Search engines, such as Google, are used in everyday life to find information for a whole range of topics. They are easy to use and you can be guaranteed that a large number of results will be retrieved. However, when preparing to research for a university assignment, you need to think carefully about what kind of material you should be looking for and about where you are going to search to find that material.

For academic studies, you need to ensure you can trust the sources you are using. You need to ensure that the information you include in your studies is well researched, reliable and accurate. Academic sources are the preferred sources over other material types. You should be aware that Google is unable to gain access to many of these academic sources so you need to know where you can locate them.

The most common types of academic sources are:

**Reference sources** – they provide short articles of background and factual information on any given topic. They can be useful in providing a broad introduction to a new topic. Examples of reference sources are dictionaries and encyclopaedias.

**Books (academic)** – they are written by expert(s) and give a broad overview of a topic/discipline. In researching the content, the authors use a range of academic sources and list these resources in bibliographies. The content will likely have been subjected to a form of quality control.

**Journals** – this form of publication is published on a regular basis, for example every month or every 2 months. Each edition of a journal contains work, written by different authors, known as papers (or articles) that focus on a particular aspect of a topic. The authors of the papers/articles are experts in their field with the appropriate qualifications and experience. Before writing the papers, the authors will have researched academic sources themselves and will have listed these resources in lists called reference lists/bibliographies.

Some academic journals are identified as being peer-reviewed. When an article is submitted for consideration to a peer-review journal, that submitted article is read and reviewed by other experts to determine the quality and accuracy of the research.

Journal articles are written for different purposes: for the author(s) to discuss new research they have undertaken; to review current thinking within a specific discipline; to present new or alternative ways of thinking. Journals are considered to constitute a key academic source as they are recognised as providing current, up-to-date research.
How do you identify an academic source?

- Written by experts in the field
A source that is written by a recognised expert is more likely to be trustworthy than material not written by experts.
- Aimed at academics, students and professionals
The level and language of the source are appropriate for the intended audience who are interested in current research and theoretical thinking and it is, therefore, more challenging than a source intended for a more general audience.
- Authors/writers have used other academic sources
Academic sources are rooted within the context of past research
- Authors/writers have credited these sources in their work
Past research that the authors refer to is included in the work within reference lists/bibliographies
- Likely to have gone through a quality review process
Many academic sources will have gone through some quality control process. For example, with some journals, before an article/paper is published, it is read and reviewed by other experts to determine the quality and accuracy of its research. In the case of books, content is checked by editors and other reviewers.

What are academic databases?

An academic database is an organised, online list of academic publications that focus on a particular subject area or areas. The content of these databases varies from database to database and can include books, journals, reference materials and other material types. The most common resource type within academic databases is academic journals.
Planning a search strategy

Most research requires that the literature is examined and reference made to it where appropriate. It is therefore important to be able to locate and make critical use of the available sources.

Define the subject

- What is the title of the research project?

For example, ‘Looking at interventions for improving the health in children from deprived socioeconomic backgrounds’

- What are the specific objectives of the research project?
- What are the main concepts or ideas involved?
  - Concept 1 - particular age group = children
  - Concept 2 - particular intervention = health intervention
  - Concept 3 - a particular socioeconomic group = low-income status

Compile a list of keywords

Think of the ‘search terms’ that can be used:

- Are there any alternative spellings for your keywords? eg behavior, bahaviour
  Include synonyms and alternative words and use a thesaurus if necessary.
- Are there any broader (more general) keywords you could try if search results are low?
- Are there any narrower (more specific) keywords to use if the search produces too many references?

<table>
<thead>
<tr>
<th>Concept 1</th>
<th>Concept 2</th>
<th>Concept 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children /child</td>
<td>Health</td>
<td>Deprived socioeconomic background</td>
</tr>
<tr>
<td>Infants</td>
<td>Health behaviour / Health behavior</td>
<td>Deprivation</td>
</tr>
<tr>
<td>Preschool children</td>
<td>Population health</td>
<td>Low-income households</td>
</tr>
<tr>
<td>Young children</td>
<td>Health interventions</td>
<td>Low-income status</td>
</tr>
<tr>
<td>Pre-teens / Preteens</td>
<td>Improved health</td>
<td>Low socioeconomic background</td>
</tr>
<tr>
<td>Adolescence /Adolescents</td>
<td>Health programmes / Health programs</td>
<td>Socioeconomic disadvantaged</td>
</tr>
<tr>
<td>Teenagers</td>
<td>Health-improvement programmes / health-</td>
<td>Low socioeconomic status (SES) / low socioeconomic status families</td>
</tr>
<tr>
<td>Young people</td>
<td>Health-related Quality of Life /HRQoL</td>
<td></td>
</tr>
</tbody>
</table>
Organise the concepts and keywords

- Decide how the keywords are linked – what Boolean operators (AND, OR, NOT) to use
- Decide which concepts are most important and should be searched for first

Prioritise and limit your search

Should you place any limitations on your search by:

* time period?
  Do you need only current information? For example - can you limit your search to only information published in the last 5 years?

