

The Importance of Good Strategies

As a student, you'll encounter vast amounts of information. Beyond academic material, you must process and interpret news, instructions, communications, and a wealth of other data. You'll also need to separate fact from opinion, and understand the quality of sources. **The stronger your reading capabilities, the more efficiently and effectively you can turn information into knowledge.**

Reading improves your thinking, your vocabulary, and your ability to make connections between different sources. Its benefits will go much further than college: Your ability to absorb and analyze information will be important in your career. Whether you become a mechanic considering specifications on a new engine type, or a lawyer crafting an argument based on previous case law, you'll need to continually process unfamiliar material and apply what you've learned. Like many other forms of self-improvement, reading's benefits come from doing it properly.

This guide is a relatively brief overview of effective reading strategies, and includes hints and tips to keep in mind as you strengthen your skills. We hope it helps, but we urge you not to stop here. Consult other guides to effective reading, particularly those suited to your academic field. And talk to the people around you. While in college, you have many other resources, including support centers, librarians, and your instructors; use them early and often in your academic career.



Make Time to Read

It might seem too obvious to mention, but allowing enough time to read is a critical step in doing it well. Overall, many barriers to student success arrive in the form of time or priority management, and reading is no exception. Reading takes time, because -- as you'll see below -- reading isn't just a one-time event. You need to read, re-read, and then re-read again. You read to get new information, and you read to familiarize yourself with material you've learned before. Neither can be hurried.

Estimate your required reading time by considering the type of material assigned and whether it includes other activities such as practice or explorations. For typical textbooks, most students take four or five minutes per page for a regular read-through, and should add time for highlighting, notetaking, and any practice, included videos, or web explorations.

ProTip: Determine Your Reading Speed

Since reading is such an important part of college study, it's worth doing a timed test to understand your pace. Follow these steps:

1. Select a textbook section that is about five-pages long, and includes a relatively high amount of text versus images.
2. Time yourself reading that material for exactly 5 minutes, and note how much reading you accomplished in those 5 minutes.
3. Multiply the amount of reading you accomplished in 5 minutes by 12 to determine your average reading pace per hour.
4. When you receive a reading assignment or identify a block of text to study, apply the rate to the number of pages. In other words, if your rate is 36 pages per hour, a 50-page chapter would take you about one hour twenty minutes *if* you read straight through.



Create the Proper Environment

Avoid distractions. They will limit your focus and retention. Most texts — whether they're novels, primary sources, or textbooks -- are written with a narrative and logical flow. Constant interruptions will break this flow and prevent you from seeing the connections within the material. Distracted reading also reduces your efficiency: if you spend an hour with a book but don't really focus on it, that hour was partly wasted.

Find a quiet, uninterrupted, and distraction-free environment. Consider that noises and people aren't the only distractions; visual clutter or a video screen (even muted) interfere with your understanding. If you read while in transit, headphones or another device to limit the noise may help, but make sure that any music or other sounds aren't themselves a distraction.

And if you read on your phone, put it on do not disturb.



Read Actively

True knowledge — knowledge required to think critically and analytically — requires more than memorization. It involves engagement and effort. Effective reading is an active process: you are *activating* your mind to make connections, process information, organize, and build understanding. Brain scans show that reading (over time) can actually change brain anatomy.¹

Active reading, sometimes called recursive reading, applies six processes:

- bringing any prior knowledge about the topic to the reading session,
- asking yourself pertinent questions, both orally and in writing, about the content you are reading,
- inferring and/or implying information from what you read,
- learning unfamiliar discipline-specific terms,
- evaluating what you are reading, and eventually,
- applying what you're reading to other learning and life situations you encounter.

Consider these a circular, not linear, process. Do each of them as you read, then go through again and use the relevant skills as you re-read.



ProTip: Prepare to Read

Consider what you're about to read and determine if you're ready to read it. Look over the outline or learning objectives, or jump back to the end of the previous chapter or source. Do you need a brief review? Should you look over your class notes from the previous day? Should you watch a short video before reading (not *instead* of reading!)? Think about whether this material is completely new, or if it's a continuation of something you already know.

