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Writing@CSU Writing Guide

Conducting Digital Research

Any online research begins both your investigation and your working bibliography (a list of library, field and online resources) at the same time. The process is keyword driven; the results are wholly dependent on the number of words and combinations of words entered into an electronic search field.

Search engines are programmed to identify all records containing the word or words entered into their search fields. In various combinations, these keywords will lead you to books, articles, and other various webpages that address topics related to your research question.

Due to the enormous amount of results an online search can produce, it's important to learn how to shape your search. It might be wise, for instance, to conduct a search of the descriptors (subject headings and subheadings) by which information about your topic is categorized in order to narrow things down.

An extensive list of standard terms used by most online library catalogs can be found in the *Library of Congress Subject Headings (LCSH)*. Most databases and electronic indexes include a thesaurus of helpful keywords as well.

What's a URL?

Using an Internet browser, such as Firefox, Google Chrome, or Safari, you can access almost any public webpage from across the globe. Every website has a unique address, or URL. The 'Uniform Resource Locator' identifies the kind of

document being accessed, the server on which it is stored, its folder/location on that server, and the name of the file containing the actual document. For example, the URL for the Writing@CSU website at Colorado State University is:

https://writing.colostate.edu/guides/index.cfm

It's a code or sorts. Let's demystify it.

https:// is an access protocol. It stands for hypertext transfer protocol and your internet browser uses it to connect your personal computer to the server hosting the webpage, or site, you want to look at.

ftp:// is another important protocol. It stands for file transfer protocol and is used to transfer files from one computer to another. A digital designer will use it to upload a new webpage, or site, from a personal computer to a Web-hosting server, making it available to any one with Internet access.

writing.colostate.edu is the name of the server on which the Writing@CSU website is stored, or located. In this case, the "writing" server is part of the larger Colorado State University network (colostate), which is part of the education domain (edu).

.edu is an extension of the server name. It indicates the actual Internet domain (hence the "domain" name) that supports the activity--education--with which the Writing@CSU website is most closely aligned.

Other Internet domains include .com and .biz (commercial or business), .net (Internet infrastructure), .gov (government) and .org (typically nonprofit organizations).

/guides/ is the name of the folder (sometimes called a directory or path) containing the activities on Writing@CSU.

index.cfm is the name of the page (or file) you are viewing. In this case, it is located on the Writing@CSU Web server at https://writing.colostate.edu, in the /guides/ folder. The URL for this page is thus https://writing.colostate.edu/guides/index.cfm.

Using Boolean Search Terms

Named after 19th century mathematician George Boole, who developed theories for working with sets of information, a Boolean search allows you to define the relationships between keywords and phrases by using terms that enlarge or narrow the search. For example:

Search for: writing AND computers

Result: all records containing both writing and computers

Search for: writing OR computers

Result: all records containing either writing, computers or both

Search for: writing NOT computers

Result: all records containing writing but not computers

Boolean search terms can also be used in combination with each other to construct complex searches. For example:

Search for: writing OR composition AND computers NOT music **Result:** all records containing either writing or composition and

computers-but not music

Using Quotations

Searching for an exact phrase can narrow a search considerably, and you can do this by surrounding your search phrase in quotations (""). If you are interested in the impact of computers on writing instruction, for instance, you could search for the exact phrases, "computers and writing instruction" or "computer-assisted writing instruction."

A 2006 Google search produced some astronomical numerical results using these phrases. Enclosing them in quotation marks removed from the search all records other than those containing the exact phrase, resulting in a significant reduction.

For example:

Simple Search: computers and writing instruction

Result: 101,000,000 records

Search in Quotations: "computers and writing instruction"

Result: 131 records

For example:

Simple Search: computer assisted writing instruction

Result: 9,360,000 records

Search in Quotations: "computer assisted writing instruction"

Result: 608 records

And the internet is constantly expanding as more research is done and published online instead of in print. Here are the results from the same searches done in 2022.

