Overview of Study Skills
Study Skills will be covering varying concepts to help you gain the skills to synthesize and comprehend the reading material, alongside of your notes, and retain the course curriculum. This aims to teach you how to take control of your study environment, improve your reading efficiency, and offers some tools for the retention of your material.

Reading Comprehension
Many students at universities or schools are bright enough that they report having done little reading in high school. The slower pace of classes, time in classes to do homework, smaller class sizes, and frequently repeated content made it easier for students to get by with less reading. But in college, reading is background information required to understand lectures and assignments. It no longer is a “nice to do” activity. It is a “have to do”. So what will make reading more effective and less frustrating, especially for those students who have read less?

Read with the End in Mind
1. Think about previous readings for current or past classes and how this new material fits with, expands, or offers another point of view.
   - Questioning at the pre-reading stage can add curiosity and alertness to the reading process.

2. If available, pre-read PowerPoint slides or posted notes before or as you start assigned reading.
   - This may help you more deeply comprehend reading that supports lectures while still covering all reading assigned.

3. Do you need to answer certain Questions about readings?
   - If so, find these questions and go through them before you read. Refer to questions often while reading. If questions aren't assigned but are there at the end of each chapter, use these.
   - Read / skim specifically to answer the questions.
   - Take notes to answer questions as you find the answers.

4. Do you need to generate and submit questions about the readings?
   - Keep paper and pen handy or open a work document to jot down questions and answers as you find them in the reading.
   - Ask yourself what difference this reading makes to class and write a question that anchors or connects it with other course content.
   - If you disagree with the author, write your thoughts or questions.

5. Will you be writing a paper that includes information from a text?
   - If so, think about the level of information you will need (general facts, quotes, arguments for or against a certain point of view, etc.)
   - Take notes about information that seems important and add author, title, and page numbers so you can refer back to reading as needed.
   - Add notes linking these facts to other articles and sources.
WHAT STUDY SKILLS DO YOU ALREADY HAVE?
WHAT ARE WAYS YOUR STUDYING COULD IMPROVE?
20 MEMORY TECHNIQUES

These 20 techniques are divided into four categories that each represent a general principle for improving memory.

ORGANIZE IT
1) Be selective: As you dig into new information, make choices about what is most important to learn. Imagine that you are going to create a test on the material and consider the questions you would ask. When reading look for the chapter previews, summaries, and review questions. Pay attention to anything printed in bold type. Notice visual elements like charts, graphs and illustrations as these all are clues to what's important. Notice what instructors emphasize during lectures.

2) Make it meaningful: Learn from the general to the specific. Before tackling details, get the big picture. Before you begin your next reading assignment, for example, skim it to locate the main idea. If you're very lost, step back and recall that idea. The details might make more sense. You can also organize any list of items (even random) in a meaningful way to make it easier to remember.

3) Create associations: When you are introduced to new information, you can remember it more effectively if you associate it with similar or related data known as schemes that make sense to you. An example is with your favorite courses -- they probably relate to subject you already know some information about. Before taking more advanced courses, master the prerequisite information. So that when you are taking on a new subject you can build a mental storage of basic background information.

USE YOUR BODY
4) Learn it once, actively: Go beyond thinking about an idea you are trying to remember by doing something with it. Try to study with the same energy that you bring to your passions (i.e. dance, basketball, volleyball, etc.) Use other simple and direct methods to infuse your learning with action. Sit on the edge of your chair like you are about to sprint, stand up when you study, or pace back and forth as you recite material out loud. Use your hands or get your body involved in some way. Most learning takes place in passive settings. Learning takes energy.

5) Relax: You can absorb and recall information with better accuracy when you're relaxed. Sometimes when a person is stressed they go blank when trying to remember the same facts they are able to recite later when they are relaxed. Being relaxed and being drowsy, zoned out, or asleep are different things. Relaxation is a state of alertness, free of tension, during which your mind can play with new information and apply memory techniques. Mellowing out helps you succeed in school.

6) Create pictures: Do this by drawing diagrams, cartoons, and using images to connect facts and illustrate relationships. Associations with complex concepts can be recalled more easily when they're able to be visualized. The key to this one is to use your imagination. Involve your senses.
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**USE YOUR BODY**

7) Recite and repeat: When you repeat something out loud, you are anchoring the concept in two different places. First, you get physical sensation in your throat, tongue and lips when voicing the concept. Second, you hear it. The combined result is synergistic, just as it is when you create pictures. The effect of using two different senses is greater than the sum of their individual effects. Repetition is important too because it blazes a trail through the pathways of your brain, making the information easier to find. Repeat a concept out loud until you know it, then say it five more times.

