People's Democratic Republic of Algeria

Ministry of Higher Education and Scientific Research

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Scientific English Handout

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LECTURE 1: OVERVIEW OF CLAUSES

A clause is a group of words with its own subject and verb. Clauses allow you to combine ideas to show their relationship. This adds logic and cohesion to your speech and writing.

There are two types of clauses: **independent clauses** (main clauses) and **dependent clauses** (subordinate clauses and relative clauses).

- **An independent clause** is a complete sentence because it has its own subject and verb and expresses a complete thought.

- **A dependent clause** is part of a sentence, so it cannot stand alone.

> **Example:** He had no qualification; **however** he got the job.
> **Independent clause**   **Dependent clause**

Although the dependent clause shown on the previous example has a subject and a verb, it does not express **a complete thought**. As a result, it **cannot stand alone**.

A dependent clause often starts with a word that makes the clause unable to stand alone; **for example, however**. These words are **subordinating conjunctions**.

Subordinating conjunctions link an independent clause to a dependent clause. Each subordinating conjunction expresses a relationship between the dependent clause and the independent clause.

Lecture 2: Types of sentences

There are four types of sentences:

1. **Simple sentences:** A simple sentence contains a subject and a verb, and it may also have an object and modifiers. However, it contains only one independent clause.

   E.g.   Some students like to study in the mornings.

2. **Compound sentences:** A compound sentence contains at least two independent clauses. These two independent clauses can be combined with a comma and a coordinating conjunction or with a semicolon. The coordinators are as follows: **for, and, nor, but, or, yet, so.**

   ➤ I tried to speak Spanish, **and** my friend tried to speak English.

   ➤ Sami played football, **so** Maria went shopping.

   ➤ Sami played football, **for** Maria went shopping.

3. **Complex sentences:** A complex sentence contains at least one independent clause and at least one dependent clause. Dependent clauses can refer to the subject (who, which) the sequence/time (since, while), or the causal elements (because, if) of the independent clause.

If a sentence begins with a dependent clause, note the comma after this clause. If, on the other hand, the sentence begins with an independent clause, there is not a comma separating the two clauses.

   ➤ The students are studying **because** they have a test tomorrow.

   ➤ **After** they finished studying, Juan and Maria went to the movies

4. **Compound-complex sentences:** Sentence types can also be combined. A compound-complex sentence contains at least two independent clauses and at least one dependent clause.

Lecture 3: Paragraph Writing

I/ Definition

A paragraph is a sentence or group of sentences that support one main idea. It is a series of sentences that are organized and coherent, and are all related to a single topic.

In academic writing, a paragraph is often between five and ten sentences long but it can be longer or shorter, depending on the topic.

Paragraphs can contain many different kinds of information. A paragraph could contain a series of brief examples or a single long illustration of a general point. It might describe a place, character, or process; narrate a series of events; compare or contrast two or more things; classify items into categories; or describe causes and effects. Regardless of the kind of information they contain, all paragraphs share certain characteristics. One of the most important of these is a topic sentence.

A paragraph has three basic parts: the topic sentence, the supporting sentences, and the concluding sentence.

1. **The topic sentence:** it is the main idea of the paragraph. It is usually the first sentence of the paragraph, and it is the most general sentence of the paragraph.

2. **The supporting sentences:** these are the sentences that talk about or explain the topic sentence. They are more detailed ideas that follow the topic sentence.

3. **The concluding sentence:** this may be found as the last sentence of the paragraph. It can finish a paragraph by repeating the main idea or just giving a final comment about the topic.

II/ Qualities of a Good Paragraph

1. **UNITY:** A good paragraph possesses unity when all the sentences develop the main idea. Unity in the paragraph is achieved by the use of a topic sentence with its controlling idea, supporting details, and concluding sentence.

2. **COHERENCE:** all the sentences and ideas in the paragraph flow smoothly together to make clear and logical points about the topic. Coherence can be achieved through the use of:

a. Natural or easily recognized order.

b. Transition words and phrases - used to show the connection from one sentence to another, or to signal a new train of thoughts.

c. Repetition of Key Words - important words or phrases (and their synonyms) may be repeated throughout a paragraph to connect the thoughts into a coherent statement.

