A System for Effective Listening and Note-Taking

You can think about 4 TIMES FASTER than a lecturer can speak. Effective LISTENING requires the expenditure of energy; to compensate for the rate of presentation, you have to actively intend to listen. NOTE-TAKING is one way to enhance listening, and using a systematic approach to the taking and reviewing of your notes can add immeasurably to your understanding and remembering the content of lectures.

Before Class
- Develop a mind-set geared toward listening.
- Test yourself over the previous lecture while waiting for the next one to begin.
- Skim relevant reading assignments to acquaint yourself with main ideas, new technical terms, etc.
- Enhance your physical and mental alertness: eat a snack before class, sit in the front and/or center of the room, focus your attention on the speaker.
- Choose notebooks that will enhance your systematic note-taking: a separate notebook with full-sized pages is recommended for each course. NOTE: Many studies find hand-writing notes better helps you to engage with (and therefore remember) information. If you take notes on a laptop, that is fine, but we’d recommend then transferring those typed notes into a handwritten version.
- INTEND TO LISTEN.

During Class
- Resist distractions, emotional reactions or boredom.
- Pay attention to the speaker for verbal, postural, and visual clues to what’s important.
- Label important points and organizational clues: main points, examples.
- When the instructor talks too fast:
  - Leave large spaces for filling in what you miss
  - Make choices about what to write – watch/listen for main points. Fill in details later.
  - Exchange photocopies of notes with classmates you trust.
  - Ask the instructor to slow down and/or repeat information
- When possible, translate the lecture into your own words.
- Be consistent in your use of form, abbreviation, etc.
  
  w/ with < less than
  w/o without > greater than
  + and ↑ increase(s)
  ± more or less ↓ decrease(s)
  = equals ex example
  ≠ does not equal vs. versus, against
  # number, pounds
  @ approximately etc. and so on
  avg. average
  △ change
- Ask questions if you don’t understand.
- Instead of closing your notebook early and getting ready to leave, listen carefully to information given toward the end of class; summary statements may be of particular value in highlight main points; there may be possible quiz questions, etc.

After Class
- Go over notes AS SOON AS POSSIBLE after lecture, within 24 hours at most.
- Clear up any questions raised by the lecture by asking either the teacher or classmates.
- Fill in missing points or misunderstood terms from text or other sources.
- Edit your notes, labeling main points, adding recall clues and questions to be answered. Key points in the notes can be highlighted with different colors of ink.
- Make note of your ideas and reflections, keeping them separate from those of the speaker.
Note Taking:
Matrix Method

The Matrix method provides a format for revising notes into a visual aid, or for combining notes from multiple sources (such as notes and a book). A matrix keeps related information organized in vertical and horizontal levels. Creating the matrix is a rehearsal step that allows students to frequently and easily reference knowledge.

**Method**

1. Identify related concepts. These concepts will go in rows.
2. Determine characteristics that are related among these concepts. These characteristics will become your column headers.
3. Fill in the matrix columns with information (or cues) that needs to be learned.
4. Review the matrix.

**Sample: Stages of Memory**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Length</th>
<th>Capacity</th>
<th>Source</th>
<th>Study Strategy</th>
<th>Other Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensory Memory</td>
<td>Few seconds</td>
<td>Very small</td>
<td>Sight, sound, touch</td>
<td>Use all senses; stay alert</td>
<td>First point of information intake</td>
</tr>
<tr>
<td>Short-Term Memory</td>
<td>18 seconds</td>
<td>5-7 bits</td>
<td>From sensory memory</td>
<td>Use chunking</td>
<td>Serves as working memory; Sensitive to interruption.</td>
</tr>
<tr>
<td>Long-Term Memory</td>
<td>Permanent Storage</td>
<td>Limitless</td>
<td>From rehearsal short-term memory</td>
<td>Rehearsal of information</td>
<td>Information stored based no meaning and importance.</td>
</tr>
</tbody>
</table>