8) Write it down: This is simple but easy to forget. Writing a note to yourself helps you remember an idea, even if you never look at the note again. Writing engages a different kind of memory than speaking. Written reviews reveal gaps in knowledge that oral reviews miss, just as oral reviews reveal gaps that written reviews miss. Writing is also physical. Your arm, hand, and fingers join in. Learning is an active process because you remember what you do.

**USE YOUR BRAIN**

9) Engage your emotions: Make friends with your amygdala, which is the area of your brain that lights up with extra neural activity each time you feel a strong emotion. When a topic excites love, laughter or fear, the amygdala sends a flurry of chemical messages to say in effect: This information is important and useful & don't forget it. You're more likely to remember course material when you relate it to a goal - whether academic, personal, or career -- that you feel strongly about. When a course creates a bridge to human relationships, you engage the content in a more emotional way.

10) Overlearn: One way to fight mental fuzziness is to learn more than you need to know about a subject simply to pass a test. You can pick a subject apart, examine it, add to it, and go over it until it becomes second nature. This technique is especially effective for problem solving. Do the assigned problems, and then do more problems. Then make up your own problems and solve them.

11) Escape the short-term memory trap: Short-term memory is different from the kind of memory you'll need during exam week. For example, most of us can look at an unfamiliar seven-digit phone number once and remember it long enough to dial it. See if you can recall the number the next day. Short-term memory can fade after a few minutes and rarely lasts more than several hours. A short review within minutes or hours of a study session can move material from short-term memory into long-term memory.

12) Use your times of peak energy: Study your most difficult subjects during the times when your energy peaks. Many people can concentrate more effectively during daylight hours. The early morning hours can be especially productive, even for those who hate to get up with the sun. Observe the peaks and valleys in your energy flow during the day and adjust study times accordingly.
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**USE YOUR BRAIN**

13) Distribute learning: As an alternative to marathon study sessions, experiment with shorter, spaced out sessions. These are particularly helpful when your sport is in its competitive season. You might find that you can get far more done in three two-hour sessions than one six-hour session. You can get more done if you take regular breaks. You can even use the breaks as mini-rewards - like by checking your email, listening to a song, or taking a quick walk around the block.

14) Be aware of attitudes: If you think a subject is boring, remind yourself that everything is related to everything else. Look for connections that relate to your own interests. For example, consider a person who is a fanatic about cars. She can rebuild a motor in a weekend and has a good time doing so. From this apparently specialized interest, she can explore a wide realm of knowledge. She can relate the workings of an engine to principles of physics, math, and chemistry. Computerized parts in newer cars can lead her to the study of data processing. She can research how the automobile industry has changed our cities and helped create suburbs, a topic that includes urban planning, sociology, business, economics, psychology, and history.

15) Give your "secret brain" a chance: Sometimes the way you combine studying with other activities can affect how well you remember information. The trick is to avoid what psychologists call retroactive inhibition, something that happens when a new or unrelated activity interferes with previous learning. For example, you arrange a carpool with a teammate who is in the same class. One the way home, you talk about the lecture. The discussion ignites into a debate as you and your friend take opposite stands on the principle of Freud's theory. Later, just before going to sleep, your brain can now process the key points of the lecture -- something that will come in handy for the mid-term exam. You keep your head in your course work rather than worrying about the competition and your memory benefits.

16) Combine techniques: All of these memory techniques can work even better in combination. Choose two or three techniques to use on a particular assignment and experiment for yourself. For example, after you take a few minutes to get an overview of a reading assignment, you could draw a quick picture or diagram to represent the main point. Or you could over learn a chemistry equation by singing a jingle about it all the way to work.
These 20 techniques are divided into four categories that each represent a general principle for improving memory.

**RECALL IT**

17) **Remember something else:** When you are stuck and can’t remember something that you’re sure you know, remember something else that is related to it. During an economics exam, if you can’t remember anything about the aggregate demand curve, recall what you do know about the aggregate supply curve. If you cannot recall specific facts, remember the examples that the instructor used during her lecture. Information is encoded in the same area of the brain as similar information. You can unblock your recall by stimulating that area of your memory. Brainstorming is another memory jog. If you are stumped when taking a test, start writing down lots of answers to related questions, and POP the answer you want may appear. You can take this technique one step further with a process that psychologists call elaboration. The key is to ask questions that prompt you to create more associations. For example, when you meet someone new, ask yourself: "What are the distinctive features of this person's face? Does she remind me of someone else?"