¹ Hervais-Adelman, Kumar, Mishra, et al. "Learning to read recycles visual cortical networks without destruction." *Science Advances* 18 Sep 2019: Vol. 5, no. 9, eaax0262 <https://advances.sciencemag.org/content/5/9/eaax0262>



Highlighting

Highlights are best used alongside other tools to build your knowledge or repair its gaps. Whether you're using digital or physical highlighters, you can apply the same core principles.

1. Think about the reasons you are highlighting, which may vary by subject or situation.
Examples:
 - a. Highlighting to organize
 - b. Highlighting to emphasize
 - c. Highlighting to remind
 - d. Highlighting to reuse
2. Consider the desired reading outcomes, which can be set by you and/or your instructor. Are you reading to be ready for class discussion? Are you reading to prepare for a minor quiz? Are you studying before an exam? Are you gathering information as you write a paper? Organize your highlights accordingly.
3. **Highlight using different colors or styles, and then take notes on what you highlight!** We can't emphasize it enough: Make reading and notetaking a multi-step process.
4. Employ a regular highlighting pattern or "cadence." For example, read a page or two without highlighting, then go back and highlight. This will force you to read the content again and give you a better chance of highlighting only the most important material.
5. **Don't over highlight.** Usually, highlighting brief phrases is important to emphasize, remind, or organize your thoughts about your reading. Take notes and ask questions along the way, but don't leave your page a mess of lines, circles, and boxes. (Note that if you are highlighting in order to reuse the material in an essay or similar activity, longer highlights might be necessary.)

ProTip: Use lecture, learning objectives, and prior assessments as clues.

Your instructor (and even your textbook) may indicate or emphasize the most important information. Similarly, your course learning objectives and lecture slides may do the same. Frame your highlights and notes around those elements.

Similarly, consider the structure of your instructor's lecture. If your professor often talks or asks about cause and effect, highlight (maybe in its own color) cause-and-effect elements of your book. If a practice test takes a cumulative approach — pulling together information from the entire course — go back and highlight concepts that link together over the course of the book.



Taking Notes

Notes help you organize the ideas and help you make meaning out of something about which you may not be familiar. Taking notes also helps you stay focused on the question at hand.

Think of all notes as potential study guides. Don't transcribe every word a speaker utters—even if you have an amazing ability to do that. You'll be so focused on the notes that you'll miss valuable information. Learn to distinguish between main ideas and details that typically support the ideas.

Use your initial notes as starting places, and improve them as you study. If you only take notes without actively working on them after the initial notetaking session, the likelihood of the notes helping you is slim. Research on this topic concludes that without active engagement after taking notes, most students forget 60–75 percent of material over which they took the notes—within two days!²

The very best notes are the ones you take in an organized manner that encourages frequent review and reuse. You may have a standard way you take all your notes for all your classes, or you may adopt different notetaking strategies for different subjects. The strategies in this section represent various ways to take notes in such a way that you are able to study after the initial notetaking session.

Outlining

Outlining organizes ideas and concepts according from the more general, “big picture,” to narrower, “smaller picture.” Outlines appear as lists of information with different levels of headings, and use indentation to indicate subtopics and sub-subtopics. The main benefit of an outline is how organized and familiar it is. Most textbooks and articles are arranged in some version of an outline.

The following formal outline example shows the basic pattern:

1. Dogs (*main topic—usually general*)
 - a) German Shepherd (*concept related to main topic*)
 1. Protection (*supporting info about the concept*)
 2. Assertive
 - a. Need training to ensure not too aggressive
 3. Loyal
 - b) Weimaraner (*concept related to main topic*)
 1. Family-friendly (*supporting info about the concept*)
 2. Active
 3. Healthy

² This information about memory loss was first brought to light by 19th-century German psychologist Hermann Ebbinghaus. Fortunately, you do have the power to thwart what is sometimes called the Ebbinghaus Forgetting Curve by reinforcing what you learned through review at intervals shortly after you take in the material and frequently thereafter.