For example:

Simple Search: computers and writing instruction

Result: 115,000,000 records

Search in Quotations: "computers and writing instruction"

Result: 53,600 records

For example:

Simple Search: computer assisted writing instruction

Result: 28,300,000 records

Search in Quotations: "computer assisted writing instruction"

Result: 5,080 records

Quotations will reduce your results more or less depending on how niche or commonplace your search is. Some phrases are used across many works and websites, others may only be used in very specific contexts.

Using Wild Card Symbols

Using wildcard symbols, especially when you are unsure of the spelling of a word, allows you to enlarge a keyword search.

The most common symbols are as follows:

An asterisk (*), which substitutes for a string of multiple variable characters in the spelling of a word, is useful for including all words with prefixes and suffixes derived from a single root in a keyword search. For example:

Entering writ* into the search field will allow writ, write, writes, writer and written, as well as writing to be returned in your search results, whereas entering writing will result only in returning all records that include the word writing.

A question mark (?), which substitutes for one or more single variable characters within the body of a word, is useful for including possible spellings of a word in a keyword search. For example:

Entering "S??weitzer" into the search field when unsure of the spelling of Albert Schweitzer's last name, will return records with both "Schweitzer" and "Sweitzer" in the search results. As it turns out, both are common spellings of the great humanitarian's name.

More can be learned about search operators and wildcard symbols in our guide on 'Reading the Internet'. You may also consult a librarian to learn more about using wildcards in your library catalog and electronic database searches.

Using Specific Publication Information

Results can be narrowed by defining the criteria of the publication information at the same time as you enter words or phrases in a keyword search. Most often, this information involves titles, authors and publication dates.

For instance, in a search regarding the impact of computers on writing instruction, you may want to limit the results to sources published after 1990. Generally speaking, most library catalogs, databases, and publication indexes will have an Advanced Search capability for this purpose.

Searching Databases

There are a wide range of databases on the internet. Some of them are free. Most, however, are available only by subscription. All university libraries pay licensing fees to a wide variety of selected databases in order to provide students, faculty and staff with the necessary access.

These licensing agreements often allow access only through library computers or those connected to the campus network. Contact your library to determine which databases you can access via the Internet.

Like library catalogs, electronic databases are searchable by author, title, subject and keyword. The first two are fairly straightforward. An author's name, or the title of a book, journal, magazine, newspaper or multi-media item, is entered into the search field and the results are quickly displayed.

Subject searches are more complicated and are often more successful when done in combination with a keyword search. The following links will take you through the electronic steps used to search several popular databases. All others will operate similarly. If you have any difficulty, ask a reference or subject-area librarian for help.

Some of the most commonly used search databases for scholarly research are Google Scholar, JSTOR, and ProQuest. Learn how to use them below.

Google Scholar

Steps to a Google Scholar search

Step One

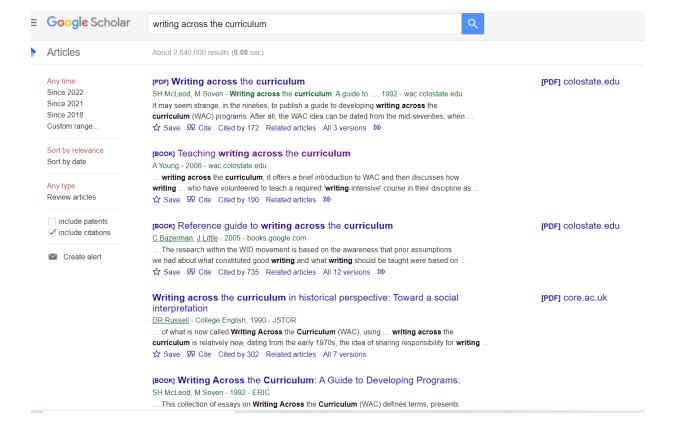
Google Scholar is a free source that anyone can access online. It creates a broad Google search and pulls back only scholarly resources. These resources are ranked based on author, publisher, and how often they're cited. The screenshot below is of the Google Scholar homepage. As you can see, there are two basic search options that allow you to conduct a search through either journal articles or court records by selecting 'Articles' or 'Case Law'.





Step Two

Next, create a search. In this example, the researcher has created a search for 'writing across the curriculum' which produced about 2,640,000 results. On the left side of the page, there are several options you can use to customize your search as well. You can specify a date range, choose what type of article you're looking for, and sort your results by either relevance to your search or date of publication.



