test; deduct one point for each hour below eight hours from the total score.

Updated Points _____ - Penalty Points _____= Final Test Prep Score _____

Scoring:

- *25 or more points = Good preparation*
- *20-24 points = Fair preparation*
- *20 or fewer points = Poor preparation*

To Improve:
Highlight all steps you plan to take for your next test.