3.Order: Order refers to the way you organize your supporting sentences. Whether you choose chronological order, order of importance, or another logical presentation of detail, a solid paragraph always has a definite organization. In a well-ordered paragraph, the reader follows along easily, aided by the pattern you've established. Order helps the reader grasp your meaning and avoid confusion.

4. Completeness: Completeness means a paragraph is well-developed. If all sentences clearly and sufficiently support the main idea, then your paragraph is complete. If there are not enough sentences or enough information to prove your thesis, then the paragraph is incomplete. Usually three supporting sentences, in addition to a topic sentence and concluding sentence, are needed for a paragraph to be complete. The concluding sentence or last sentence of the paragraph should summarize your main idea by reinforcing your topic sentence.

Lecture 4: Parts of the Scientific Article

- **Title:** briefly states what the article is about.

- **Abstract** summarizes the whole article.

- **Introduction** establishes the context for the research: the area in which the research takes place, the research problem, the importance of the research, and the guiding question or hypothesis.

- **Materials and Methods** describe the research procedure.

- **Results** report the outcomes of the research procedure.

- **Discussion** interprets the results, explaining them and comparing them to the results of other experiments.

- **Conclusion** focuses the reader on what is important about the research, its contribution to the larger area of study.

- **References** list the sources used in the article.

I/ What Is A Lab Report?

A Lab report is a scientific work written to describe and analyse a laboratory experiment that explores a scientific concept. In a lab report you explain what you did in your experiment, what you learned, and what the results meant.

Basics:

- Arial; 11 or 12 point

- 1.5 line spacing

- Print on A4

- 1500-2000 words

II/ Structure of a Lab Report
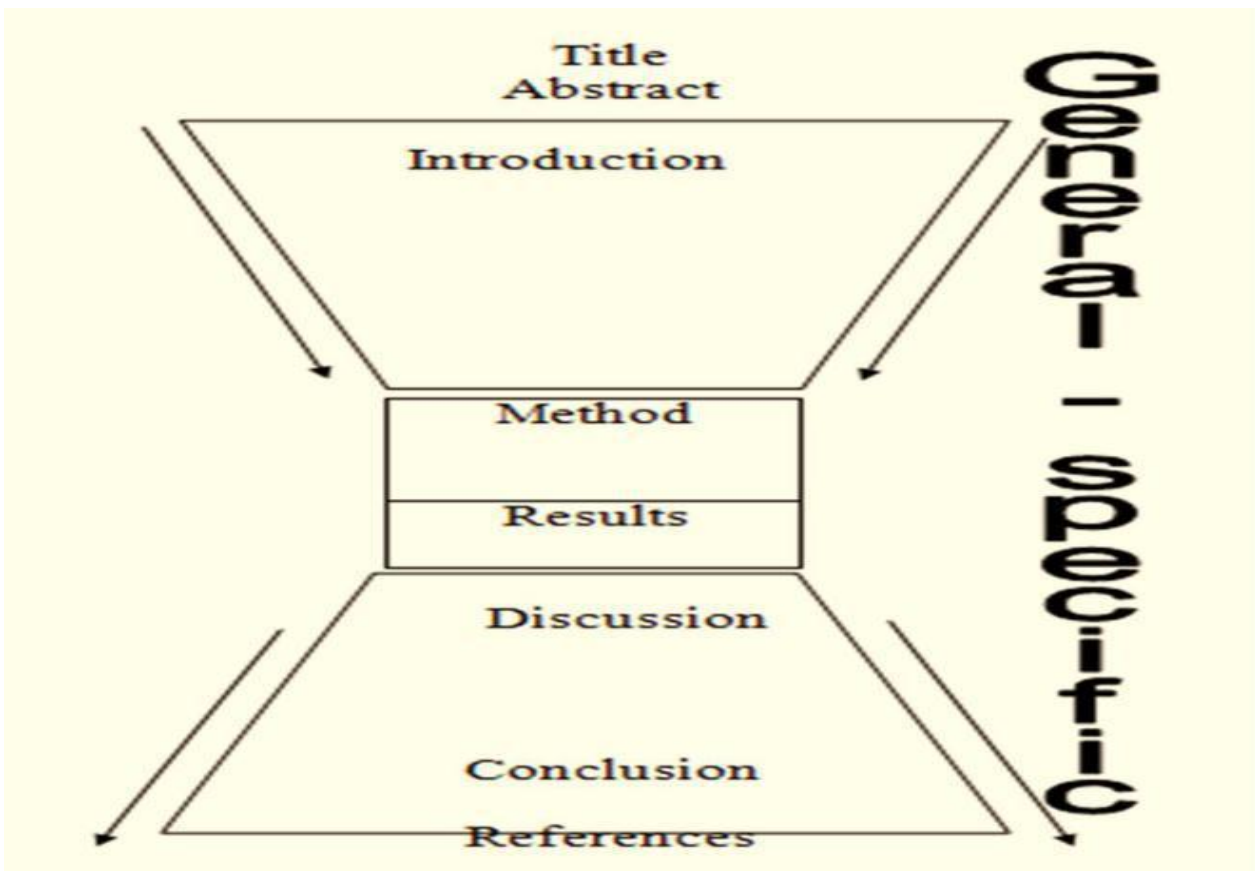
A/ Title Page :