JSTOR

Steps to a JSTOR Search

Step One

JSTOR is an online database which acts as a digital library. It's subscription-based, but many universities are subscribed and allow their students free access to JSTOR. Below is a screenshot of the JSTOR homepage. You can search through all the content in the database, limit your search to just images, or conduct an Advanced Search.

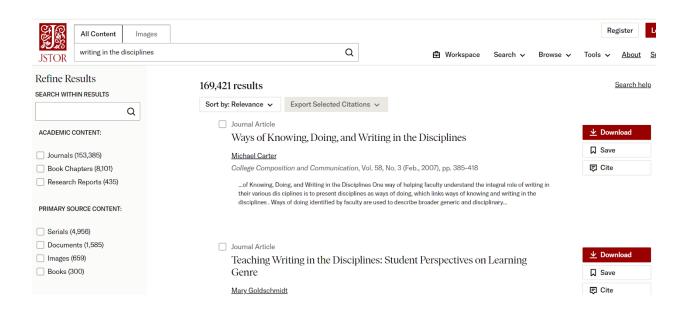


Explore the world's knowledge, cultures, and ideas



Step Two

The researcher has created a search for 'writing in the disciplines', producing 169,421 results. The search can be narrowed further by selecting some of the many options in the menu bar on the left side of the webpage. These options include the location/nationality of the work, the subject, the type of document, and a date range.

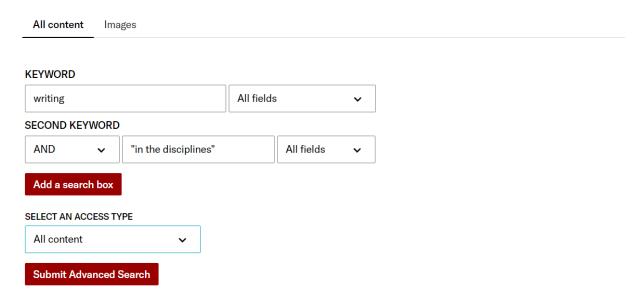


Step Three

An Advanced Search allows you to narrow your options immediately, which can be useful if you're looking for something very specific. JSTOR has an especially detailed Advanced Search. In the screenshots below, you can see that you can

easily add Boolean search terms. In addition, you can also select whether JSTOR shows you all the content your search produces, or just free content. Then you can narrow your results even further by specifying a date range, language, title, item type, and subject.

Advanced Search Search Help



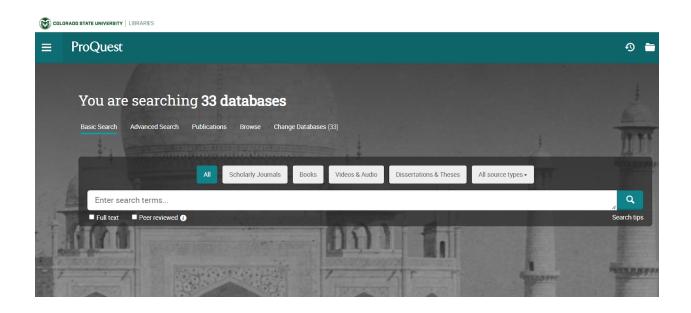
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| JOURNAL OR BOOK TITLE | | | |
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ProQuest

Steps of a ProQuest Search

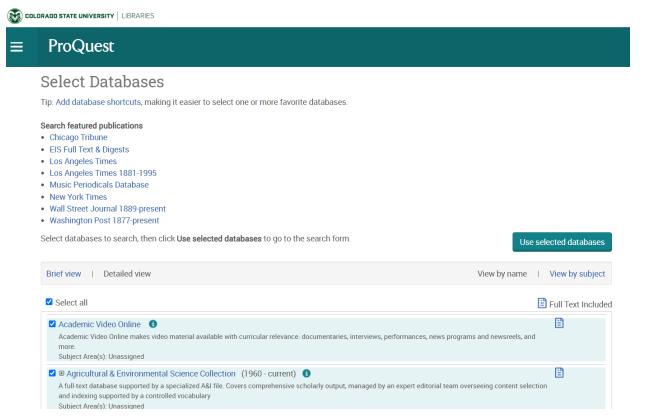
Step One

Like JSTOR, <u>ProQuest</u> is also a subscription-based service that you're likely to have access to through your university. From the homepage, you can do a Basic Search, Advanced Search, browse publications, or switch databases entirely. There's also a 'Search Tips' option which tells you all about how to use ProQuest most efficiently.



