

Types of Literature and Library Databases



ENGR 191-002: Introduction to Research
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Types of Literature



- **Primary**

- First formal appearance of results in print or electronic formats
- Written in own words of the author and possibly co-authors
- Report a discovery or share new information
 - ✦ Examples: peer-reviewed journal articles, conference proceedings, patents
 - ✦ Peer-review – manuscript reviewed by peers before publication with similar expertise to the authors

- **Secondary/Tertiary**

- Accounts of research that summarize research findings
- Writing derived from primary sources
 - ✦ Secondary Examples: Articles titled “Review”, textbooks, magazine (discipline trade journals) articles, newspaper articles, press releases
 - ✦ Tertiary Examples: Encyclopedias, dictionary entries
- Literature reviews cite a mixture of literature types (majority coming from primary sources)

How to Determine Literature Type: Titles



- Journal title

- Primary:

- ✦ 'Journal of..'
 - ✦ 'Letters' (short articles with rapid time to publication)
 - ✦ IEEE Transactions on...

- Secondary

- ✦ Trade journals
 - IEEE Spectrum, ACM, AICHE, Mechanical Engineering, MRS Bulletin
 - ✦ Magazines pitched to a broad audience
 - *Scientific American, Science News, Physics Today*

- Article title

- Primary

- ✦ Technical title
 - ✦ Very specific

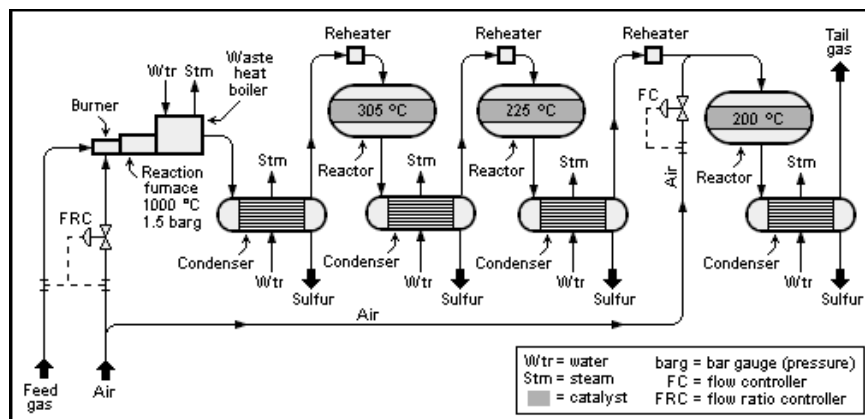
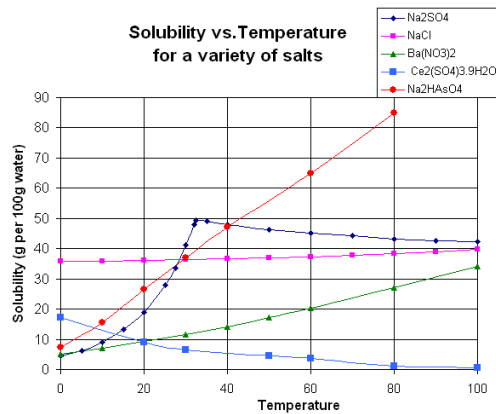
- Secondary

- ✦ General title
 - ✦ Title contains 'review'

How to Determine Literature Type: Graphics

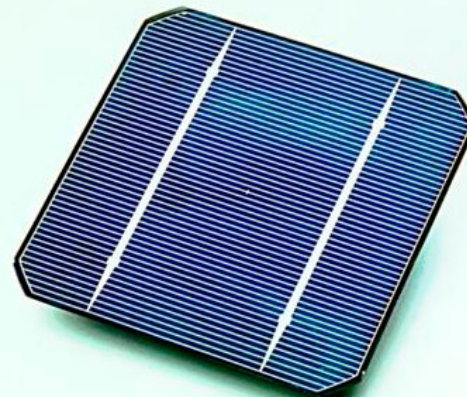
- Primary

- Technical



- Secondary

- General, “marketing feel”



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What is a Literature Review? Where is it located?



Literature Review

- Summary of previous research findings. Not just a summary...
 - ✦ Describe what has and has not been investigated relevant to a topic
 - ✦ Identifies potential relationships between concepts
 - ✦ Provides an opportunity to tell a story
- **Basic Categories of a Research Article**
 - *Abstract* – Synopsis of the work
 - ***Introduction*** – Introduces the topic and discusses why the topic is scientifically interesting or important
 - ***Background*** – Review what is known about the topic and specifically cites the work of others to show how the current work builds upon the knowledge base
 - *Experimental Procedures* – Describes how research was conducted, shows the steps, mentions specific equipment, software packages, etc.
 - *Results* – Filled with graphs, data, simulations, images, etc.
 - *Conclusions* – Summarize most important points

Things to Keep in Mind



- Organize your review (chronologically, thematically, methodologically) – use an outline
- Transition into new concepts or studies
- Define and explain all technical terms and acronyms
- Paraphrase using your own words instead of using quotations
- Include in-text citations that correspond to your list of references at the end

Citations



- In-text citations
 - Meaning... cite sources as you mention them
 - Do not simply list your sources at the end of the document as you would a bibliography
 - Notation for in-text citations varies by discipline
 - ✦ IEEE uses brackets and numbered in order of appearance [1], [2-5], ...
 - ✦ American Institute of Physics uses superscripted numbers ^{1,2} or ³⁻⁶
 - ✦ Some publishers use (author name, year) and arranged alphabetically at the end of the document
 - Include complete citation (author names, article title, publication name, volume #, page #, year of publication)
- Citation index = how many other papers have cited a particular paper
 - Papers with high citation indices likely indicate significant contributions

Ways to Find Articles



- Library databases
 - Examples:
 - ✦ Compendex (engineering articles)
 - ✦ Web of Science (science articles)
 - Narrow search to produce a manageable number of papers
- Google Scholar
 - Search for papers using ‘Google language’
- Look for papers referenced in other papers
 - Easy way to find relevant and related articles