République Algérienne Démocratique et Populaire
Ministère de l'Enseignement Supérieur et de la Recherche Scientifique

University of Abderrahmane Mira Bejaia
Faculty of Natural and Life Sciences
Common Core Department

Course 6: Selecting and Verifying Information on the Internet

Presented by:
Dr. AZZOUZ Z
Pr. BENAISSA F

Academic Year: 2025-2026

Course Outline

Internet Research

Quality Information

Formalizing a Search with Keywords

Boolean Operators

Information Evaluation

Course Objectives

This course aims to:

- Help students understand what defines quality information on the internet.

Teach students how to select research information effectively by using keywords and Boolean operators.

Develop students' sensitivity to the importance of carefully researching credible sources in order to obtain quality information.

Develop critical thinking by working on the evaluation of the reliability of information.

1. Internet Research

Internet research at the academic level requires structured methodologies due to the overwhelming volume of accessible information, which varies significantly in quality and reliability.

Internet Research:

- **Volume of Information**: The vast amount of data on the internet can lead to information overload

- **Reliability Issues**: Without a universally regulated structure, information sources vary widely, with some lacking factual accuracy or objectivity.

- **Accessing Scholarly Resources**: Students must navigate between general internet resources and scholarly databases that offer peer-reviewed and credible sources.

Core Skills Developed:

- Differentiating between scholarly and non-scholarly sources.

- Identifying credible academic databases and repositories (des répertoires) (e.g., PubMed, JSTOR, Google Scholar).

- Developing strategies for narrowing searches (affiner les recherches) to yield high-quality sources.

2. Quality Information

Defining Information Quality:

Quality information is assessed based on several key attributes that ensure it supports sound research and informed decision-making.

2. Quality Information

Four Core Attributes of Quality Information:

1. **Relevance (fr; Pertinence)**: Ensures that information directly contributes to understanding or advancing a specific research question.

Example: For medical research, relevance might involve recent studies, clinical trials, or validated theories on the subject.

2. Accuracy and Validity (fr; Exactitude et Validité): Indicates that information is factual, trustworthy and comes from reliable sources (such as peer-reviewed journals or official institutions).

Example: Checking if an article on climate science is published by an established organization like the IPCC (groupe d'experts intergouvernemental (panel) sur l'evolution du climat.

3. Completeness: Reflects how thoroughly the information covers the topic, including various perspectives and relevant data.

Example: A literature review that examines all major theories on a subject.

4. Recency: Highlights the need for updated information, especially in rapidly evolving fields like technology or medicine.

Example: For studies in virology, information older than five years may be outdated due to advances in the field.

Applying Quality Standards: Students learn to apply these criteria critically to evaluate information sources, helping them choose content that strengthens their academic work.

3. Formalizing a Search with Keywords

3.1. Definition and Importance of Keywords:

Keywords are essential search terms that help define the scope and content of research. Effective keyword use reduces irrelevant results, streamlines searches, and improves precision.

Best Practices for Keyword Selection:

1.Specificity: Begin with precise terms to target specific information.

Example: Use “DNA polymerase function” rather than just “DNA.”

2.Scientific Terminology: Use exact scientific names over general terms to ensure results are academically relevant.

Example: Use “epidermal cells” instead of “skin cells.”

3.Synonyms and Related Terms: Recognize and use equivalent terms to broaden search results if necessary.

Example: Use “photosynthesis” as well as “light reactions” when researching plant biology.

3.2. Formalization Techniques:

Boolean Operators:
Use AND, OR, and NOT to combine or limit keywords.

Example: "Genetics AND mutation" finds sources that discuss both, while "Genetics NOT mutation" excludes mutations from the results.

Truncation and Wildcards:
Using "*" at the end of a root word to capture various endings.

Example: "Bio*" retrieves "biology," "biochemistry," etc.

Proximity Operators:
For specific phrases or concepts, use operators like NEAR to locate terms close to each other in the text.

Example: “Cell NEAR membrane” to locate results where both terms appear in proximity.

4. Boolean Operators, Truncation, and Proximity Operators

Boolean Operators

Boolean operators are mathematical tools for improving search results by logically combining or excluding terms.

Types of Boolean Operators:

1.AND (Intersection): Narrows (fr; réduit) down search results by ensuring that all specified keywords appear in the results.

1. *Example*: "Heart AND disease AND prevention" will yield articles that discuss all three topics.

2.OR (Union): Broadens (fr; Élargit) the search by including results that have any one of the keywords.

1. *Example*: "Cancer OR tumor" retrieves articles on either term.

3.NOT (Exclusion): Eliminates terms that are not relevant.

1. *Example*: "Virus NOT computer" filters out non-biological contexts.

Using Truncation:

Placing a symbol (often “*”) at the root of a word allows for variations of that word.

•*Example*: “Eco*” would retrieve ecology, ecosystem, ecological, etc.

Proximity Searches:

•Quotation marks (“”) for exact phrases and proximity operators like “NEAR” or “ADJ” help find words in specified relationships to each other.

- *Example*: “climate change” ensures the exact phrase rather than isolated keywords.

5. Evaluating Information

A critical skill in research is the ability to evaluate information for reliability, accuracy, and relevance.

Criteria for Evaluation:

Source Credibility:

Verify the source's author, publisher, and affiliations. Academic sources, official publications, or respected institutions typically ensure higher credibility.

Example: Government websites (.gov) or institutional sites (.edu) are generally reliable.

5. Evaluating Information

Content Quality:

Assess whether the information is well-supported, objective, and evidence-based

Example: Scientific articles with data, citations, and a bibliography reflect quality content.

Intellectual Organization:

The structure and layout of information can reveal its reliability. Well-organized websites with search functions, clear headings, and navigation aids indicate quality.

Example: Academic journals or databases usually have clear article classifications.

5. Evaluating Information

Presentation Quality:

Consider whether the format is accessible and user-friendly, including readability and print/download options.

Example: PDFs, accessible text files, or downloadable formats increase usability for academic purposes.

5. Evaluating Information

Guiding Questions (Questions de Réflexion):

Who is responsible for this information?

What institution supports this content?

Is the content validated by a reliable third party (editor, peer reviewer, etc.)?

Does the site aim to inform or sell a product?

References and Recommended Reading

1. Link to academic resources on quality information
2. Link to comprehensive search methods

1-https://books.openedition.org/pum/7710?format=toc

2-https://books.openedition.org/pum/14218?lang=fr