**Sample: Math Formula Matrix**

<table>
<thead>
<tr>
<th>Name</th>
<th>Formula</th>
<th>Variable Definitions</th>
<th>Uses/applications</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pythagorean Theorem</td>
<td>$a^2 + b^2 = c^2$</td>
<td>a &amp; b are legs of a right triangle. c is the hypotenuse.</td>
<td>Finding lengths of sides on a right triangle.</td>
<td></td>
</tr>
</tbody>
</table>

**Sample: Chemistry Matrix**

<table>
<thead>
<tr>
<th>Element</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Symbol</td>
</tr>
<tr>
<td></td>
<td>Protons</td>
</tr>
<tr>
<td></td>
<td>Neutrons</td>
</tr>
<tr>
<td></td>
<td>Electrons</td>
</tr>
<tr>
<td></td>
<td>Net Charge</td>
</tr>
</tbody>
</table>
## Sample: Biology Matrix

<table>
<thead>
<tr>
<th>Phyla</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Representative Species</td>
</tr>
<tr>
<td>Annelida</td>
<td></td>
</tr>
<tr>
<td>Arthropoda</td>
<td></td>
</tr>
<tr>
<td>Echinodermata</td>
<td></td>
</tr>
<tr>
<td>Chordata</td>
<td></td>
</tr>
</tbody>
</table>

### Some Additional Suggestions for Information Matrices

1. Keep your matrices in the notebooks or folders in which you keep other course materials so that you can continue to add items to a given matrix during class or when studying for that class.
2. To help you see new relationships, do your matrices with a friend taking the same course.
3. Use the questions from your matrices to ask questions during class.
4. Practice reducing your matrices to smaller, key-word matrices or diagrams that you would be able to quickly reproduce for your exams. When taking an exam, more concise matrices will help you:
   - Organize your writing under time pressure.
   - Remember what you want to say.
   - Earn credit for points about which you don’t have time to write fully.
5. Remember to avoid questions that can be answered by “Yes” and “No”. A question that can be answered by Yes or No can usually be changed to one that requires a more complex answer. For example: “Is it safe?” could be changed to “What kinds of safety factors are involved?” An information matrix should have more complex questions, since you want to be sure to answer it as fully as you would be required to answer it on an exam.
Note Taking:
The Mind Map Method

The mind-map method provides a format for revising notes into a visual aid, or for combining notes from multiple sources (such as notes and a book). This method is very effective for visual learners. Creating a mind map is also a rehearsal step that allows students to create a useful tool for on-going review.

Method

1. Select your main idea, and this in the center of your paper.
2. Determine the next level ideas/concepts (branches) from the main idea. Rewrite these ideas surrounding the main idea, and create tentacles.
3. Create a third level of ideas (twigs) that serve as cues, such as key words, dates, etc. Continue to add twigs as needed.

Writing Alternative

Visual learners like using the mind map to brainstorm ideas for a paper, and keep adding the twigs as they do research. They then convert the mind map into an outline, and the outline into their paper.
Notetaking:  
The Cornell Method

The Cornell method provides a systematic format for condensing and organizing notes without laborious recopying. After writing the notes in the main space, use the left-hand space to label each idea and detail with a key word or “cue”, and the bottom space to summarize your main space.

