MATH 5400: History of Mathematics

William Denton <wdenton@yorku.ca>

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1 INTRODUCTION

I'm William Denton <wdenton@yorku.ca>, the math librarian. I'm very happy to help if you have any questions while working on this paper or run into any problems, especially with accessing any online sources or getting useful results out of them. Email me for easy help or to book an appointment for more in-depth help, or if you see me in the library, just ask.

The quickest place to get help with formatting citations and bibliographies is at the reference desk in the Steacie Library. Whoever is there will be glad to help.

2 RESEARCH MANAGEMENT TOOLS

Zotero and Mendeley are *great tools* for managing your research and generating citations and bibliographies.

- Zotero (I prefer this one; it's free and open source)

- Mendeley (used widely in the sciences; it's no charge but proprietary)

Both integrate nicely with Word and will do your citations for you. Saves a lot of time!

(A number of people use Zotero in teaching, as for example discussed in Chad Iwertz's Teaching with Zotero: Citation Management for Feedback and Peer Review. Could be useful?)

3 SEARCH STRATEGIES AND FINDING RESOURCES

3.1 WHERE DO YOU SEARCH NOW?

The library provides access to books (of course) and to many online sources that have huge amounts of content that isn't available on the open web or findable through a regular Google search.

Primary, secondary and tertiary sources: what are they, what are the differences?

Easiest place to find related sources is in the bibliography of whatever is in your hand! When you have one book or article that's useful, look at its bibliography to get ideas about where to look next. Then look at *their* bibliographies. However, you'll also have to search.

3.2 SEARCH STRATEGIES

Breaking down a topic. ANDing and ORing using Boolean.

Don't get discouraged if you don't find something great right away. It may take a little time. Keep at it, try some different searches, try broadening out the subject you're looking for if it's too narrow, and try looking for things that are similar but a little bit different.

3.3 MATHEMATICS RESEARCH GUIDE

Links to all the best sources for journal articles and more are at
`http://researchguides.library.yorku.ca/mathematics`
What could be added? What would be useful? Let me know.

3.4 DICTIONARIES AND ENCYCLOPEDIAS

- Why useful:
  - Brief introduction to something
  - Getting up to speed quickly on it
  - Citations are useful
- Print is not so old fashioned! Of course Wikipedia is also an excellent source—but while it's a great place to start, it's no place to stop.
- *The Princeton Companion to Mathematics*
- *The Oxford Handbook of the History of Mathematics*

3.5 BOOKS

- Good for full treatments of a subject, biographies, histories, popular books, also more detailed like collection of chapters on a subject
- Upstairs on the main floor of Steacie
- QA 3: original sources; QA 21–36: history, biography, historical works
- Catalogue search link
- Note that the catalogue has books and journals and a lot else, but not articles
- evariste galois search in the catalogue as example. Basic keyword searches are a good start; can also search by Title Keyword or Subject Heading.
- The "bibliographic record" has a lot of detail in it.
- Is there a TOC? If so, very useful.
- Subject Headings take you to other books on just this exact subject. (This is a "controlled vocabulary.")

3.6 JOURNALS

- Good for the very specific
- Can go into catalogue to find known journal, but remember, no articles there
- Best source is MathSciNet, which can be got at in two places (same content, different interfaces):
  - MathSciNet at Ebsco
  - MathSciNet at AMS:
    - Do a search: use Fermat's Last Theorem, < 1993 when it was solved, and then 1993 <= year <= 1995); full proof printed in 1995
    - Look at results
    - Look at paper: abstract, subject headings, citations (from references)
    - Find It at York
    - SFX screen
- JSTOR: great for philosophy and history
  - `oldenburg`, sort by date, *Philosophical Transactions of the Royal Society* back to founding in 1665
  - `cantor AND (infinite OR transfinite OR countable)`
- Google Scholar (gauss heptadecagon works better there than in other places). Find It @ York will appear if used on campus or through the library's proxy. Great tool—but don't rely on it exclusively.
- Web of Science for tracking citations back and forth in time.

4 BRIEF EXAMPLES

4.1 ANNOTATED BIBLIOGRAPHY (MLA STYLE)

Roberts, Siobhan. *King of Infinite Space: Donald Coxeter, The Man Who Saved Geometry*. New York: Walker, 2006.

This is the only biography of H.S.M. Coxeter, the Toronto geometer (1907–2003). It covers both the mathematics he devoted his life to (which is described for the lay person in some detail but without mathematical rigour) and his personal life, which got much less of his time. A few more sentences explaining why the book will be useful for what you're writing. You will need to have given the book a good look, though you don't need to have read it all.

4.2 CITING WITH MLA IN-TEXT CITATIONS

This is not a direct quote so no quotation marks are needed:

> Coxeter first met artist M.C. Escher in Amsterdam in 1954 (Roberts 212).

This does need quotes because it comes directly from the book:

> Coxeter was called "the greatest classical geometer of the twentieth century" (Roberts 6).

In Works Cited:

> Roberts, Siobhan. *King of Infinite Space: Donald Coxeter, The Man Who Saved Geometry*. New York: Walker, 2006.