Tips and Tricks to Take Effective Notes

Introduction

Taking notes is a crucial aspect of any student's academic career; it's how we convert what is said in lectures into a format where we are able to improve our own understanding of a particular subject. As academic content constantly increases in rigor, students who stick to traditional "jot notes" often find that their notes tend to be disorganized, hard to review, and ineffective at connecting concepts while capturing the big picture. Thus, by changing the method we take notes, we minimize these shortfalls as well as improve our ability to recall, synthesize and comprehend information. Read ahead for some note-taking strategies that you can incorporate into your regular learning.

Topic Flags

While going through this handbook, you'll likely notice these little icons at the edges of the page. These are used as markers to help you, as a learner, identify the types of strategies that are best suited for your goals.

Learner Flag

To indicate if this method is for visual, auditory, kinaesthetic or all types of learners!

Visual Learner

Auditory Learner

Kinesthetic Learner

Expertise Flag

To indicate if this method is student suggested and tested, or scientifically researched!

Click the flag to access a more in depth explanation of an expert method.

Student Reviewed

Expert Reviewed

Note from Webstraw

Thank you for opening this resource! At WebStraw, we have researched the most effective study techniques to share with students because we recognize that students are taught what to learn, but not necessarily how to learn. We hope that you find this compilation of study techniques useful in your studies and we wish you all the best in your endeavours!

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A | Cornell Method

Introduction

The Cornell Notetaking method involves dividing the notetaking space into three major sections: **questions/terms, class notes, and summary**. The aim of this technique is to build a framework where the most important lecture concepts are recorded using a question-answer format in the student's own words, and reinforced through active recall and spaced repetition through periodic retesting leading up to an exam or assessment.

Instructions

Step 1: Section off three major areas of the notetaking space leaving room for a title; the "questions" column, the "class notes" column, and the "summary" row.

Step 2: While going through the lecture content, note down which concepts are most important in the "questions'' column. Then, answer those questions in the "class notes" column on the right. Support your answers with visual aids such as diagrams or drawings!

Step 3: At the end of the notetaking space, summarize all the important information in your class notes in an easy-to-remember format.

Step 4: In the days leading up to a test, periodically go back to your notes and test yourself on the content by trying to answer your questions while covering your "notes" column.

AVOID: It is very easy to fall into the habit of "overwriting" in the notes section, out of a fear of missing a small detail that might come up later. Try to include only the main concepts essential to understanding test questions, and focus on details once those are understood.

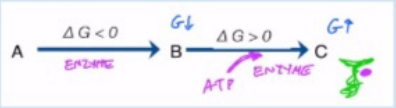
TIP: In lectures with lots of detail, try and shorten sentences by using arrows (for concepts with logical progression), abbreviations (e.g. reaction = "rxn"), and omitting words not essential to conveying meaning (your brain will likely fill in the gaps regardless!)

A | Cornell Method

Example

Biology 1002 Cycle 3 Lecture 1 on Energy and Enzymes

Below is an example of the Cornell note taking framework for Biology 1002. The example shown below is extremely summarized, summing up a 55-minute lecture in a single page of notes. While some details are inevitably left out due to lecture length, a real life application of this method could see a similar length lecture summarized in 2-4 pages. The length constraints help to ensure that only critical information is recorded.

Questions/Terms	Biology 1002, Cycle 3 Lecture 1: Energy and Enzymes — Jan 24th, 2021 Class Notes
- Laws of Thermodynamics?	- 1: Energy transforms, can't be created/destroyed, 2: energy localized -> dispersed.
- *"Islands of Low Entropy"*	- Cells are "islands" of low entropy; use free energy -> does work -> maintains proteins (structure, function, etc.) -> reduces entropy.
- Main functions of enzymes?	- Helps "speed up" reactions by reducing free energy cost (activation energy, Ea) of steps. - They do **NOT add more energy,** nor **change overall ΔG.** - Lowers Ea through driving substrates to transition state conformations (change orientations, strain, charge interactions, etc.) which are normally not common.
- Biosynthetic Pathways	- Multiple steps that consist an reaction, can contain endergonic (ΔG > 0) and exergonic (ΔG < 0) steps. - Endergonic steps require an input of free energy (e.g. hydrolysis of ATP) 
- Anfinsen's Dogma?	- Denatured proteins with urea -> removed urea, they spontaneously refolded with no energy input -> **functional protein is the native conformation (lowest G),** specific folding depends on primary sequence.
- Enzymes and Catalysis	- E + S ⟷ ES → E + P - Catalytic cycle: enzymes are conserved through each reaction → reused over and over. - Substrates bind using an induced fit model (flexible active site shape changes to fit substrate) - Mutations near active site of enzyme have a more pronounced effect. - Temperature greatly impacts catalytic cycle* (high = faster, low = slower)
- Optimal temperature for enzyme activity?	- Most enzymes = 37C (natural body temperature) - *(Hyper)thermophiles have higher optimal temperatures/ranges, psychrophiles have lower, etc.