18) **Notice when you do remember:** To develop your memory, notice when you recall information easily and ask yourself what memory techniques you’re using naturally. Also, notice when it’s difficult to recall information and adjust your learning techniques. And remember to congratulate yourself when you remember.

19) **Use it before you lose it:** To remember something, access it a lot. Read it, write it, speak it, listen to it, apply it -- find some way to make contact with the material regularly. Each time you do so, you widen the neural pathways to the material and make it easier to recall the next time. Another way to make contact with the material is to teach it. Teaching demands mastery. When you explain the function of the pancreas to a fellow student, you discover quickly whether you really understand it yourself. Study groups are especially effective because they put you on-stage. The friendly pressure of knowing that you'll teach the group can help focus your attention.

20) **Adopt the attitude that you never forget:** You might not believe that an idea or a thought never leaves your memory. That’s okay. In fact, it doesn't matter whether you agree with the idea or not. It can work for you anyway. Test the concept. Instead of saying, "I don't remember," you can say, "It will come to me." or even "I never forget!"
WHAT MEMORY TECHNIQUES WORK BEST FOR YOUR LEARNING OR STUDYING?
**SQ3R - Survey, Question, Read, Recite, & Review**

*This is a helpful study strategy to use in your courses when trying to learn new information.*

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**Survey**
- Look over the material: title, preview, headings, visuals, bold words, summaries.
- Read the summary if possible.
- Think about what you already know.

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**Question**
- Turn headings into questions.
- Utilize note space to ask who, what, why and how.

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**Read**
- Write in the margins/highlight/underline.
- Break up the reading into chunks.
- Don't attempt to read everything.

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**Recite**
- Say it out loud in your own words.
- Write a short summary of what you learned.
- Make note cards or a concept map.

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**Review**
- Look over your notes and quiz yourself.
- Make connections between the reading and class notes.
- Look at the text as frequently as possible to make new connections.
**SQ3R - Survey, Question, Read, Recite, & Review**

This is a helpful study strategy to use in your courses when trying to learn new information.

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WHAT ARE YOUR THOUGHTS ON THIS STUDY TECHNIQUE?
Ask yourself pre-reading questions: For example: What is the topic, and what do you already know about it? Why has the instructor assigned this reading at this point in the semester?

Identify and define any unfamiliar terms. Often these are in bold or italics, but not always.

Bracket the main idea or thesis of the reading, and put an asterisk next to it: Pay particular attention to the introduction or opening paragraphs to locate this information.

Put down your highlighter. Make marginal notes or comments instead: Every time you feel the urge to highlight something, write instead. You can summarize the text, ask questions, give assent, protest vehemently. You can also write down key words to help you recall where important points are discussed. Above all, strive to get into dialogue with the author.

Write questions in the margins, and then answer the questions in a reading journal or on a separate piece of paper: If you’re reading a textbook, try changing all the titles, subtitles, sections, and paragraph headings into questions. For example, the section heading "The Gas Laws of Boyle, Charles, and Avogadro" might become "What are the gas laws of Boyle, Charles, and Avogadro?"

Make outlines, flow charts, or diagrams that help you to map and to understand ideas visually: Also make blank versions of these and fill them in without looking at your notes or the book to test yourself before the real test.

Read each paragraph carefully and then determine "what it says" and "what it does": Answer "what it says" in only one sentence. Represent the main idea of the paragraph in your own words. To answer "what it does," describe the paragraph's purpose within the text, such as "provides evidence for the author's first main reason" or "introduces an opposing view".

Write a summary of an essay or chapter in your own words: Do this in less than a page. Capture essential ideas and perhaps one or two key examples. This approach offers a great way to be sure that you know what the reading really says or is about.

Write your own exam questions based on the reading: You may not get it exactly as the professor would, but you should have an idea based on previous exams in that class. Just the act of creating your own questions is a form of active studying.

Teach what you have learned to someone else: Research clearly shows that teaching is one of the most effective ways to learn. If you try to explain aloud what you have been studying 1) you'll transfer the information from short-term to long-term memory, and 2) you'll quickly discover what you understand - and what you don't.
WHAT ACTIVE READING STRATEGIES RESONATED MOST WITH YOU?
CONTROL OF STUDY ENVIRONMENT

• Set aside a fixed place for study and nothing but study.

• Before you begin an assignment, write down on a sheet of paper the time you expect to finish.

• Strengthen your ability to concentrate by selecting a social symbol that is related to study. Examples: scarf, hat, figurine, etc.

