Outline for Comprehensive Science Literature Reviews

Define and Refine Your Topic

- Choose a Research Topic of Interest; Think Critically About It; Formulate a Title
- Start a General Review (browse textbooks, encyclopedias, review journals, web pages)
- Identify the Major Ideas & Issues & Researchers
- Define the Time Period (i.e. how far back do you need to search the literature)
- Formulate Keywords = Main Concepts & Related Terms (use thesauri, subject headings, etc.)
- Craft Search Statements for Indexes/Databases/Catalogs (utilize Boolean operators, truncation, parentheses, proximity operators, phrase searching); Record your methods
- Narrow or Broaden your Topic as appropriate based on literature search results

Search All Relevant Sources Comprehensively & Efficiently

- Journal Indexes/ Databases & Ejournal Packages - find citations of articles and full articles
- Bibliographies - from relevant journal articles, books, etc. (cycle backwards in time)
- Citation Indexes – e.g. Web of Science/ Scopus; Google Scholar (cycle forwards in time by identifying citing articles; find the most cited articles on your topic)
- Specialized Data (e.g. chemical/ molecular name & structure; genetic sequence; etc.)
- Current Awareness Sources
  - Identify & Browse Current Issues of the Most Relevant Journals for your topic
  - Setup Alerts (Email; RSS) - Journal Table of Contents; Indexes; Web Pages
  - Grant Databases (e.g. NSF; NIH; CRIS)
  - Newspaper Indexes (e.g. Lexis Nexis Academic; Newsbank; individual newspapers)
  - Internet Discussion Groups, Listservs, Blogs, etc.
- Book Catalogs (find books, government docs, media materials, theses/dissertations, etc.)
  - Your Local Library Catalog; Other Libraries – i.e. WorldCat; Google Books
  - Individual Specialized Library Catalogs via the Internet
- Web Search Engines (e.g. Google, Yahoo, Dogpile, FirstGov, Scirus, etc.)
  - Directories (e.g. BUBL, Intute, Librarians Index to the Internet)
- Experts (Scientists; Scholars; Librarians, etc.) @ Institutions/ Organizations/ Agencies/
- Literature Guides (Books; Online Library Database Lists/ Guides/ Pathfinders)

Find & Evaluate & Manage the Information

- Analyze Your Database Search Results (citations) & Revise/Improve Your Search Statement (find the best balance/tradeoff between comprehensiveness and precision)
- Understand the Scholarly/Scientific Research & Peer Review Publication Process
- Evaluate the Type of Information Found and its Relevance to your Topic (Determine the Source; Credentials of the Author; Objectivity, Accuracy, Currency, etc.)
- Retrieve the Information Source from the Database or Library or ILL/Document Delivery
- Critically Read and Analyze Articles; Review Methods, Data, Statistics, etc.
- Gather, Store, and Annotate relevant Citations (e.g. Refworks, Endnote, Zotero)

Synthesize the Literature and Integrate it Into Your Writing

- Choose the Appropriate Type and Style of Publication/Presentation
- Move Back and Forth between Writing and further Literature Research