Summary

Energy transforms, tends to disperse; cells do work maintain structure/function ("low entropy islands"), enzymes speed up rxns by bringing substrates to transition state conformations, **reducing Ea** (**does not add energy or change ΔG**); biosynthetic pathways are steps of a reaction (can be ender/exergonic, ender requiring energy input in ATP); Anfinsen showed folding is spontaneous, **functional protein is the native conformation (lowest G)** and specific folding depends on primary sequence; enzymes are conserved in catalytic cycles to be reused, mutations near active site are more impactful, catalytic cycle is heavily temperature-dependent (optimal temperature for most is 37C, with exceptions => thermo/psychrophiles).

B | Zettelkasten Method

Introduction

Zettelkasten translates to 'box of notes'. It is a method of taking notes where notes are made on little notecards and then related notes are linked together. By adding new knowledge to existing knowledge, this helps to strengthen understanding of both concepts and leads to the generation of new ideas.

Instructions

Step 1: Write separate ideas in your own words on separate index cards.

Step 2: Tag your notes by essentially creating a hashtag for your notes; different notes are associated with different tags.

Step 3: All the steps can also be done electronically using Roam Research and Remnote.

AVOID: It is very easy to overtag a note card. Keep it simple with a maximum of two of the most important tags.

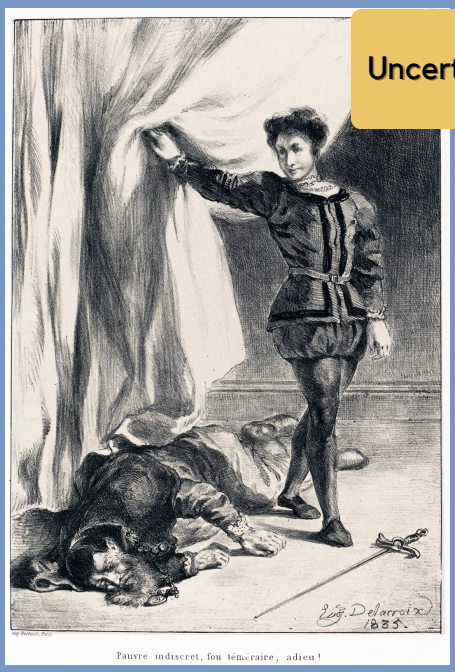
TIP: Give your note cards relevant and specific tags to make it easier to make connections.

Example

Reading Through Hamlet

If you were to read through some literature, for example Hamlet, you may want to note down specific quotes as you get through the books. As you record these quotes or important events from the play, you can give the note cards tags related to the theme the note card represents. ***One theme throughout the play is uncertainty, and so if a quote is related to this theme, you could tag it with the theme 'uncertainty.'*** Then, when organizing your note cards you could link together all the cards tagged 'uncertainty.'

> To sleep, perchance to dream—ay, there's the rub, for in that sleep of death what dreams may come when we have shuffled off this mortal coil, must give us pause.



C | Flow Notes

Introduction

Flow-based note taking consists of taking notes "in the moment," and being able to connect various ideas to one another sequentially, creating an overall holistic image of the connections between ideas, explanations, questions, and answers. This gives students the ability to create a logical chain of reasoning when studying various concepts that interlink together. Such a method of revision works well for subjects such as Biology and Chemistry, where concepts build upon one another.

Instructions

Step 1: Start with an important idea or overarching concept and make sure to write it in your own words.

Step 2: With each related point or idea, connect it back to the prior idea by creating arrows that connect questions, explanations and answers together.

TIP: Make sure to label your questions, explanations and answers clearly (by color coding for example) so that links can easily be made between concepts.

Step 3: Integrate visuals such as diagrams or sketches to accompany the more "visual" style of notes.