* language?
  Must all your material be in English only?

* publication types?
  Can you limit your search to include or to exclude certain types of publication - Government reports, journal articles etc.?

Decide which sources to search

* Are you using the most appropriate sources of information?
  If you are uncertain about which sources are appropriate, ask for help at the LRC Service Desk or contact your Liaison Librarian.

Search for references

Ask staff at the LRC Service Desk, or contact your Liaison Librarian, if you would like help in using any of the sources, or in accessing any of the electronic databases either on or off campus.

Refine the search

Are you finding too much or too little relevant information?
You may need to consider other keywords.
Queen Margaret University has access to a large number of academic databases that will help to support your studies. You can start exploring individual databases straightaway or, to introduce you to using databases, you might like to try out the library search service called Discover.

**What is it?**

Discover is not an academic database itself but is the library’s search platform. Being a search platform, it allows you to search multiple sources, at the same time, within one search.

**What does it search?**

Discover will search within the library’s catalogue as well as a range of academic databases. From the search it will pull results from all the sources it has searched into one list of results.

**Where to locate it?**

A link to Discover can be found in the Library Resources page:

QMU Homepage > Library > Library Resources > Discover-our search service

http://www.qmu.ac.uk/study-here/learning-facilities/library/library-resources/

A link to Discover can also be located in the Library’s subject guides:

QMU Homepage > Library > Library Resources > QMU Library Guides

https://libguides.qmu.ac.uk/
The library has created guides for every subject taught at Queen Margaret University. These guides contain information regarding the library sources that will be of most use for each subject area. These include the academic databases that will be of most use.

**Accessing the library subject guides**

To access the subject guides, follow these instructions:

QMU Homepage > Library > Library Resources > QMU Library Guides

https://libguides.qmu.ac.uk/

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**How to access and use academic databases**

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How to access and use academic databases

Additional information

Within the subject guides and in the A-Z list, there are different symbols that appear next to each of the databases:

- **GINAHL: Plus with full text**
  The Cumulative Index to Nursing and Allied Health Literature, includes references to nursing and allied health articles from worldwide, scientific literature presented for the needs of health professionals.

- **Cochrane Library**
  The Cochrane Library includes the Cochrane Database of Systematic Reviews, Database of Abstracts of Reviews of Effectiveness, the Cochrane Review Methodology Database and the Cochrane Controlled Trials Register.

The blue globe symbol 🌍 indicates the database is freely available so you will not need to log in.

The green tick symbol 🎉 indicates that, to gain access to the database, outside the university campus, and without needing to log in with a username and password, you will need to be first logged into the university’s remote access system (please see the next section for more information on remote access).

If you are not logged into the university’s remote access system, the red dragon symbol 🐉 indicates the process you will need to use to log in. The symbol represents the Shibboleth authentication management system that Queen Margaret uses to ensure only its staff and students can access its subscriptions.

Using Shibboleth/Institutional login to access academic databases

If you are not logged into Queen Margaret’s remote access (more information about remote access can be found in the Getting Started section of the IT Services webpage [https://www.qmu.ac.uk/study-here/learning-facilities/it-services/getting-started/](https://www.qmu.ac.uk/study-here/learning-facilities/it-services/getting-started/)), you will need to log into the database using the Shibboleth authentication system.

Shibboleth (sometimes also referred to as Institutional login or login by institution) is used by QMU to ensure only its members can gain access to its subscriptions. Depending on the database, the login button can be in different locations of its Homepage. However, quite often the link to the database, found in the subject guides or the A-Z Databases list, will take you straight to the login page.
Once you have clicked on the database link to begin the login process, you may be asked to identify the region (the option is **UK Higher Education**) and the institution (either by selecting from a dropdown menu or by typing the name into a search box) you are affiliated with:
Although academic databases differ in their content, they do share a number of in-built search functions that have been designed to assist users to locate the material they are searching for. Some of these functions are listed below.

**Keywords**

When you are searching for material, you will need to think of the terms (keywords) that describe what you are looking for. You will also need to consider other terms that also describe what you are looking for. For example, **Physiotherapy** and **Physical Therapy** describe the same allied health discipline.

In the example above, you would need to consider using both keywords when conducting a database search to ensure you found all the articles you might be interested in:

```
physiotherapy
OR physical therapy
```

**Boolean operators**

Most academic databases have incorporated Boolean operators to allow users to give precise instructions about how they wish to combine different search terms within a search. The operators used consist of three words: **AND, OR, NOT**.

**AND**

Using this operator instructs the database that you are interested only in results that contain both of the search terms you have asked it to search for. Therefore, it will exclude any material that contains only one, or a combination of the terms, but does not contain all of them. Because of this, you are seen to be narrowing your search.

