

HOW TO BIBLIOGRAPHY

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This document gives some suggestions about how to use a bibliography in Overleaf. I hope it will be helpful!

INTRODUCTION

Bibliographies in \LaTeX are notorious for being tricky. There are numerous “guides” online, and they all make it sound pretty complicated!

Actually, I don’t think it has to be that complicated. Bibliographies in \LaTeX have a substantial learning curve, but once you get used to it, it’s not so bad. One reason the online guides are complicated is that they try to cover every possible approach, for people who use different writing processes; and for people in different situations such as writing a research paper, writing a book, editing a collection of papers, etc.

Here, I am going to write a simplified guide aimed at students using Overleaf to write a (non-research) paper for a class, a senior thesis, or similar. And I am going to deliberately just present basic ways to do things, and for that matter, not every possible thing. Hopefully this will take care of what you need for your paper or thesis!

I am going to present this process in the following steps:

- (1) Decide which sources (papers, books, etc.) you want to cite.
- (2) Use the AMSRefs package in your \LaTeX file.
- (3) Alternatively, use \LaTeX ’s built-in bibliography commands. (This choice is simpler and easier to learn, but you will have take care of details that AMSRefs would help with.)
- (4) Get the nicely-formatted citation information from MathSciNet and add it into your \LaTeX file.
- (5) Citing web pages and unpublished sources.
- (6) Add citations throughout your file.

1. DECIDING WHICH SOURCES TO CITE

This is important:

Keep a list of sources that were useful to you.

A very important step is to *remember* which sources you used, and where you found each important theorem, definition, or fact that you will use in your paper. Note down (on paper, or in a document) which sources you used. For each theorem, etc., that you might want to cite later on, note down which source it was in and the page number, section number, and if applicable, the theorem number (e.g., “Theorem 3.6 in section 3.2, page 89”). Don’t make the mistake of waiting till the end, and then having to re-read all those books to figure out which theorem was from where!

Date: October 27, 2021.

2. USING THE AMSREFS PACKAGE

Add the `amsrefs` package to your document:

```
\usepackage{amsrefs}
```

This goes *before* the `\begin{document}`.

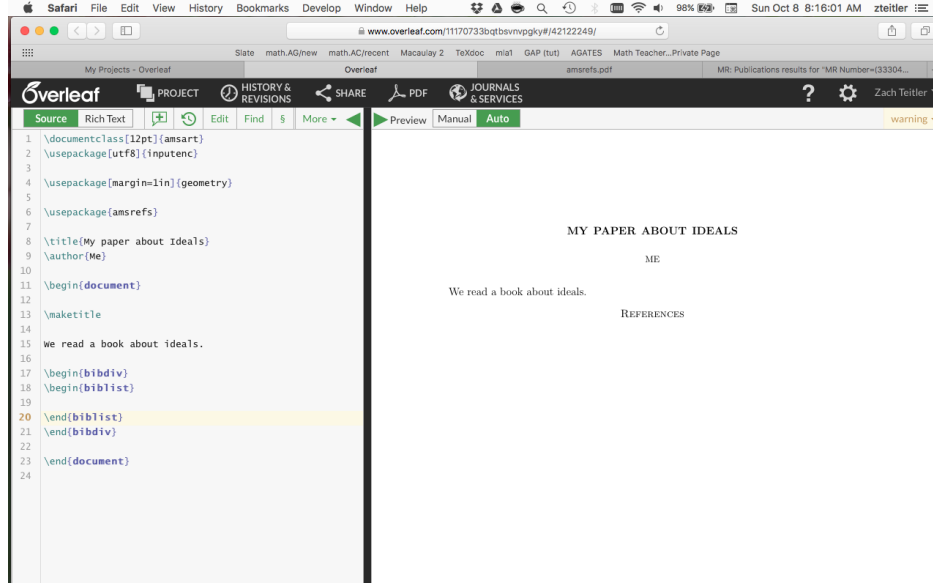
At the same time, create a space to put your bibliography into. At the end of your document (before the `\end{document}`) add these lines:

```
\begin{bibdiv}
\begin{biblist}
```

```
\end{biblist}
```

```
\end{bibdiv}
```

It should look like this.



A few things to note:

- The `documentclass` has the `[12pt]` option.
- You might be using a different document class, such as `\documentclass[12pt]{article}` instead of `amsart`.
- I included the `geometry` package to change the margin size.
- More importantly, the `amsrefs` package is there.
- A space for the bibliography was created.

You probably don't need to read the AMSRefs documentation. But if you want to, then visit

<https://ctan.org/pkg/amsrefs?lang=en>

or

<http://www.ams.org/publications/authors/tex/amsrefs>

3. USING L^AT_EX'S BUILT-IN BIBLIOGRAPHY COMMANDS

This is a simpler option than AMSRefs, in that it uses simpler “hands-on” commands. There will be less for you to learn with this option. On the other hand, you won't have

AMSRRefs to automatically take care of any details. For a short, simple bibliography, it's not hard to take care of the details manually.

If you're not sure which one to use, try entering just one or two bibliography entries with AMSRefs, and then delete it and try entering them using the built-in commands. See which one you prefer, and then use that for the rest of your bibliography entries.

To make a bibliography with the built-in commands, at the end of your document, add these lines:

```
\begin{thebibliography}{99}
```

```
\end{thebibliography}
```

A few things to note:

- We don't need any packages. This is built-in to L^AT_EX.
- The “99” tells L^AT_EX to make enough space for 2-digit numbers. If your bibliography will have 9 or fewer items then you only need 1-digit numbers, so put {9} instead. If you will have over 100 items, then put {999}.