Step Two

ProQuest is a unique resource because it allows you to access so many other databases with specific aims. By selecting 'Change Databases' from the homepage, you are brought to a page with a long list of links to other databases. If you're researching something in a specific category like medicine or Civil Engineering, knowing about some more specialized/focused databases can be extremely useful.



MLA International Bibliography

The MLA International Bibliography is the academic database of the Modern Language Association. Designed especially for institutions of higher learning, it indexes books and articles on language and linguistics, literary theory and criticism, world literature, folklore and the dramatic arts. This is a subscription based database and is not available outside of a university computer network. You can also find out more about the MLA International Bibliography at the 'Modern Language Association' website.

Feel free to click on the Databases button on the homepage of Colorado State University's Morgan Library, select M from the alphabet menu and scroll through the list to become the researcher yourself.

Note: Access is a benefit included in your student fees. If you are attempting entry from a computer located off-campus, you will be required to enter a student ID and password before entering the database.

Conducting Online Searches

There are billions of pages of information on the internet, a daunting figure when it comes to searching its contents. But don't let that be an obstacle. Luckily it's searchable with keywords and Boolean methods in the same way as an electronic library catalog or database.

Using a variety of different types of search engines designed for different purposes, the guides at the link locations below will explain some of the most useful tools and methods for locating information online.

First, a few words about **Browsing**: The sections below outline some very deliberate, intentionally designed, search methods, but discoveries are often made by veering off the well-traveled path.

Websites relevant to your topic usually include related links leading to information and sources that are equally relevant and which you may not discover if you stick to the straight-and-narrow. Be mindful of your research time but spend some of it browsing. Just like browsing library shelves, it can be time well spent and surprisingly rewarding.

Simple Search

A simple search is keyword driven. Google, Bing, and DuckDuckGo are some popular search engines designed especially for this purpose. Each is a database with a primary search field and a search button located on its homepage to lead you to a display of results.

The following demonstration illustrates a simple search for source material on the subject of tolerance for a composition class. A preliminary list of keywords might include the following words and phrases:

- tolerance
- teaching tolerance
- acceptance
- tolerance-based education
- open-mindedness
- conflict-resolution training

Note: When entering a phrase, enclosing it in quotation marks will tell the search engine to look only for those results containing that exact phrase. This comes in handy when you want to narrow your search. If you prefer a wider initial search, do not use the quotation marks.

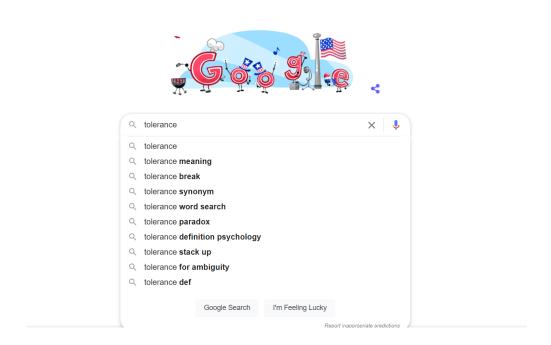
Steps of a Simple Search Using Google

Step One

Most Website search engines operate in the same way. In this demonstration the researcher uses Google to look for the first word on the list above. The screenshot below illustrates the homepage after the first step has been taken.