Cornell Method

One of the most recognizable notetaking systems is called the *Cornell Method*, a relatively simple way to take effective notes, devised by Cornell University education professor Dr. Walter Pauk. In this system, you take a standard piece of note paper and divide it into three sections by drawing a horizontal line across your paper about one to two inches from the bottom of the page (the summary area) and then drawing a vertical line to separate the rest of the page above this bottom area, making the left side about two inches (the recall column) and leaving the biggest area to the right of your vertical line (the notes column). Cornell note templates are also available for computer usage, either as images or Word or Google Doc templates. Evernote, the popular notetaking app, even has a Cornell template. Whichever one you use, the Cornell Method provides you with a well-organized set of notes that will help you study and review your notes as you move through the course.

Topic/Objective:		Name:
		Class/Period:
		Date:
Essential Question:		
Questions:	Notes:	
Summary:		

Chart or table

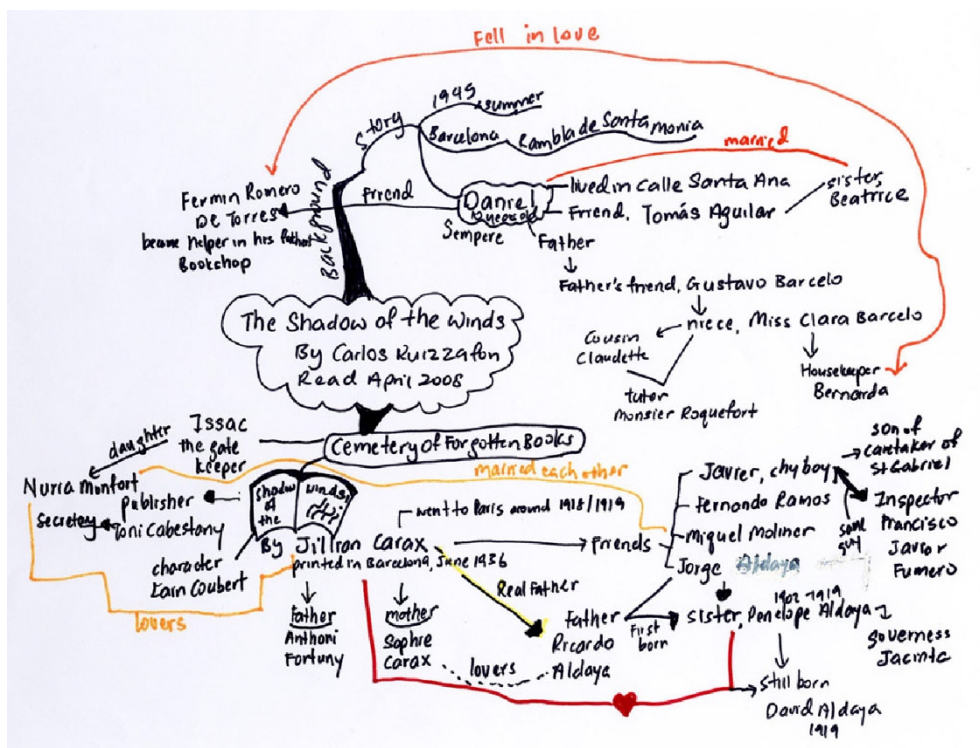
Similar to creating an outline, you can develop a chart to compare and contrast main ideas in a notetaking session. Divide your paper into four or five columns with headings that include either the main topics covered in the lecture or categories such as How?, What?, When used?, Advantages/Pros, Disadvantages/Cons, or other divisions of the information. You write your notes into the appropriate columns as that information comes to light in the presentation.

	Structure	Types	Functions	Additional Notes
Carbohydrates				
Lipids				
Proteins				
Nucleic Acids				

This format helps you pull out the salient ideas and establishes an organized set of notes to study later.

Concept Mapping and Visual Notetaking

Another notetaking method often appeals to learners who prefer a visual representation; it is called *mapping* or sometimes *mind mapping*, *concept mapping*, *idea clustering*, or *knowledge graphing*, although each of these names can have slightly different uses. With this method, you make connections between ideas through a graphic depiction. Some maps can get elaborate with colors and shapes, but a simple version may be more useful. Main ideas can be circled or placed in a box with supporting concepts radiating off these ideas shown with a connecting line and possibly details of the support further radiating off the concepts. You can present your main ideas vertically or horizontally, but turning your paper long-ways, or in landscape mode, may prove helpful as you add more main ideas.