For example:

A search for **physiotherapy AND postoperative care**
will produce only those results that contain both terms. The diagram below depicts the results (the highlighted part of the overlapping circles) that the database would select as they contain both search terms. Other sources that contain just one of the terms (the white areas of each of the circles) would not be chosen by the database:

OR

Using this operator instructs the database that you are interested in results that contain any of the search terms you have asked it to search for. Therefore, it will include any material that contains just one, or a combination, of the terms. Because of this, you are seen to be widening/expanding your search.

For example:

A search for **physiotherapy OR physical therapy**

will produce results that contain either term. The diagram below depicts the results that the database would select. As the **OR** operator has been used, the database would list all the results that contained the term **physiotherapy** only, all the material that just contained the term **physical therapy** only as well as including articles that contained both terms:

NOT

Using this operator instructs the database that you are interested in to produce results that contain the first term listed but to exclude any sources that contain the term that is followed by the operator. Because of this, you are seen to be narrowing your search.

For example:

A search for **physiotherapy NOT postoperative care**
will produce results that include the first term, **physiotherapy**, but will exclude sources that contain the second term, **postoperative care**. The diagram below depicts the results that the database would select. The database would list all the results that contained just the term **physiotherapy**, dismissing any sources that contained **postoperative care** or any sources that contained **both** terms:

![Venn diagram](image)

**Limiters**

Academic databases also enable users to narrow their search by selecting from a variety of options. The available options include, for example:

- restricting the results to a particular publication date range
- choosing only sources that have been peer-reviewed
- only choosing sources that can be accessed as full-text
Evaluating sources

For any source you find, and are considering using in your assignment, you need to be sure that the information is accurate, current and relevant to your research. It is important to critically evaluate every source to determine the quality of the information that is contained within it.

Why is it important to critically evaluate?

You need to ensure that you use sources that effectively support your line of argument in your assignment. Using sources that contain inaccurate, biased and/or out-of-date information is going to undermine your research and, therefore, the quality of your assignment.

So, how do you go about evaluating a source?

You should determine the suitability of every source you are considering incorporating into your assignment by asking yourself a series of questions about the source that will help you towards determining whether the source would be an appropriate one to use. Such questions cover a series of evaluation criteria, including:

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authority</td>
<td>Investigates the originator of the work to determine their authority on the subject they are writing about</td>
</tr>
<tr>
<td>Purpose</td>
<td>Determines why the information was created</td>
</tr>
<tr>
<td>Reliability</td>
<td>Determines the importance of the information</td>
</tr>
<tr>
<td>Currency</td>
<td>Determines how up-to-date (how timely) the information is</td>
</tr>
</tbody>
</table>

Authority

In considering the authority of the source, ask the following questions:

- Who has written the work? Normally, an author would wish to be associated with a credible source. If no author is cited, you might need to give further consideration to whether the source is reliable or not.
- Individual – What are their credentials? What is their background?
- Organisation/publisher/sponsor – are they reputable and well-respected in their area of interest?

Purpose

- Why was the source created?
- To share information with other experts/academics? To disseminate factual information to a general audience? To sell an idea/product?
- Does it have an economic value for author/publisher? If so, the information will not be presenting all sides of the argument and so will be biased towards persuading its audience to believe its content.
- Who is the intended audience? Academic community? General audience?
- In the case of a website, its domain will help you determine its purpose:
<table>
<thead>
<tr>
<th>Domain</th>
<th>Explanation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>.ac; .edu</td>
<td>Academic institutions</td>
<td>Queen Margaret University - qmu.ac.uk</td>
</tr>
<tr>
<td>.org</td>
<td>Non-governmental, non-profit making organisations</td>
<td>Oxfam – Oxfam.org.uk</td>
</tr>
<tr>
<td>.gov</td>
<td>Government organisations</td>
<td>UK Government – gov.uk</td>
</tr>
<tr>
<td>.co; .com</td>
<td>Commercial organisations</td>
<td>Health club – fusion-healthandfitness.co.uk</td>
</tr>
<tr>
<td>.uk; .fr; .au</td>
<td>Country of origin</td>
<td>.uk= United Kingdom; .fr=France; .au= Australia</td>
</tr>
</tbody>
</table>

Reliability

- What kind of information is included?
- Is the content factual or is it someone’s opinion? Is it a balanced piece of work or there is a bias, where it focuses on one particular side of the argument rather than looking at all sides?
- Are the arguments/conclusions/recommendations supported by evidence?
- Has it been peer reviewed?
- Does the source record the sources that have been used? Does it state where it has obtained its information from?
- Do the web links work? Can the information be verified from a reliable source? Are there any spelling or grammatical errors?

Currency

- How recent is the information?
- Is the information outdated? Is there an updated version?
- Based on the research question, is the information current enough?

Other sources of information

There are many online guides that are available to help you design your own evaluation process. A few of these are listed below:

University of Leeds

https://library.leeds.ac.uk/downloads/download/38/evaluating_information_checklist

University of California Berkley Library

https://guides.lib.berkeley.edu/evaluating-resources

California State University, Merriam Library

THE CRAAP evaluation test was developed by California State University’s Merriam Library

https://library.csuchico.edu/help/source-or-information-good