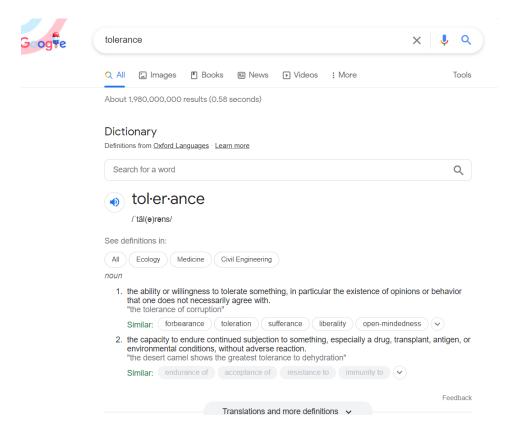
The researcher has entered the word **tolerance** into the search field, bringing up other suggested search terms which may be relevant. The "Google Search" option will conduct a regular search, and the "I'm Feeling Lucky" option will automatically pull up the first suggested result.

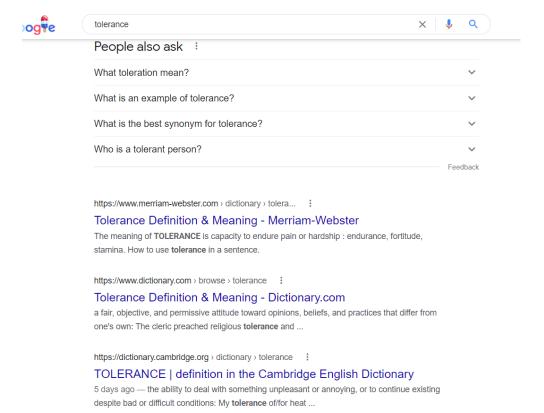
If you wanted to find an illustration related to **tolerance** you would click on the **Images** link before clicking the search button. An **Advanced Search** can be conducted through your settings.



Step Two

For now, click on the "Google Search" button. Since it was a single-word search, the definition of the word will appear at the top of the page, above the list of results. About 1,980,000,000 were found in 0.58 seconds. Each blue underlined phrase is a clickable link leading to an individual website or page that may provide useful information. The link will turn purple after you have made a selection helping you identify which sources you have already examined.





In theory, the first ten or so results are the most relevant to your search, but that is not necessarily accurate. In fact, how a website or page gets ranked in the top ten often has more to do with content design factors and the number of visitors it receives than actual relevance.

Advanced Search

An advanced search is a step up from a simple search but it's still a keyword driven process. Google, Bing, and DuckDuckGo are four popular search engines designed especially for this purpose. Each is a database with a primary search field and a search button located on its homepage to lead you to a display of results.

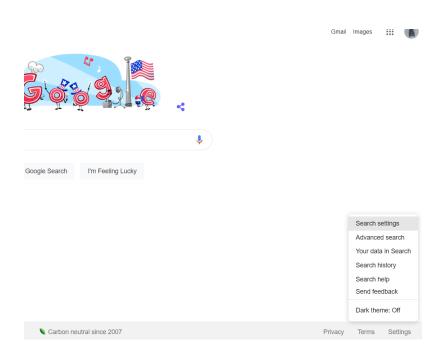
The following demonstration illustrates an advanced search by a student majoring in sociology looking for source material on the role of education in promoting tolerance. A preliminary list of keywords might include the following words and phrases:

- tolerance
- teaching tolerance
- acceptance
- tolerance-based education
- diversity
- conflict-resolution training

Steps of an Advanced Search Using Google

Step One

The researcher uses Google to look for the first word on the list above. As you can see from the screenshot below, you can access the "Advanced Search" option from the Google homepage by clicking "Settings" then "Advanced Search".



Step Two

The screenshot below illustrates the results after the keyword tolerance has been entered and the search parameters, or conditions that refine the search, have been carefully defined.

As you can see, the researcher has been very specific. Take a minute and study the page. The results are to include only those where tolerance education appears in that exact phrasing. It will also only include results that include the words 'tolerance', 'education', and 'teaching' somewhere on the page.

Notice also that the researcher has restricted the search to eliminate any results that may have to do with 'conflict resolution', which is closely related but not included in the scope of the research task.