Step 4: Keep adding to your flow notes as the course progresses so that revision becomes simple at the end.

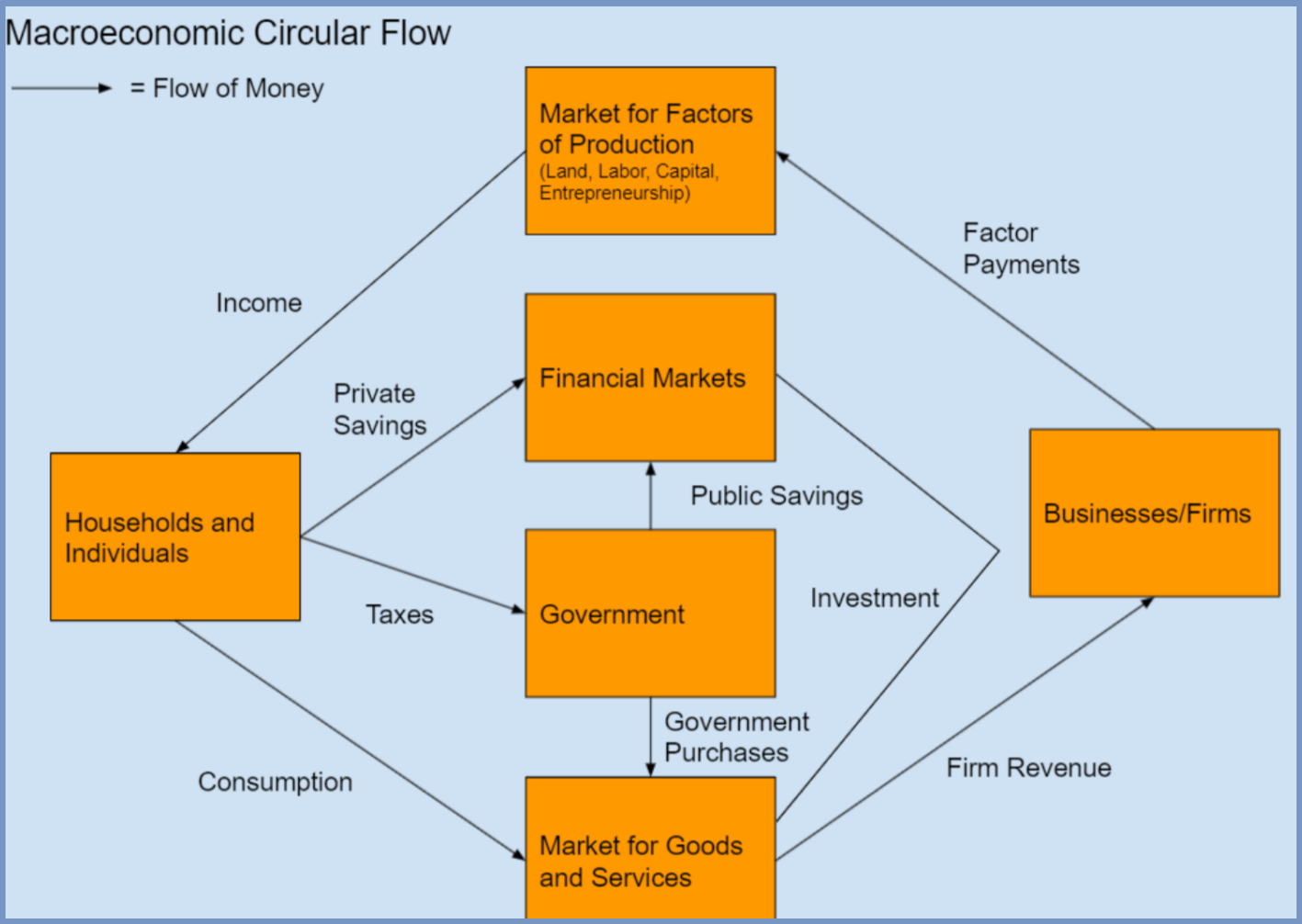
AVOID: Do not memorize each concept individually and rather understand the greater picture, using this method of note taking. Linking concepts together will be more effective when revising at the end rather than just memorizing concepts independently of one another.

C | Flow Notes

Example

The role of the government in the macroeconomy (Economics).

