

BEGINNER RESEARCH STRATEGIES: MAKING THE MOST OF GOOGLE

In the 21st century, a quick Google search is often the first step students (and some scholars!) take when conducting research. Most of us are so comfortable with using Google to look up nearby restaurants, makeup tutorials, or recent movie reviews that we don't realize how little we take advantage of this powerful search engine. The following guide will help you unlock the secrets of Google, and introduce you to the basics of online research.

Using Google Search Operators

When conducting research, you'll sometimes want to search for a specific topic—e.g., the number of people currently living in Los Angeles—but other times you'll want to cast a wide net and see what information results. To make these kinds of adjustments, you'll need to use **search operators**: unique words and symbols that tell search engines to broaden or narrow the results of your query. Below are some of the most frequently used Google search operators:

Command	Search Operator	Example
Broaden Search	Put OR between each search term to return results with either word	blue OR green
Exact Match	Put a word or phrase inside quotes	"tallest building"
Exclude Words	Put — in front of a word you want to leave out	best cars —Honda
Restrict File Type	Put "filetype:" or "ext:" before the word	syllabus ext:pdf
Wildcard Search	Put a * in your word or phrase where you want to leave a placeholder	largest * in the world
Range of Numbers	Put two dots between two numbers	camera \$50..\$100
Search for Prices	Put \$ in front of a number	\$5 lunch deal
Search Hashtags	Put # in front of a word	#bloomstasticmath
Define a Word	Put "define:" before the word	define:phenotype

Some additional tips:

- Google usually ignores punctuation that isn't part of a search operator. So, writing a list of words separated by commas (bacon, lettuce, tomato) is the same as writing it without the commas.
- Don't put spaces between the search operator and your search term. For example, a search for define:"human being" will work, but define: "human being" won't.
- Google spell checker automatically uses the common spelling of a given word—regardless of whether you spell it correctly or not—so don't worry about getting it right.
- Google ignores capitalization, so a search for "New York Times" is the same as a search for "new york times". The exception to this rule is the OR operator, which must be capitalized to work.

Using Search Filters

You can filter and customize your search results to find exactly what you want. For example, you can find sites updated within the last 24 hours, or photos of a certain color. To add or remove filters, click "Tools" under the search box.

Note that the tools you see will change based on the type of file you're searching for (e.g., website, video, images).

INTERMEDIATE RESEARCH STRATEGIES: GOOGLE SCHOLAR

Google Scholar is an online search engine that restricts search results to content found in academic and scholarly sources. These sources include peer-reviewed papers, theses, books, book chapters, abstracts, and articles from academic publishers, professional societies, universities, and other scholarly organizations. These sources are often more credible than content found using a regular Google search—although you'll still need to evaluate its credibility using PAACE or RAVEN.

Google Scholar is a powerful search engine, but it has important limits. Although Google Scholar searches for the same kinds of scholarly books, articles, and documents found in paid subscription databases (e.g., EBSCO, JSTOR, Gale), only some content is freely available on the web. Frequently, you'll find that you only have access to abstracts (i.e., summaries of the article) rather than full-text PDFs.

Although it might be tempting, **DO NOT PAY FOR ANYTHING** on Google Scholar. It's just not worth your hard-earned money. Instead, use some of the following tips and tricks:

Locating the Full Text of an Article

To find full-access to an article that ordinarily requires a subscription, try the following:

1. click the library link, e.g., "FindIt@Harvard", to the right of the search result
2. click the link labeled [PDF] to the right of the search result
3. click "All versions" under the search result and check out the alternative sources
4. click "Related articles" or "Cited by" under the search result to explore similar articles

If you're affiliated with a university, but don't see links such as "FindIt@Harvard", please check with your local library about the best way to access their online subscriptions. You may need to do search from a computer on campus, or to configure your browser to use a library proxy.

Finding Recent Papers

Your search results are normally sorted by relevance, not by date. To find newer articles, try the following options in the left sidebar:

1. click "Since Year" to show only recently published papers, sorted by relevance
2. click "Sort by date" to show just the new additions, sorted by date

Getting Better Answers

- If you're new to the subject, it may be helpful to pick up the terminology from secondary sources. For instance, a Wikipedia article for "overweight" might suggest a Scholar search for "pediatric hyperalimentation."
- If the search results are too specific for your needs, check out what they're citing in their "References" sections. Referenced works are often more general in nature.
- Similarly, if the search results are too basic for you, click "Cited by" to see newer papers that referenced them. These newer papers will often be more specific.
- Explore! There's rarely a single answer to a research question. Click "Related articles" or "Cited by" to see closely related work, or search for author's name and see what else they have written.