

Conduct Database Searches

Databases are library resources that offer access to either full text articles or bibliographic indices. They also connect you to various types of sources: primary, secondary, or tertiary. These resources vary by type and can include journals, newspapers, magazines, patents and conference proceedings. You can search databases using keywords.

How can you break up your research question into keywords or concepts that can be searched using a database?

Searching databases requires some strategic thinking and planning. Let's look at an example below.

Research question: *What is the economic impact of unequal **access** to **education** on **lower to middle class families** during the last decade in the United States?*

Consider the following 4 steps to break up your research question and come up with keywords and expressions that can be entered into a database.

Step 1: Identify keywords/concepts.

Step 2: Use boolean operators to compose complex search expressions.

Step 3: Enter your complex search expressions into a database search.

Step 4: Revise your terms and search strategy based on reading and database results.

Step 1: Identify Keywords/Concepts

Start by identifying keywords and concepts using single words or very short phrases. Try to limit your terms to a maximum of three. Then identify synonyms for your keywords, keeping in mind that you might revise these terms based on your search results and the language used in different scholarly disciplines.

Concept/Keyword 1: access

Concept/Keyword 2: education

Concept/Keyword 3: lower to middle class families

Table A: This table identifies the three different concepts or keywords from the research question stated earlier and aligns the synonyms associated with each of these concepts or keywords.

Concept 1		Concept 2		Concept 3	
Access		Education		Lower to middle class families	
Synonyms		Synonyms		Synonyms	
	affordable		university		underprivileged
	cost		higher education		marginalized
	fees		colleges		working class

Step 2: Use Boolean Operators to Compose Complex Search Expressions

Use ‘**Boolean operators**’ to build complex database search expressions. These operators help combine concepts/keywords and their synonyms to produce more complex searches. Boolean operators are “**OR**”, “**AND**” and “**NOT**”. Keep in mind that most databases will ignore these operators if they are not capitalized. Also, “**NOT**” is infrequently used because, if you are not careful, you could accidentally eliminate relevant resources from appearing in your search.

Table B: This table lists the characteristics of each of the three Boolean Operators.

AND	OR	NOT
<p>The Boolean operator “AND” is:</p> <ul style="list-style-type: none"> • used to link different concepts/keywords • helps narrow your search • informs the database to retrieve every source containing these concepts/keywords 	<p>The Boolean operator “OR” is:</p> <ul style="list-style-type: none"> • used to link synonyms • helps expand your search • informs the database to retrieve every source containing any (but not necessarily all) of the concepts/keywords in your search expression 	<p>The Boolean operator “NOT” is:</p> <ul style="list-style-type: none"> • used to exclude terms or concepts from your search • helps eliminate results that are not appropriate for the search

Step 2.1: Connect keyword concepts and their synonyms together using the ‘OR’ boolean operator

Concept 1		Concept 2		Concept 3	
Access		Education		Lower to middle class families	
Synonyms		Synonyms		Synonyms	
OR ↓	affordable	OR ↓	university	OR ↓	underprivileged
OR ↓	cost	OR ↓	higher education	OR ↓	marginalized
OR ↓	fees	OR ↓	colleges	OR ↓	working class

In the table above, the concepts/keywords and synonyms are connected with ‘OR’ as follows:

Concept/Keyword 1 & Synonyms: affordable **OR** cost **OR** fees

Concept/Keyword 2 & Synonyms: university **OR** higher education **OR** colleges

Concept/Keyword 3 & Synonyms: underprivileged **OR** marginalized **OR** working class

Step 2.2. Use the 'AND' boolean operator to connect your concepts/keywords and their synonyms with other concepts

Concept 1		Concept 2		Concept 3	
Access		Education		Lower to middle class families	
Synonyms		Synonyms		Synonyms	
AND →	affordable	AND →	university	AND →	underprivileged
AND →	cost	AND →	higher education	AND →	marginalized
AND →	fees	AND →	colleges	AND →	working class

From the table above, the concepts/keywords and their synonyms are connected with other concepts as follows:

(Concept/keywords 1 with synonyms) **AND**

(Concept/keywords 2 with synonyms) **AND**

(Concept/keywords 3 with synonyms)

Step 2.3. Use the blanks below to compose your complex search expression

(Concept/keywords 1 with synonyms) **AND**

(Concept/keywords 2 with synonyms) **AND**

(Concept/keywords 3 with synonyms)

Using the original example, the complete complex search expression:

Concept 1			Concept 2			Concept 3		
Access			Education			Lower to middle class families		
Synonyms			Synonyms			Synonyms		
OR	AND	affordable	OR	AND	university	OR ↓	AND	underprivileged
↓	→		↓	→			→	
OR	AND	cost	OR	AND	higher	OR ↓	AND	marginalized
↓	→		↓	→	education		→	
OR	AND	fees	OR	AND	colleges	OR ↓	AND	working class
↓	→		↓	→			→	

(affordable **OR** cost **OR** fees) **AND**

(university **OR** higher education **OR** colleges) **AND**

(underprivileged **OR** marginalized **OR** working class)

In this example, use **NOT** to eliminate results pertaining to high school education:

