

STEM Chalk Talk



Reference Meeting - September 5, 2017
Joanna Thielen

Why are we doing this?





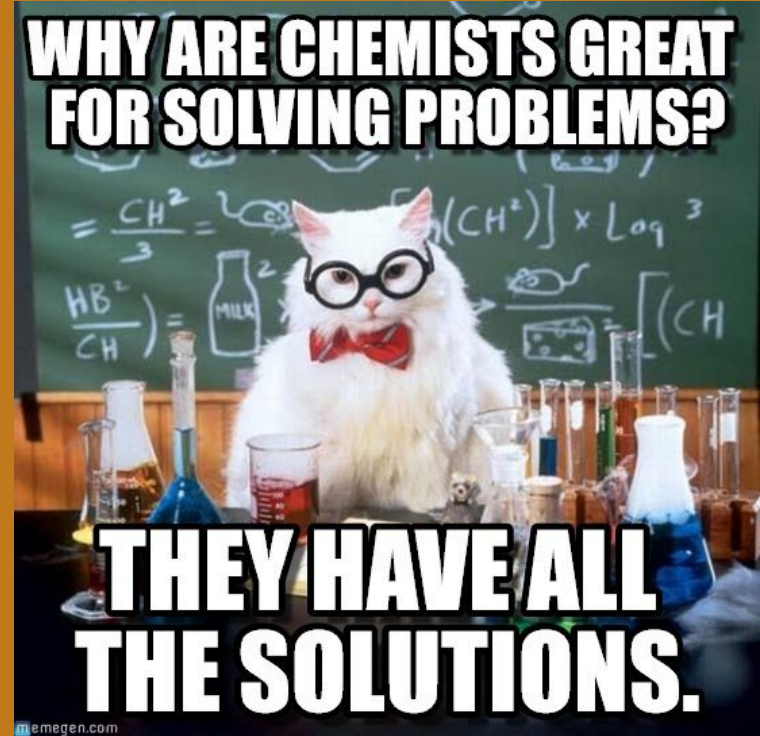
Why are we doing this?

- ALA Education and Continuous Learning
 - “For librarians, continuous learning is critical to renewing the expertise and skills needed to teach and assist members of the public in the new information age.”
 - “Make professional education and continuous learning a high priority for all library staff.”
- Increase comfort with STEM disciplines
 - Don’t be afraid of the science!

Today's agenda: Chemistry & Physics

A decorative pattern of vertical bars of varying heights and shades of teal, located at the bottom of the slide.

Chemistry





Common information needs

- Journal articles
- Conference proceedings
- Grey literature
- Properties (often needed for lab courses)
 - Chemical properties: flammability, solubility, toxicity, etc.
 - Physical properties: melting point, color, density, etc.



Journal articles → use a scientific database





SciFinder

- Premier source for chemistry literature
 - Disciplines covered: biomedical science, chemistry, engineering, materials science and agricultural science
- Multiple ways to search (keyword, structure, reaction, substance identifier, etc.)
 - Web of Science: search by keyword
- Search for patents

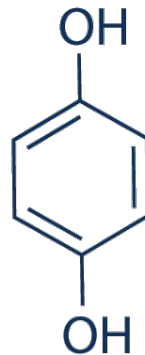
***** Note: you need to [create an individual account](#) before using SciFinder! *****



Time to search SciFinder

Sample reference question:

- I need to find articles on toxic chemicals in make-up.
- Chemical: hydroquinone





Conference proceedings

- Can be difficult to find - often vague/ambiguous conference names
- Usually only an abstract
- Try databases first
 - But Google Scholar is your friend

Use Advanced Search function

SciFINDER
A CAS SOLUTION

Explore ▾ Saved Searches ▾ SciPlanner

REFERENCES

- Research Topic
- Author Name
- Company Name
- Document Identifier
- Journal
- Patent
- Tags

SUBSTANCES

- Chemical Structure
- Markush
- Molecular Formula
- Property
- Substance Identifier

REACTIONS

- Reaction Structure

REFERENCES: RESEARCH TOPIC ?

quantum mechanics

Examples:
The effect of antibiotic residues on dairy products
Photocyanation of aromatic compounds

Search

[Advanced Search](#) Always Show

Publication Years
Examples: 1995, 1995-1999, 1995-, -1995

Document Types

| | |
|--|-------------------------------------|
| <input type="checkbox"/> Biography | <input type="checkbox"/> Historical |
| <input type="checkbox"/> Book | <input type="checkbox"/> Journal |
| <input type="checkbox"/> Clinical Trial | <input type="checkbox"/> Letter |
| <input type="checkbox"/> Commentary | <input type="checkbox"/> Patent |
| <input checked="" type="checkbox"/> Conference | <input type="checkbox"/> Preprint |
| <input type="checkbox"/> Dissertation | <input type="checkbox"/> Report |
| <input type="checkbox"/> Editorial | <input type="checkbox"/> Review |