Do	Don't
Explain what the experiment involves in a long phrase (be specific!)	One word titles: 'Chromatography' or 'Enzymes'
The effect of… **The influence on…**	Use phrases such as: "An experiment to show ..." " A study of..." " An investigation into..."
Include the title on the front cover and first page	

B/ Abstract

- Abstracts are short (usually 150-200 words)

- The abstract is an overview of the whole report

- Abstracts show the reader the main findings of the report

| Do	Don't
Summarise the whole report in one paragraph	Use references
Write it to stand alone as a description of the whole study	Refer to the report's structure
Write it last	Include statistics
Keep it short (150-200 words) **Remember it is not an introduction**	Include abbreviations

Language of Abstracts:

1. Full sentences

3. Impersonal passive ("The acid was applied")

4. Avoid negatives (not, no)

5. Avoid abbreviations, symbols and any other language 'shortcuts'.

C/ Introduction

- Introduce the area and previous research in the area

- Indicate a gap in the previous research; include why there was a need to conduct the experiment(s)

- Outline the purpose and relevance of the experiments

- End with the aims

General

Specific
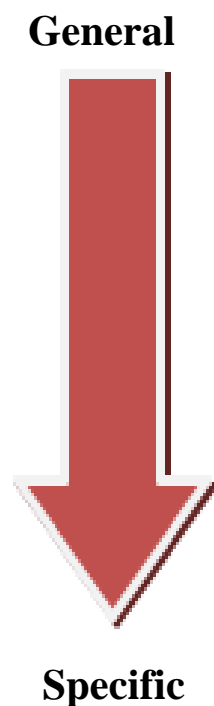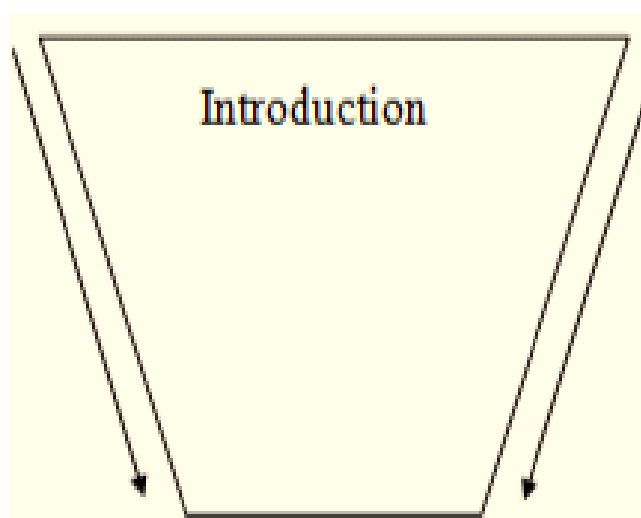
- Outline the claims about statements from other research (use 'that'):
    - ✓ The … theory indicates that acids are…
    - ✓ The … theory confirms that acids are…
    - ✓ Smith and Wilson (2009) state that …
    - ✓ Smith and Wilson (2009) argue that …

D/ Aims

Aims can be written like this:

- 3 – 5 bullet points

- Statements of scientific intentions

- Use 'strong' sentence (the infinitive):
    - ✓ To investigate…
    - ✓ To analyse…
    - ✓ To determine whether…

E/ Methodology

The purpose of methodology is to explain to the reader, for possible replication, the process(es) of your experiment.

What type of information is included in a methodology?

