General Arc of a Search

1. Define information need, get vocabulary
2. Choose information source
    - Format
    - Date
    - Subject coverage
3. Decide on your search strategy (keyword/author, citation analysis, related item search, etc.)
4. Construct your search syntax (choose keyword list and fields/limits to use or choose your source document for citation analysis or related article searches)
5. Refine your strategy (get more/less/different)
6. Repeat from #1 above, as needed

Getting Started

1. How much do you already know?
    - Vocabulary
    - Can you characterize the type/quality/subject area of the information you are missing/seeking? (background info, very specific info about a narrow field, super new info, older info, summary of the field to date, etc)

2. Purpose of your information need:
    - Depth needed (effects how carefully you construct your search strategy and how many places you look)
    - Scientific need or popular need? (to inform research or talk at a cocktail party?) = determines your selection of information search tool and also how many places you look

More about Vocabulary
- Natural language searching not perfected yet
    - Synonyms: Does your search tool add synonyms for you or do you need to brainstorm synonyms and add them manually? (PubMed adds lots of synonyms and technical terms, can't think of any other database that does this yet)
    - Truncation: Does your search tool do automatic stemming or truncating or do you need to use a symbol for truncation (usually *) to include both singular and plural or other endings of the word? (Google Scholar does auto stemming, Google Patents does not)
- Think like the author when listing keywords
- Common name vs. genus species names; brand names vs. generic names; layman term ("heart attack") vs technical term ("myocardial infarction")
- "relationship words" (e.g.: "effect" as in "Effect of mercury levels on fish populations in the Sacramento River")
    - If info need is low depth, use or don't as you wish
    - If info need is high, consider leaving out, or if use account for synonyms (effect, impact, reduction, increase, change in, relationship between)
- Article keywords may need to be more specific/narrow than book keywords (this is changing…)
    - Book catalogs (e.g.: Cruzcat) not yet searching book chapter titles or full text in most cases, only book titles
    - Exceptions are completely electronic books

Types of Search Strategies

1. Classic keyword/author search
   - Vocabulary – see above
   - Boolean – when to use (do not use in PubMed)

2. One good item search
   - Mine its bibliography - for older items
   - Who cited it – for newer items (available in Google Scholar, Web of Science, and Scopus)
   - "related item" options in some search tools (PubMed, WOS, BIOSIS and Google Scholar have "related article" links)
   Not covered in this class:
   - Use the official subject headings assigned to the good item
   - If it's a printed book, use the call number assigned as starting place to browse the shelves for other books on that topic (not very precise)

3. More/less strategies (focus or broaden)
   - Finding More: truncation, broader topic words, synonyms, family or genus not species
   - Finding Less: quotes around phrases (in most search tools), exclude terms, use narrower terms, use limits in the tool (including limiting to title field), use sort options (e.g.: sort by times cited in WOS)

4. Official subject heading search (e.g.: Medical Subject Headings [MeSH] used in PubMed). – not covered in this class

5. Don't forget to redo search in an additional tool if depth is needed (remember the Venn diagrams)

Other Tips

- "Advanced Search" options are usually worth it, especially in databases that only offer a single search box to start with (e.g.: Google Scholar, PubMed)

- Set your Google Scholar preferences to use UC-eLinks when you are off campus (see handout)

- Off campus access to licensed resources (through the links in UC-eLinks or direct from the publisher) require you to sign in at this page first: http://oca.ucsc.edu/

- Consider setting up a search alert in the database to have your search re-run automatically every week and the results emailed to you (available in many databases) to keep up to date on your topic.