Web of Science

Search

Select a database Web of Science Core Collection [Learn More](#)

Basic Search Cited Reference Search Advanced Search + More

Letter
Meeting Abstract
Meeting Summary
Music Performance Review

Document Type

AND quantum mechanics

Topic

Search

[+ Add Another Field](#) | [Reset Form](#)



Grey Literature

- What is it?
 - "That which is produced on all levels of government, academics, business and industry in print and electronic formats, but which is **not controlled by commercial publishers**" (4th International Conference on Grey Literature, 1999)
- Common types in the sciences
 - Governmental reports - technical, statistical, preliminary, etc.
 - Conference proceedings
 - Pre-prints
 - Technical and commercial documentation

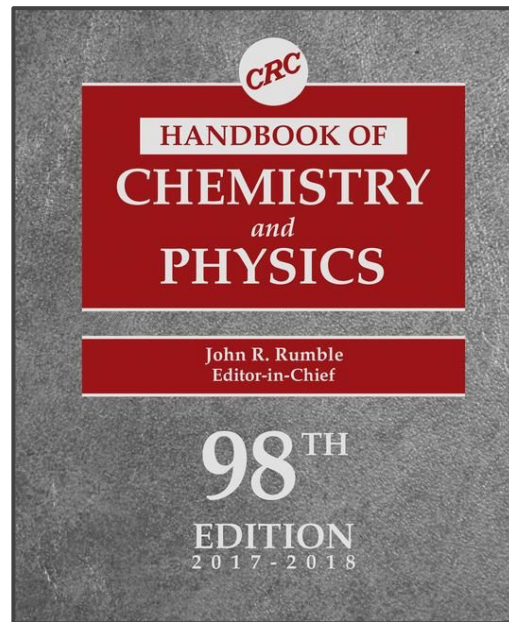


Grey Literature

- Google
- Often known reference searching
- [U-M research guide on grey literature](#)

Properties

- Holy Grail of Properties: [CRC Handbook of Chemistry and Physics](#) (print - Reference Section)
- American Institute of Physics Handbook (print - Reference Section)
- SciFinder - search by chemical name or structure

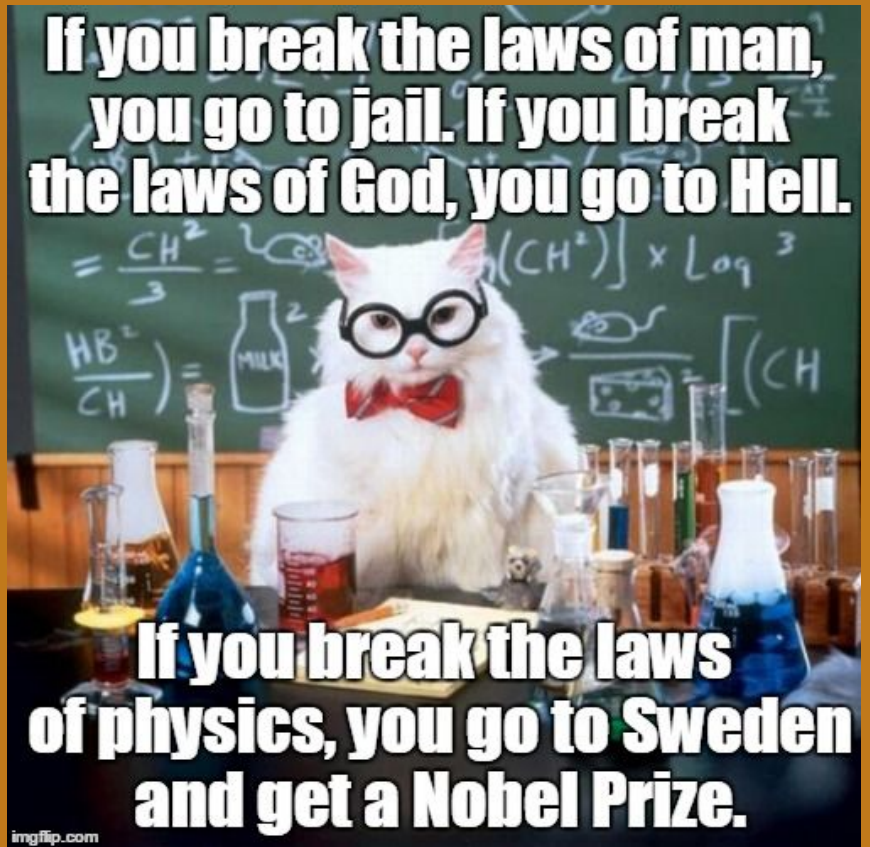


Online reference sources

- [McGraw-Hill Encyclopedia of Science and Technology](#)
- [ChemSpider](#) - database of chemicals
 - Structure, properties, articles, etc.