<table>
<thead>
<tr>
<th>Recall Column</th>
<th>Note-Taking Column</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use this side to:</td>
<td>1. <strong>Record</strong>: During the lecture, use the note taking column to record the lecture using telegraphic sentences. When the instructor moves to a new point or you lose focus, skip a few lines. After class, complete phrases and sentences as much as possible.</td>
</tr>
<tr>
<td>(a) Identify places to revisit, gaps where you need clarification or questions you have from the lecture.</td>
<td>2. <strong>Questions</strong>: As soon after class as possible, formulate questions based on the notes in the right-hand column. Writing questions helps to clarify meaning, reveal relationships, establish continuity, and strengthen memory. Also, the writing of questions sets up a perfect stage for exam-studying later.</td>
</tr>
<tr>
<td>(b) Create questions to study from (based on the information to the right)</td>
<td>3. <strong>Recite</strong>: Cover the note-taking column with a sheet of paper. Then, looking at the question or cue-words in the question and cue column only, say aloud, in your own words, the answers to the questions, fact, or ideas indicated by the cue-words.</td>
</tr>
<tr>
<td>(c) Highlight keywords</td>
<td>4. <strong>Reflect</strong>: reflect on the material by asking yourself questions. For example: “What’s the significance of these facts? What principles are they based on? How can I apply them? How do they fit in with what I already know? What’s beyond them?”</td>
</tr>
<tr>
<td>(d) Make connections to other material either from your experience or from the textbook.</td>
<td>5. <strong>Review</strong>: spend at least ten minutes every week reviewing all your previous notes. If you do, you’ll retain a great deal for current use, as well as, for the exam.</td>
</tr>
<tr>
<td>(e) Reduce ideas and facts to concise summaries and important topics.</td>
<td></td>
</tr>
</tbody>
</table>

**Summary**

After class, use this space at the bottom of each page to summarize the notes on that page. Think of simple statements that are “big ideas” to allow yourself the ability to quickly skim notes later on.
Stages of Memory

Sensory Memory
1. First point of information intake – sight, sound, touch
2. Lasts for a few seconds, only as exact copy

Short – Term Memory
1. Temp storage of small amounts of info – 5-7 average—digit span experiment
2. “Chunking” like bits of info together makes it easier to remember—e.g., S.S.# has 3/2/4 bits grouped.
3. Info from sensory member is selected for attention – phone # you’ve looked up, etc.
4. Serves as working memory
5. Sensitive to interruption—someone interrupts before you make the phone call and the # is gone.
6. After 18 seconds w/out rehearsal, info is lost and doesn’t go to LTM.
7. Coded, rehearsed info can make it to long-term memory.

Long-Term Memory
1. Permanent storage
2. Limitless capacity
3. Rehearsal process (repetition, etc) required
4. Info stored on basis of meaning and importance

Info must go through 3 stages – sensory, STM, and LTM. Rehearsal process for retention. Info stored on basis of meaning and importance.
Note-Taking:  
Creating and Using Notecards

Note cards (aka, flash cards or concept cards) are an excellent tool for reviewing and rehearsing knowledge. Students most commonly create note cards after classes and use them before exams, but there are many variable uses for note cards that make them very versatile.

Creating Note Cards

1. On the “front” of a card, write a clue, keyword, or phrase for the term/concept that you want to learn.
2. Also on the front in the upper right corner, write a word that may help you sort your cards in the future. Alternatives could be numbering, highlighting colors, or using colored cards.
3. On the “back” of the card, write the details you want to memorize. Often this will be a definition, but consider adding an example or application.
4. Also on the back, make note of the source for the card (ex: page in the textbook or date from your notes)

Tips to Review Note Cards

♦ Based on content of the front, guess the details on the back.
♦ Based on the details on the back, quiz yourself on the front in a “Jeopardy” format. (i.e. “What is mitosis?”)
♦ Share cards with a classmate or study partner to quiz each other.
♦ Keep the cards in an order if memorization in an order is important.
♦ Shuffle your cards often to prevent memory based on order.
♦ Form a study group and create copies of cards for each other. (ex: Andy makes cards based on pages 1-10, Beth makes cards based on pages 11-20, etc.)
♦ Keep cards handy for a quick 5-15 minute study break on the bus, while walking, over lunch, etc.
♦ Recite note cards verbally to practice pronunciation. Verbal recitation enhances the speed and accuracy of learning.
♦ Write sources on the cards for reference if you need additional information.

For more ideas, refer to: http://www.sarc.sdes.ucf.edu/ss73.pdf
It is important that we make sure we are critically thinking about the content we are reading. These three note-taking tips for when you’re reading for class will help keep your brain focused and better comprehending what you are reading.