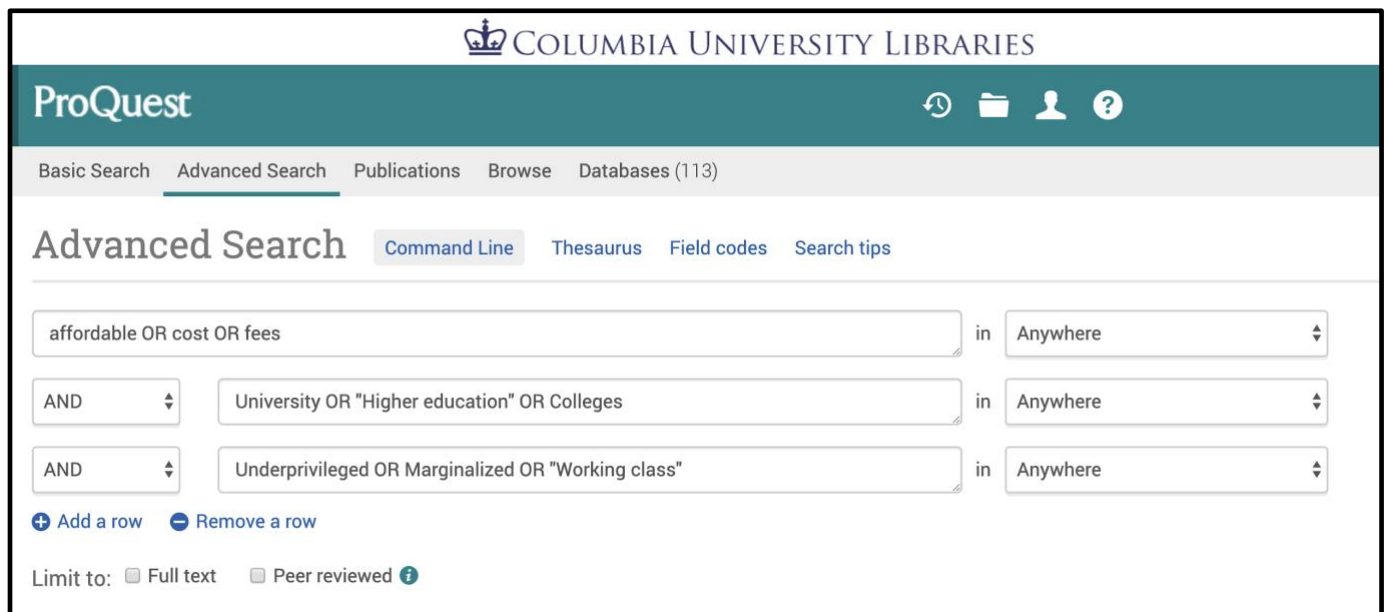
(university **OR** higher education **OR** colleges) **NOT** (high school)

Step 3: Enter your Complex Search Expressions into a Database Search

The complex search expression can be entered into database fields following these steps:

1. Type each concept and its synonyms on a separate line/database search field
2. The database search provides a dropdown menu with boolean operators. Normally defaulting on 'AND' and connecting the different concepts together.

Image 1: A complete complex search expression entered into ProQuest



The screenshot displays the ProQuest Advanced Search interface. At the top, the Columbia University Libraries logo and the ProQuest logo are visible. The navigation bar includes links for Basic Search, Advanced Search (selected), Publications, Browse, and Databases (113). The Advanced Search section is active, with tabs for Command Line, Thesaurus, Field codes, and Search tips. The search interface consists of three rows of search fields, each with a dropdown menu for the search scope (set to 'Anywhere'). The first row contains the search term 'affordable OR cost OR fees'. The second row is connected to the first by an 'AND' operator and contains 'University OR "Higher education" OR Colleges'. The third row is connected to the second by another 'AND' operator and contains 'Underprivileged OR Marginalized OR "Working class"'. Below the search fields, there are buttons to 'Add a row' and 'Remove a row'. At the bottom, there are checkboxes for 'Limit to: Full text' and 'Peer reviewed'.

Step 4: Revise your Terms and Search Strategy based on Reading and Database Results

Run your database search and examine your results. One way to help you improve and revise your search keywords and concepts is to explore the terms the database assigns to retrieved relevant articles.

For example, take the image below. Examine the **Subject** terms and tweak your search keywords/concepts accordingly. You may not need to change all your search terms, adjust as needed.

Image 2: A screenshot of a database record

Class, Race, and Higher Education in America: SOCIAL CLASS AND HIGHER EDUCATION RACE, ETHNICITY, AND HIGHER EDUCATION NOTES REFERENCES Full Text

Trow, Martin. *The American Behavioral Scientist* (1986-1994); Thousand Oaks Vol. 35, Iss. 4/5, (Mar-Jun 1992): 585.

...higher education could not say what proportion of the students at Berkeley are...
 ...ry tht Center for Studies in Higher Education, University of California...
 ...class, to "Rise with your class, not out of it "Mass higher education in the...

Abstract/Details Full text Full text - PDF (931 KB) Cited by (11) Hide Abstract ^

Abstract (summary)

Mass higher education in the United States, with universal access in many places, has many functions that it shares with similar institutions around the world. But it has one function that is perhaps unique to us: It is the central instrument for the legitimization of a society around the principle of broad (and in principle, equal) opportunities open to all individuals, opportunities to improve themselves and to make their careers and lives through their own efforts and talents. Our 3,500 accredited colleges and universities , offering course work at every level of difficulty to an enormously diverse student...

Subject

- Radicalism;
- Higher education;
- Students;
- Cooperation;
- Society;
- Manual workers;
- Sociology;
- Middle class;
- Essays;
- Education policy;
- Occupations;
- Social classes

Location United States--US; New York; England; California

Company / organization Name: Bureau of the Census
NAICS: 926110

Found in: ProQuest Central

Since there are no suggestions to revise the first two keywords and concepts, they can remain the same and we can revise the third concepts/keywords.

'Old' Concept/Keyword 3 & Synonyms: underprivileged OR marginalized OR working class

'New' Concept/Keyword 3 & Synonyms: social classes OR middle class OR marginalized

Note: You don't have to revise all the concepts/keywords in your search. Use your own discretion to add and remove concepts/keywords and run your searches iteratively until you are able to access the content you are looking for.