Physics





In library land, physics is very similar to chemistry

OU has a strong program in Medical Physics → they will use medical resources heavily



Arxiv.org - Home of physics pre-prints

- Pre-print: manuscript before it's been published in a scholarly journal
 - Why submit a pre-print? Informal peer review
- Started in 1991
 - Replaced 'snail mail' distribution of pre-prints
- Scope has increased beyond physics

The background is a solid orange color. In the top-left corner, there are three vertical bars of varying heights, each composed of several overlapping semi-transparent orange circles. In the bottom-right corner, there are four vertical bars of increasing height from left to right, each also composed of several overlapping semi-transparent orange circles.

Common STEM issues



Increasing amount of STEM research is interdisciplinary

- Resources discussed today are applicable to STEM disciplines besides chemistry and physics
- Other resources may be useful for them as well (such as PubMed)



Working with STEM patrons

- Library anxiety
 - Not heavy library users
- Difficulties articulating the unknown
- Technical terms are especially challenging
 - Use keywords as a guide
 - Create a citation chain
- Find Joanna in her office! (KL 245)

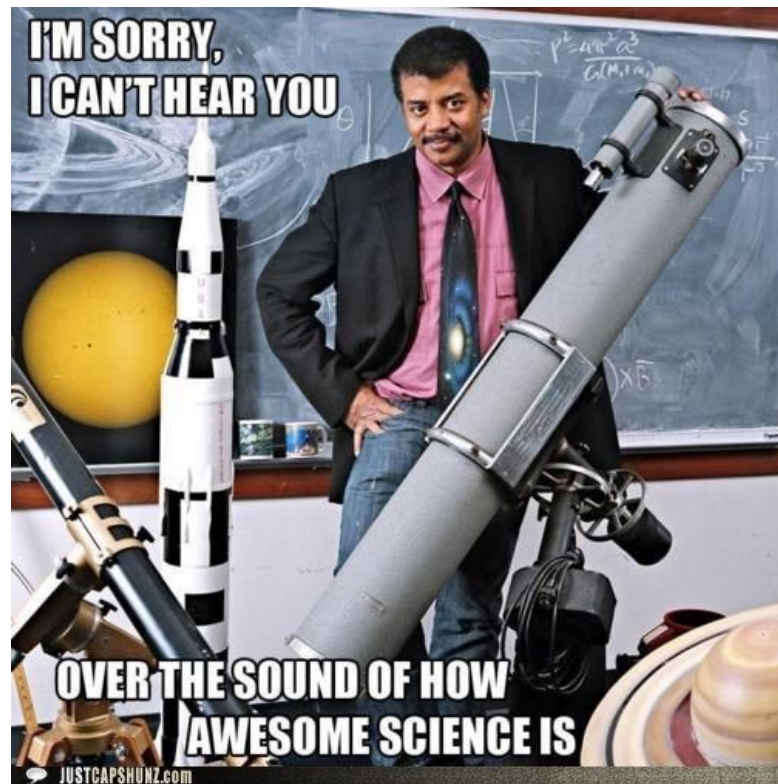


Topic selection & scoping can be difficult for students → Start with popular science news sources

- [The New York Times Science Section](#)
- [BBC News Science Section](#)
- [EurekAlert!](#) - created by the American Association for the Advancement of Science (AAAS)
- [Nature News](#)
- [New Scientist](#)
- [Smithsonian magazine Science Section](#)
- [National Public Radio Science Section](#)

Other resources

- [Chemistry subject guide](#)
- [Physics subject guide](#)
- [ACS Style Guide](#) (print - Reference Section)
 - American Chemical Society citation format
 - Ethics, Copyright Basics, Peer Review, etc.





STEM Chalk Talks

- **Chemistry & Physics** (Joanna) - September 5
- **Mathematics, Statistics & Actuarial Science** (Mariela) - October 6
- **Engineering & Computer Science** (Shawn L) - November 3
- **Biological Sciences** (Joanna) - December 1