The main starting point for the flow notes in this case is the role of the government in the macroeconomy. Then, you should draw arrows to connect this start point with other relevant ones (for example, the idea that tax revenue is collected by the government from households and firms to fund public spending). Afterwards, you should keep creating arrows to form a sequence (one example of this might be how taxes affect businesses). This process should continue until you have a full summary of the government's role in the economy.



D | Charting Method

Introduction

The charting method makes use of a table to categorize various concepts related to a broader topic. Organizing notes in this way not only improves clarity, but is also easier to review and study from later down the line. Charting also excels at making direct comparisons between similar topics, which helps break down those concepts and makes them easier to understand.

Instructions

Step 1: Identify whether a chart is useful in that particular situation. This could be when multiple concepts with similar features are being compared, or when a lot of information is presented and needs to be organized/summarized.

Step 2: While it may vary widely from situation to situation, construct the chart based on the number of topics being compared, as well as the nature of the comparison (are you comparing multiple concepts -> grid chart, or similarities and differences -> venn diagram).

Step 3: Set up your piece of paper into columns or sections with the appropriate headings, once you have chosen the appropriate chart for the topics in question.

Step 4: Insert the appropriate information into the appropriate categories.

TIP: This method of revision is especially useful when you are comparing various aspects of a course, as you can easily look at the degree of similarity and difference between multiple pieces of information.

TIP: Make sure to concisely summarize the information that you are arranging so that you can extract the information that you require.

Example

Microbiology

For example, in a Microbiology course, the lesson reviewing different Bacteria could have the headings: 'Bacteria Name', 'Structure', 'Special Features', 'Method of Spreading,' and 'Diseases Caused', with the information placed under the respective headings.

	Cocci	Bacilli	Spirilla
Structure			
Special Features			
Spreading			
Diseases			

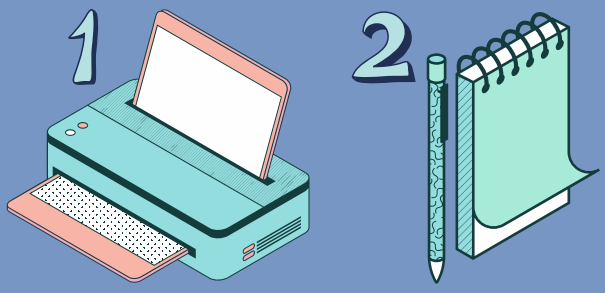
F | Hybrid Digital and Handwritten

Introduction

When taking notes, a student can either take hybrid digital notes or handwrite them, depending on the task in question. In this case, it can be advantageous to use both media of notetaking over the semester, each for a different purpose. This mixture of hybrid digital and handwritten notes should help you retain and document important information, especially if diagrams and annotations are essential for the course in question.

Example

One example of this might be when a student starts to learn new and unfamiliar content (in Physics, for example), it might be better to type up notes at first using information (from textbooks/lectures), and then add important details afterwards such as annotations, comments and diagrams by hand using a tablet/iPad.



Instructions

Step 1: If the course is Science related, handwrite and annotate your lecture notes by printing off the presentation slides or uploading them onto a tablet

Step 2: When preparing for exams, use your textbook notes and annotated lecture slides in combination with one another and type up extensive concepts, definitions, and ideas.

Step 3: Print off your exam notes and read through your notes

Step 4: Add more handwritten details using colours than before and highlight concepts you have trouble with.

TIP: Digital note taking is favorable when information is text-heavy, while handwritten notes can be more useful than digital note taking when concepts involve diagrams or practice problems.

AVOID: Do not rely on one method of note taking for all of your courses. It is best to use both methods of note taking, depending on the work involved (for example, Mechanics courses might require handwritten diagrams to accompany the solution of a problem).

G | SMART Notes

Introduction

Taking notes for technical courses involves utilising a different approach than just traditional note taking. Focusing more on the explanations of detailed, step-by-step processes and developing the proper mental framework to tackle difficult types of problems goes a lot farther compared to simply memorizing content.

Step 1: Always record the practice question as well as the final solution separately, even if the lecture "leaves it as practice" for you. Knowing the correct outcome allows you to try and identify the correct sequence of steps to arrive at the final answer.

Step 2: If the questions are simply "not clicking," question why that is. Which step do you find yourself getting stuck or confused at, and why? What gap in your knowledge exists which prevents you from solving the problem?