Google

Advanced Search

| Find pages with | | To do this in the search box |
|----------------------------|------------------------------|--|
| all these words: | tolerance education teaching | Type the important words: tricolor rat terrier |
| this exact word or phrase: | tolerance education | Put exact words in quotes: "rat terrier" |
| any of these words: | | Type OR between all the words you want: miniature OR standard |
| none of these words: | conflict resolution | Put a minus sign just before words you don't want: -rodent, -"Jack Russell" |
| numbers ranging from: | to | Put 2 periods between the numbers and add a unit of measure: 1035 lb, \$300\$500, 20102011 |

Results can also be narrowed by defining the criteria of the publication information at the same time as you enter words or phrases in a keyword search. Most often, this information involves titles, authors and publication dates.

For instance, in a search regarding the impact of computers on writing instruction, you may want to limit the results to sources published after 2010. This can also be done through an Advanced Search in places.

Web Directory Search

Web directories are highly specialized lists of electronic resources compiled by a group of professional editors. Before each link is included, the resource is reviewed

and judged by an expert for its value and relevance to the topic or field to which it belongs.

Web directories are highly specialized lists of electronic resources compiled by a group of professional editors. Before each link is included, the resource is reviewed and judged by an expert for its value and relevance to the topic or field to which it belongs.

Web directories containing content that has been parsed, or analyzed, such as those in the list below, are great places to begin searching the Web. The browse and search methods for each will be similar. Search engines have made mode Web directories obsolete, but some are still useful. Here are some that you may find more useful in finding specific content than a regular Google search.

- Yelp
- Internet Public Library
- b2b Yellow Paged
- Hotfrog

Reference Site Search

Reference website search engines are the online versions of the encyclopedias, dictionaries, atlases and almanacs found in any library reference room. Some provide limited access for free and full access for a subscription fee. Others are completely free to the public.

Using one of these early in your research will help introduce you to the topic you've been assigned or provide you with a starting point from which to select a topic of your own liking. Reference searches are conducted in the same way as a simple or an advanced search. In other words they are keyword driven. Here is a short list of Reference search sites:

- Encyclopedia.com
- Encyclopedia Britannica
- Merriam-Webster Dictionary
- Wikipedia

News Search

Popular search engines like Google and Bing usually have a news search function accessible from the homepage on their websites. Other websites are strictly news oriented. Each leads to a specialized database with a primary search field and a search button to lead you to a display of results.

News searches are conducted in the same way as a simple or an advanced search. In other words they are keyword driven. Here is a short list of News search sites:

- Google News
- AllTheWeb News
- Reuters

Government Search

Most of the documents and publications of the U.S government, as well as those of state and local governments, are widely accessible online through popular search engines like Google, Bing, and DuckDuckGo. In addition, there are a number of specialized, government sponsored, database-driven websites with which to locate this sort of resource material.

Government searches are conducted in the same way as a simple or an advanced search. In other words they are keyword driven. Here is a short list of Government search sites:

- Search.gov
- USA.gov
- Library of Congress
- Clinicaltrials.gov

Discussion Forums and Blogs

Discussion Forums and Blogs support ongoing, internet-based conversations ranging from adult education to immigration reform, from pickling eggs to making

violins. They are among the oldest forms of communication on the Internet and bring together individuals who share common interests or belong to a particular community.

Different from Blogs, Discussion Forum venues generally require permission from the server before joining the conversation. Some contain detailed analyses of issues and events by contributors who range from interested members of the general public to recognized experts in their specific fields: science, religion, the arts, sports and business to name a few.

A small number of sites have been developed that specifically search for these types of venues. If you know the name of the one you are looking for, just enter it in the URL field of a search engine such as Google. If not, here is a short list of discussion-oriented sites you may want to bookmark:

- Discord
- Google Groups
- Reddit

Discussion Forums

Online Discussion Forums allow people with specific interests or research needs to come together to ask and answer questions on a single topic. There are Discussion Forums about health, education, hobbies, and so much more. Reddit is one popular website that consists of many different forums on which experts and newcomers alike can learn and express particular topics in depth.