<table>
<thead>
<tr>
<th>Method</th>
<th>Use and Benefit</th>
</tr>
</thead>
</table>
| 1. Post-It Notes        | • As you read, be sure to take pauses and write down quick summaries of what the paragraph is about (key facts, people, and overall idea).  
                          • This technique is beneficial for individuals who are renting their textbooks and cannot write or highlight with more than one color.  
                          • This can also be helpful for open-book tests. If you create tabs and put in your own notes/summaries of the content, it will help make your testing or review experience more effective. |
| 2. Writing in the Margins | • This is a great way to test your comprehension of what you’re reading paragraph by paragraph. In the margin next to the paragraph, write a quick blurb about what the section is about.  
                          • It is very important to be able to make sure that you are understanding what you are reading and not just letting your eyes gloss over the pages. If you can see how the material connects to the other information in the book and also can paraphrase what the paragraph/chapter is about, it means that you are understanding the content.  
                          • Before you go to class, skim over your margin notes to jog your memory.                                                                                                                                 |
| 3. Using a Highlighting System | • You want to make sure that your notes you are taking will work for you come study time. Do you feel like your pages become a sea of yellow highlighter?  
                          • Create a highlighting system, each color representing something different: yellow = equations/quotes; orange = key names, places, and dates; green = primary points; etc.  
                          • This is going to allow you to easily re-locate your important content when reviewing before class, class discussions, or even writing a paper about the reading. |
1. Read your book chapter or slides before class. Note taking comes easier when you advanced context of the material.

2. Develop the intention to learn while you are in lecture. You’ve made the effort and taken the time to attend. Now make the most of your time by learning information as you receive it. The more information you understand, the less you’ll have to memorize.

3. Start by entering the classroom with a positive attitude. Going to class thinking, “there is no reason for me to be here” only sets the stage for inactive listening. Approaching lectures with a positive mentality allows one to be open-minded and enables you to get the most out of the information presented.

4. Take a minute before class to strategize what will likely be discussed based on the syllabus, what has been presented in the course so far, your notes from the last lecture, and a quick glance at the readings assigned (using **THIEVES**) for the current class.

5. Start each lecture on a new page and be sure to date and number each page. The sequence of material is important.

6. Think about your own understanding of the concepts before you start making notes. Don’t take notes just to be taking notes! Your notes should be of value to you when you look over them at a later date.

7. Take selective notes. Don’t try to copy information word for word.

8. Notes should consist of key words or very short sentences. If a speaker gets sidetracked it is often possible to go back and add further information.

9. Use an outline format and/or a numbering system. Indention also helps you distinguish major from minor points.

10. Don’t worry about missing a point, you can always fill in this information after the lecture.

11. Note anything you don’t understand by underlining or highlighting to remind you to ask the instructor or look up later.

12. Listen for clues. When the speaker takes a deep breath, changes their intonation, puts down the marker, big things are coming.

13. Lecture notes should be as specific and concrete as possible but also precise about the lecturer’s key ideas. It makes them easier to understand, remember, and apply in the future.

14. Connect the relationship between information presented in lecture and information presented in the readings, in the written work, and in the problems assigned.

15. Keep a record of questions relating to the material as they go along. This makes it easy to follow up with professors, or to offer a question at the end of the lecture. Keeping a list of questions will also give you easy reference points when you need to re-engage with your notes for a paper or project.

16. Don’t keep notes on oddly shaped pieces of paper. Keep notes in order and in one place.

17. Shortly after making your notes, go back and rework (not redo) your notes by adding extra points and spelling out unclear items. Remember, we forget rapidly. Allow time for this vital step just as you do for the class itself.

18. Review your notes regularly. This is the only way to achieve lasting memory.

19. Having a friend in class can be extremely helpful! If you have to miss class, are unable to take notes, and/or have gaps in your notes you will have someone to help you. Exchange phone numbers with a classmate so that you have a backup source if you need it.

20. Remember, as you take notes consistently you will develop skill in selecting important material and in discarding unimportant material. The secret to developing this skill is practice.