−Sample information, materials, procedures, rationale, problems~solutions…

What type of language is used when writing a methodology?

−Past tense (usually), description, factual – no analysis

Do	Don't
Use paragraphs	Use bullet points
Depersonalise: −*The liquid was transferred*	Personalise: −I/We transferred the liquid
Explain what was done	Write instructions
Give enough detail for replication	
Illustrate & write	

You may wish to include the following elements in your methodology:

- Place, time and date

- Whether you replicated a previous methodology

- Sample

- Sampling rationale (how it was chosen)

- Limitations (for example, a small sample)

- Procedure

- Data collation

- Data analysis

F/ Results

The Results section should be clear and easy to follow – however, some students make the mistake or either writing too much or only including illustrations. A good Results section will be a well balanced mix of both illustration and explanation.

Some top tips:

1. Start with an overall summary of the results

2. Do not begin with an illustration

3. Label graphs/tables (table 1… graph 3…)

4. Refer to illustrations in your text (table 1 shows…)

5. Use complete sentences

6. Describe statistics, not raw data

7. DO NOT INTERPRET (yet)!

Results Structure

- Start with an introduction – describe your results in general, before giving a more detailed description.

- In the main body, use paragraphs to detail your results with illustrations to support

- Help the reader by using 'locating statements', such as:

  –*...as can be seen in graph 1...*

  –*Table 6 shows that...*

  –*As illustrated in figure 3...*

  –*The effect of heat can be seen in the results of chart 2...*

- Highlighting statements: evident, occurrences, trends

G/ Discussion

It is in the discussion that you can begin to interpret your results. If the Methodology is concerned with how, the Results with what, then the Discussion is concerned with why.

You do not need to discuss all your results in the Discussion section. However, you must make sure that any results you do interpret in the Discussion were also clearly explained in the Results section

- Logical **interpretation** of results (What do they tell you? What happened /didn't happen? Why?)

- **Speculation** (might, could, may, should, may be deduced that, this suggests that..)

- Link results to theoretical framework. (Discuss results in relation to previous research: **cite references**)

- Identify **limitations** of your experiment.

- **Implications** for future researchers? Or generally?

H/ Conclusions & Reference List

Conclusions:

Do	Don't
Use paragraphs	Include any new information or any new aspects of results or any new interpretation
Keep each paragraph to one point only	

Reference List: alphabetical list of references

Lecture 6: Reading Techniques

The four main types of reading techniques are the following:

- Skimming
- Scanning
- Intensive
- Extensive

1. Skimming

Skimming is sometimes referred to as gist reading. It may help in order to know what the text is about at its most basic level. Skimming will certainly save you a lot of time. But it is not the best way to read because your comprehension will be lowered.

However, skimming is useful when your goal is to preview the text to get a better idea of what it's about. You can then go on to use scanning to find specific important ideas.

2. Scanning

Scanning involves getting your eyes to quickly scuttle across sentence and is used to get just simple piece of information. Pay special attention to the introduction and the conclusion.

3. Intensive Reading

You need to have your aims clear in mind when undertaking intensive. Remember this is going to be far more time consuming than scanning or skimming.

If you need to list the chronology of events in a long passage, you will need to read it intensively.

This type of reading has indeed beneficial to language learners as it helps them understand vocabulary by deducing the meaning of words in context.

It moreover, helps with retention of information for long periods of time and knowledge resulting from intensive reading persists in your long term memory.

This is one reason why reading huge amounts of information just before an exam does not work very well. Students tend to do this, and they undertake neither type of reading process effectively, especially neglecting intensive reading. They may remember the answers in an exam but will likely forget everything soon afterwards.

4. Extensive reading

Extensive reading involves reading for pleasure. Because there is an element of enjoyment in extensive reading it is unlikely that students will undertake extensive reading of a text they do not like.

It also requires a fluid decoding and assimilation of the text and content in front of you. If the text is difficult and you stop every few minutes to figure out what is being said or to look up new words in the dictionary, you are breaking your concentration and diverting your thoughts.

Lecture 7: How to Read a Scientific Article

I. ABSTRACT

The Abstract portion of an article is a short summary of the article as a whole. It should include the focus and results of the study as well as ultimate conclusions drawn. It does not explain in full any of the above, so it is important to use the abstract as a tool to decide if you should investigate further.

The Abstract is always available even when an organization does not have a subscription to a journal.