Step 3: Once you have gotten the hang of a practice question, write down the procedure of steps you used to successfully solve the problem. If you are able to explain how you got the answer, this shows you can reproduce that knowledge on a test or exam.

Step 4: In your procedure, make note of important things to know when doing the question, either in your own experience or based on the professor's comments. These annotations help immensely when it comes time to review problems.

TIP: Doing practice questions is your best friend. In most cases, just knowing lecture content isn't enough; you also need to develop that mental framework or natural thought process whenever you approach a question, which is only developed through extended practice.

AVOID: Try not to "overstudy" in anticipation of every single small possibility that could arise in a test question. While it is important to be comprehensive and to cover as many bases as possible, try to limit it to what you might expect to see based on the lecture content and professor's comments.

Practice Makes Perfect

G | SMART Notes

Example

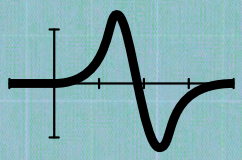
Understanding Kinematics in Physics

Step 1: Always record the practice question as well as the final solution separately, even if the lecture "leaves it as practice" for you. Knowing the correct outcome allows you to try and identify the correct sequence of steps to arrive at the final answer.

You solve the practice problem by referring to a practice question from lecture. Try not to look at the final answer at first, but rather the steps the lecturer took to solve this problem.

Step 2: If the questions are simply "not clicking," question why that is. Which step do you find yourself getting stuck or confused at, and why? What gap in your knowledge exists which prevents you from solving the problem?

You aren't understanding the question.
Try sketching out a rough sketch of the question to visualize the situation and help understanding.



Step 3: Once you have gotten the hang of a practice question, write down the procedure of steps you used to successfully solve the problem. If you are able to explain how you got the answer, this shows you can reproduce that knowledge on a test or exam.

You record the unknowns and knowns for the problem. Going step by step, try and solve for the relevant unknowns. Play around with equations that contain the variables in your problem.

Step 4: In your procedure, make note of important things to know when doing the question, either in your own experience or based on the professor's comments. These annotations help immensely when it comes time to review problems.

Once you have solved the problem, make note of which equations ended up working for this type of problem so you'll remember for the future!

H | QEC Method

Introduction

The Question-Evidence-Conclusion (QEC) method involves a three-step process in order to construct comprehensive and holistic perspectives surrounding central ideas and themes. When there is often no "one right answer," this method helps develop a structure where students can directly compare and contrast the evidence presented and use that information to shape their particular opinion or stance, all the while recording notes in an organized manner.

Instructions

Step 1 - Question: It is important to establish your question or the central idea in the lecture. While it may not always be presented first, it should be clear as time goes on what the main idea of the discussion centers around, and it is imperative that this is well-defined and specific.

Step 2 - Evidence : Most of the information presented during lecture is evidence relating to the defined question. One approach to keeping track of evidence where examining two or more arguments is necessary is to group pieces of evidence by the particular "stance" they are associated with. This approach helps keep everything organized.

Step 3 - Conclusion: Using the evidence recorded, now is the time for the student to form their own argument of the question. The conclusion should be a concise, comprehensive explanation of what the stance entails and referencing what particular evidence.

TIP: Be sure to include any critical points, whether they align with your opinion or not; essay questions on exams might ask you to evaluate a prompt/idea from both sides of an issue.

AVOID: Lectures and discussions often contain a massive amount of details and information -- not all of it may be relevant to the arguments. When recording evidence, be sure to only include points which are critically relevant.

H | QEC Method

Example

How does the QEC Method Work?

The Q.E.C Method
(Question/Evidence/Conclusion)

1. Note down the question your notes address. → Question: How does the QEC Method work?

2. Use dot points to summarise the evidence that responds to the question. →
   - Evidence:
   - Use dot points
   - Answer the question
   - Use concise sentences
   - Include quotations and examples where appropriate

3. Answer the question and summarise the dot points. → Conclusion:
   Answer the question in a couple of sentences. Aim to summarise the key points.
   Summarise the ideas that answer the question - using dot-points, answering the question, being concise, including quotations and examples- for later reference and review

This method comes in handy, particularly when the central "question" involves a controversial issue or problem in today's society. In these situations, it is absolutely critical to examine the benefits and drawbacks of various solutions through different lenses. This method is effective in discussion and essay-based courses where there is no "one right answer" (e.g. English, Political Science, Economics, etc.)