Reddit

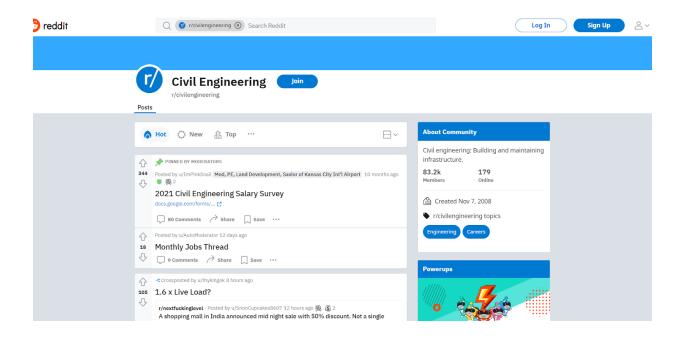
Steps to Conducting Research on Reddit

Step One

Reddit is a discussion based website which covers almost any topic you could imagine. Topics are sorted by category into "subreddits". Any subreddit is accessible by adding r/ and the subreddit name to the end of the URL. For example, the URL for the Civil Engineering subreddit is at 'https://www.reddit.com/r

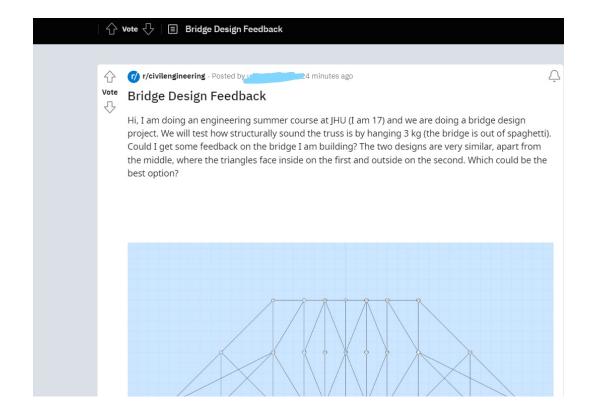
/civilengineering/'. From the subreddit homepage, you can both respond to posts and create your own.

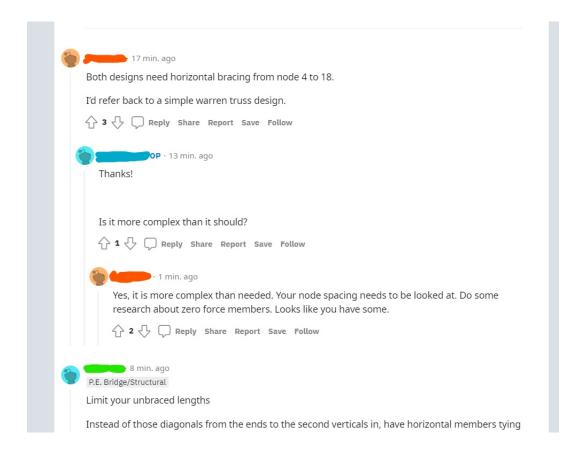
Below is a screenshot of the Civil Engineering subreddit. As you can see, the page header includes the r/ address and suggested posts. You can also see the current number of members to the subreddit, and how many of those members are online right now.



Step Two

If you click on a specific post, you can see more details on the topic provided by the original poste. You can also see and respond to any comments that have been made. In the screenshots below, you can see a post about a bridge design that the poster wants feedback on. Below the post, discussion regarding the bridge is occurring in the comments section.





Blogs

Blogs--short for Weblogs--are online journals that are updated by their authors on a regular, often daily, basis. They consist of chronologically ordered entries and, except for being shared with the public; they closely resemble a personal diary or journal. Typically, they include a title and a text message, but they can also include images, audio, video and other types of media. Many entries include links to other webpages as well.

Many Blogs are specialized into subject matter or thematic categories; some are even instructional. Depending on the author's credentials and intent, these types of websites can often be useful sources for first-hand accounts, commentary and specialized information relevant to the issues or topics they address. Be sure to evaluate whether or not the Blog is authored by an expert on their topic before using it in your research.

Additional Resources

Binghamton University Libraries - 'Databases'

Binghamton University Libraries - 'Search Strategies'

Purdue OWL - 'Conducting Research'

Purdue OWL - 'Online Libraries'

Purdue OWL - 'Online News Sources'

University of Toronto - 'Research Using the Internet'

University of Wisconsin-Madison - 'Conducting Online Research'

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