The Abstract is the best thing to read FIRST.

Question to ask: Does this interest me?
Is this related to my area of research?

II. INTRODUCTION

The Introduction of a paper explains the idea investigated. It should include what many refer to as a **"literature review"** which is a summary of research already performed by others about the same topic. Here it should indicate why THIS particular study is unique or how it adds to the discussion.

The literature review may have its own section in the paper, if so; it will directly follow the Introduction.

If the Abstract is unclear, you may wish to read the Introduction second, if the Abstract is clear, the Introduction may wait until you read more of the paper.

Questions to ask:

- What have other people done in regards to this topic?
- How is this research unique?
- Will this tell me anything new?

III. MATERIAL AND METHOD

The Materials and Methods section of a paper tells you how the study was performed. It *should* include the specifics of the experiment or study, so if you wanted to repeat it, you could. It is important to note that not all studies include enough information to be repeated, and that is considered a poor Materials and Methods section.

Some people suggest reading Materials & Methods second, so you can see if all of the information is there to repeat. However, sometimes the M&M section may be too technical for some readers. You may also jump to the Discussion second, or the Introduction, if you still are not sure what the article is trying to convey.

Questions to ask:

- Could I repeat their work?

- Is all the information present in order to repeat it?

IV. <u>RESULTS</u>

The Results section of a research paper should tell you, in unbiased terms, what the findings were. The data should be included here.

Rarely the Results and Discussion sections will be combined.

Some suggest reading the Results section before the Discussion to review the data without opinions of the researchers clouding your judgment. Some may wish to read the Discussion first to see if the paper still holds interest for them.

Questions to ask:

+ Are the results presented in a factual and unbiased way?

+ Is all the data present?

+ What conclusions do you formulate from this data?

V. <u>DISCUSSION / CONCLUSION</u>

The Discussions section of a research paper should tell you what the researchers felt was significant about the results. This is where they analyse the data. What did the data tell them? They may also point to facts and figures.

The Conclusion of a scientific paper tells you the final thoughts from the researchers. It may reiterate what they noted in the Discussion or it may even be combined with the Discussion. Many times the Conclusion recommends areas to be researched in the future.

The Conclusion may generally be read last.
Questions to ask:

+ Does their analysis agree with the data present?

+ What are the weaknesses in their argument?

+ Is the conclusion valid?

+ Based on what you have read, what other research should be explored next?

VI. <u>REFERENCES</u>

The References section of the article gives credit to other scientists and researchers. It shows you what works the article you are reading referred to when planning their research and writing their paper. Any articles they mention in their Introduction or Literature Review should be present here. Any studies they modeled their Materials and Methods on should be included here.
The References may be read at any time during the process. You may want to follow up a point made in the text, or you may want to look them over in the end to see what else you might read.

Questions to ask:

+ What other articles should I read?

+ What other authors are respected in this field?

Lecture 8 : Simple Tenses

1. The present simple

We use the present simple tense to talk about a repeated action in the present, a habit or a general truth.

FORM:

Subject	Verb	The Rest of the sentence
I / you / we / they	speak / learn	English at home
he / she / it	speaks / learns	English at home

Special cases:

a. For verbs that end in **-O, -CH, -SH, -SS, -X,** or **-Z** we add **-ES** in the third person.

  go – goes ; catch – catches ; wash – washes ; miss – misses ; fix – fixes ; freeze – freezes

b. For verbs that end in a **consonant** + **Y**, we remove the **Y** and add **-IES**.

  study – studies ; carry – carries ; worry – worries

c. For verbs that end in a **vowel + Y**, we just add **–S**: play – plays ; enjoy – enjoys ; say – says

Negative form:

S+ don't/ doesn't = stem

Subject	don't/doesn't	Stem	The Rest of the sentence
I / you / we / they	don't	have / buy eat / like etc.	cereal for breakfast
he / she / it	doesn't		

2. The past simple

We use the past simple to talk about a past event or a situation in the past.

The Affirmative form of the simple past:

I, you, he, she, it, we, they	played.
	wrote
	did.

The negative form of the simple past:

S + did not + stem

I, you, he, she, it, we, they	did not/didn't	play
		write
		do

3. The future simple

Affirmative form: Subject + **will**+ stem.

Negative form: Subject+ **will not** + stem.