April 5, 2022 PHYS 310 Spring 2022

Scientific Literature Search

Goal: Today you will learn search tools for doing a thorough literature search. Part of doing research is to know what previously has been studied, what the results were and what is currently of interest to your field of expertise. You will apply the tools to find literature for the topic of your current project (lab 4). You will write a paper on your current project and your literature search and the reading of the found papers will provide the necessary background for the introduction of your paper 2 (on lab 4).

Overview: Scientific Literature Search Tools

Go to our PHYS 310 webpage
`http://www.eg.bucknell.edu/physics/ph310/`
and scroll down to "Class # 10" (or further down on page) "Literature Search Tools".

- Web of Science and Google Scholar are for finding papers. This is your main tool kit.
- Library & IT is the top page, from which you can get to all other pages. Here you find also `Interlibrary Loan` (ILL) which you need for getting papers or books, to which Bucknell does not have access to.
- Databases includes Web of Science and other Databases for humanities and social science papers. Use this link when you try to use Web of Science from outside of Bucknell.
- Book: BU Library Catalog (World Cat). This is for finding books at Bucknell and also at other libraries.
- The physics resources are for some specific journals which you most likely will need and also the preprint server arXiv.

Web of Science

Click on the Web of Science link. (In case you are using Web of Science while not being directly on the Bucknell internet, you can get into Web of Science by using the Databases link and then Web of Science, which will ask you for your Bucknell login information.)

- take notes to keep the information about good papers and also which keywords worked and which not
- Start with "Basic Search"
- Add Another Row ; Topic or other setting
- Search by topic Examples: (i) Gravitational Constant; (ii) X-Ray; (iii) Michelson; (iv) Solar Spectrum

- refine search Examples: (i) Gravitational Constant & torsion balance; (ii) X-Ray & Molybdenum; (iii) Michelson & interferometer; (iv) solar spectrum & review
- click on title → Cited References (Past)
- View Related Records
- Citations (Future) (more recent papers have fewer citations) Example: (i) Gravitational constant & torsion balance
  choose for `Sort by:` instead of `Relevance` change to `Citations: Highest First`
  and click on the `Citations`
- get paper via `Free Full Text from Publisher`
  or if no full text option click on title and then `Look Up Free Full Text`
  or via `Links` and try offered Full Text Links
  or if none of above gets you full text, then use `Links` and then choose `GET IT` this gets you to the Inter Library Loan (ILL) page already with filled out entries (and finish with submitting request) You will get an email (a day or several days later) with a link and description how to get the article.
- search by author if you found well written papers by specific author
- search by year if you look for specific paper or if you e.g. want to search for more recent papers only.

Google Scholar

Click on the Google Scholar. (probably works from any computer)

- type in keyword (e.g. Gravitational constant)
- to get more advanced search: Click on the top left main menue symbol (three horizontal lines) and choose "Advanced search"
- Click on title → abstract; pdf-file
- Related articles
- click on "Cited by" (Future)
- to get bibtex-citation: click on " symbol (Cite) and then on BibTeX
- to get to past click on title and then on "References"

WorldCat

- choose Bucknell University Bertrand Library
- keyword: e.g. Huse & Hase or Solar Spectrum
- advanced search: keywords: e.g. solar spectrum & review

Literature Search & How to Read Articles: Introduction by Prof. C. Bester