• If your mind wanders, stand up and face away from your books.

• Stop at the end of each page, and count to 10 slowly when you are reading.

• Set aside a certain time to begin studying.

• Don't start any unfinished business just before the time to start studying.

• Set small range goals for yourself.

• Keep a reminder pad.

• Relax completely before you start to study.
HOW CAN YOU BETTER CONTROL YOUR STUDY ENVIRONMENT?
NOTE TAKING & IN CLASS SKILLS

- Listen actively - if possible think before you write, but don't get behind.

- Be open minded about points you disagree on. Don't let arguing interfere with your note taking.

- Raise questions if appropriate. No need to start with 'I have a question'. Make sure you ask concisely without repeating or over-explaining yourself.

- Develop and use a standard method of note-taking including punctuation, abbreviations, margins, etc.

- Take and keep notes in a large notebook.

- Leave a few spaces blank as you move from one point to the next so you can fill in additional points later if necessary.

- Try to see the main points and do not get lost in a barrage of minor points in the lecture.

- Listen for cues as to important points, transition from one point to the next, repetition of points for emphasis, changes in voice inflections, etc.

- Do not try to write down everything the lecturer says.

- Make your original notes legible enough for your own reading.

- Copy down everything on the board, regardless. Every blackboard scribble may be a clue to an exam item.

- Sit as close to the front of the class as possible. There are fewer distractions and it is easier to hear, see and attend to important material.

- Get assignments and suggestions precisely - ask questions if you're not sure.
WHAT ABOVE SKILLS CAN YOU USE IN CLASS OR FOR NOTE TAKING?
Come up with a game plan:
- Develop a realistic schedule based upon clear and specific goals for each study session.
- Determine available study time, block of time for specific tasks, and study with a sense of determination.
- Schedule sleep, meals, and (some) down time. Sleep deprivation reduces efficiency.
- Organize your study area and materials, and make necessary plans (e.g., with study group members).

Think like a professor:
- Grasp the big picture of the courses and your professor's objectives.
- Identify the underlying logic of the course design by focusing on main principles, themes, and concepts first, then look for evidence (details, examples) supporting and explaining them.
- Pay particular attention to concepts professors focused upon in class or in homework, quizzes, problem sets, and other assignments.

Predict exam questions from your lecture notes, problem sets, precept discussions and readings:
- Formulate central questions that link large chunks of course materials. They will usually be taken from main principles and concepts - including how various concepts relate to each other. Practice answering them.
- Identify and classify information that might show up in an identification or short-answer section. Prepare yourself to show what you know concisely.

Consider where your weaknesses lie:
- What concepts remain unclear? Which problems do you routinely struggle to solve? Targeting your studying will help you make the most of the time you have for each course.
- Evaluate not merely whether you "know" the material, but whether you have mastered it and can apply your knowledge in ways your professor will ask of you.

Create study tools:
- Put together reading summaries that capture main points of texts and relate them to course themes.
- Develop charts of theorems, mechanisms, or principles rewritten in your own words.
- Create a course blueprint that organizes main themes and concepts of the course.
- Make problem packets in which you gather and organize similar problems from the course and their solutions to study with.

For quantitative courses, work through problems:
- Work through previous assignments, the ends of textbook chapters, or old exams.
- Don't think of each problem as unique; instead look for similarities among them and common techniques for solving them.
- Don't consult the answer key until you've tried to solve the problem yourself. Work under test-like conditions whenever possible.

For essay exams, practice writing your responses:
- Predict questions and outline your answers in preparation for the exam.
- Identify specific examples/evidence you will use to support your main points.
- If the exam is in class, time your practice runs to get a sense of the depth/quality of essays you'll be able to produce in the time allotted.
- Evaluate your practice efforts (outlines/drafts) and consider how to refine your response.
- Practice producing your answers or outlines, not merely reviewing material.

Take Practice Exams & Don't Be Afraid to Ask Instructors/TA's for help:
- Take an old exam and note what types of skills and techniques are tested, then practice these.
- Use "test post-mortem" materials to turn your own previous tests into a study sheet.
- Time yourself and use only the materials you will have at the exam; don't refer to "solutions" or a study guide - you won't have them on the actual exam.
- Review your answers and focus on filling gaps in your skills and knowledge.
- If after reviewing you still don't understand something, take advantage of office hours or review sessions to ask questions about the material.
- Asking about the format of the exam is okay, but don't ask what's going to be on the test.
- Remember to eat well, exercise, and get enough sleep. You'll study and perform better.