(Credit: ArtistIvanChew / Flickr / Attribution 2.0 Generic (CC-BY 2.0))

Use Your Resources: Concept Mapping Ideas and Templates

The Center for Teaching and Learning at Brigham Young University offers examples and links to concept map template sources. Check it out at <https://ctl.byu.edu/tip/concept-mapping>



Reviewing and Improving Notes

Reviewing and augmenting notes after the initial notetaking session may be one of the most valuable study skills you can master. Whether you are highlighting, underlining, or adding additional notes, you are reinforcing the material in your mind and memory.

Annotations can refer to anything you do with material to enhance it for your particular use. The act of looking over your notes and related materials will itself enhance your knowledge. Further notations will only strengthen that connection. Your activities may include:

- Summarizing your notes
- Defining key terms
- Drawing connections between different concepts (such as cause and effect)
- Paraphrasing concepts or quotations
- Asking yourself questions
- Noting questions to ask your instructor

Your notes play a significant role in your test preparation. They should enhance how you understand the lessons, textbooks, lab sessions, and assignments. All the time and effort you put into first taking the notes and then annotating and organizing the notes will be for naught if you do not formulate an effective and efficient way to use them before sectional exams or comprehensive tests.

Summary

The cycle of reading, notetaking in class, reviewing and enhancing your notes, and preparing for exams is part of a continuum you ideally will carry into your professional life. Don't try to take short cuts; recognize each step in the cycle as a building block. Learning doesn't end, which shouldn't fill you with dread; it should help you recognize that all this work you're doing in the classroom and during your own study and review sessions is ongoing and cumulative. Practicing effective strategies now will help you be a stronger professional.

References, Resources and Further Reading

The selection and relative value of study guides and books about notetaking vary dramatically. Ask your instructors for recommendations and see what the library has available on this topic. The following list is not comprehensive, but will give you a starting point for books and articles on notetaking in college.

Reading Comprehension Tips, by the Learning Center at UNC Chapel Hill.
<https://learningcenter.unc.edu/tips-and-tools/reading-comprehension-tips-2/>

Milligan, Theresa. "A Guide on How to Use Highlighting." Dunwoody College of Technology.
http://www.dunwoody.edu/pdfs/Elftmann_Highlighting.pdf

The Learning Center, University of North Carolina at Chapel Hill. "Highlighting."
<https://learningcenter.unc.edu/tips-and-tools/using-highlighters/>

Cornell College. "Reading a Textbook for True Understanding."
<https://www.cornellcollege.edu/academic-support-and-advising/academic-support/study-tips/reading-textbooks.shtml>

Baldwin, Amy and Pearson, Ann. "Reading and Notetaking," chapter in *College Success*. 2020. OpenStax, Rice University. <https://openstax.org/subjects/college-success>

College Rules!: How to Study, Survive, and Succeed in College, by Sherri Nist-Olejnik and Jodi Patrick Holschuh. More than just notetaking, this book covers many aspects of transitioning into the rigors of college life and studying.

Effective Notetaking, by Fiona McPherson. This small volume has suggestions for using your limited time wisely before, during, and after notetaking sessions.

Learn to Listen, Listen to Learn 2: Academic Listening and Note-taking, by Roni S. Lebauer. The main point of this book is to help students get the most from college lectures by watching for clues to lecture organization and adapting this information into strong notes.

Study Skills: Do I Really Need this Stuff?, by Steve Piscitelli. Written in a consistently down-to-earth manner, this book will help you with the foundations of strong study skills, including time management, effective notetaking, and seeing the big picture.

"What Reading Does for the Mind," by Anne Cunningham and Keith Stanovich, 1998,
<https://www.aft.org/sites/default/files/periodicals/cunningham.pdf>

Adler, Mortimer J. and Charles Van Doren. *How to Read a Book: The Classic Guide to Intelligent Reading*. NY: Simon & Schuster, 1940.

Berns, Gregory S., Kristina Blaine, Michael J. Prietula, and Brandon E. Pye. *Brain Connectivity*. Dec 2013. ahead of print <http://doi.org/10.1089/brain.2013.0166>