4. ENTERING BIBLIOGRAPHY ITEMS USING BUILT-IN COMMANDS

Entering bibliography items is simple using built-in commands. Each bibliography item is entered with a command like

```
\bibitem[label]{citekey} bibliographic entry
```

What the parts mean is:

- The *bibliographic entry* is the actual information of the work you're citing. Usually this will include the authors, title, year, and so on. More on this later.
- The *citekey* is the string you will use to refer to this work when you want to cite it. More on this later.
- The *label* is optional. It controls how the entries will be labeled in the bibliography. If you skip it, your bibliography entries will be numbered. You can use author initials instead if you like.

Here is an example:

```
\bibitem[CLO15]{iva4} Cox, David A., John Little, and Donal O'Shea,  
\emph{Ideals, Varieties, and Algorithms}, 4ed., Springer, 2015
```

This will produce a bibliographic entry like

[CLO15] Cox, David A., John Little, and Donal O'Shea, *Ideals, Varieties, and Algorithms*, 4ed., Springer, 2015

Notice that the “iva4” doesn't display. We'll see later how that is used.

If we had left out the label, we would have gotten a number instead.

```
\bibitem{iva4} Cox, David A., John Little, and Donal O'Shea,  
\emph{Ideals, Varieties, and Algorithms}, 4ed., Springer, 2015
```

This will produce

[1] Cox, David A., John Little, and Donal O'Shea, *Ideals, Varieties, and Algorithms*, 4ed., Springer, 2015

Note:

- It is relatively simple to create bibliographic entries. Just type in the author names, title, and other information.
- Nothing is automatic. You will have to take care of formatting (e.g., putting titles in italics) and making sure information is correct.
- I recommend leaving out labels, if you're new to bibliographies. Just use number labels.
- The citekeys will be explained later in this document.

5. ENTERING BIBLIOGRAPHY ITEMS USING AMSREFS

When you have decided that you will cite a certain article or book, then you can get the nicely-formatted citation information from MathSciNet to use with AMSRefs. This is a database of mathematical publications. It is pretty reliable in terms of accuracy.¹

Visit

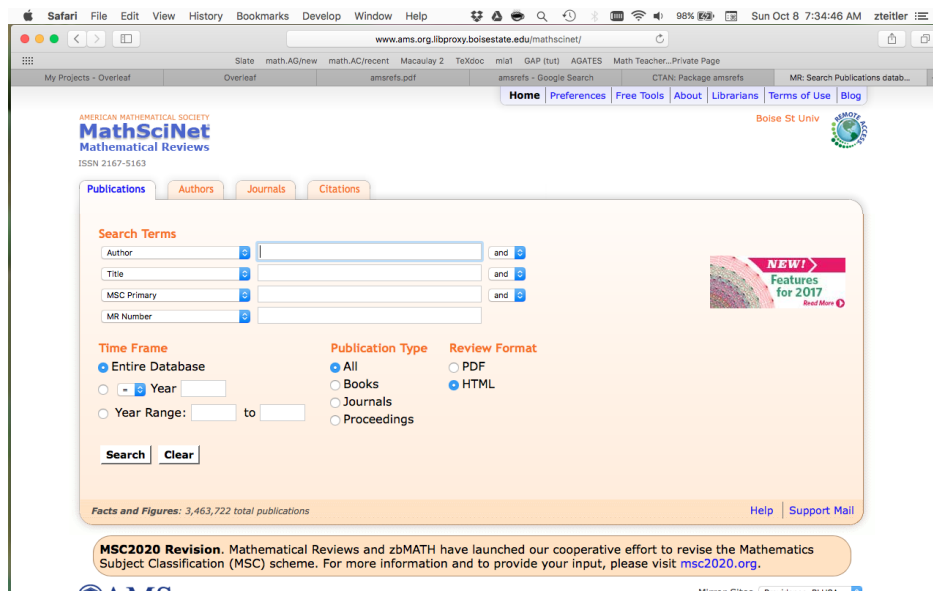
<https://mathscinet.ams.org/>

from on-campus; or, if you are off-campus, visit

<https://libproxy.boisestate.edu/login?url=https://mathscinet.ams.org/>

For the second one, you will have to log in with your Boise State username and password. MathSciNet is a subscription service. By going through the campus network or library proxy service (that's what "libproxy" stands for), you can use the university's subscription.

In MathSciNet you should see a search screen like this:



Enter in your search terms. Usually the author and one or two words from the title are enough:

Search Terms

Author and

Title and

¹Even if you're using built-in commands instead of AMSRefs, you might want to use MathSciNet to get author names and other information.

You can add more information (such as the year, the name of the journal, etc.) if needed. Then click the “Search” button to see the results:

This search gave 4 results. Let's look at the first one.

MR3330490 Reviewed Cox, David A.; Little, John; O'Shea, Donal Ideals, varieties, and algorithms. An introduction to computational algebraic geometry and commutative algebra. Fourth edition. *Undergraduate Texts in Mathematics*. Springer, Cham, 2015. xvi+646 pp. ISBN: 978-3-319-16720-6; 978-3-319-16721-3 13P10 (13-01 14-01 14Qxx 68W30)
[Review PDF](#) | [Clipboard](#) | [Series](#) | [Book](#) | [9 Citations](#)

Click on the “MR” number at the beginning of the listing.² (In that last screenshot it's purple because I clicked on it before I took the screenshot. Click on the part that's purple in my screenshot.) You will see a review/summary of the article or book.

²If you're curious, “MR” stands for Math Reviews, which is the name of the review journal that MathSciNet grew out of. If you're even more curious, you can watch <https://www.youtube.com/watch?v=cUEOghB3MvM> to learn about how MR and MSN work, their history, and also Nazis.

This can be useful if you haven't yet read the article/book, and you are trying to decide if it's worthwhile to look at (you can look at the summary and try to determine if it's relevant for your project). Another useful feature is the Citations box. These links go to more recent articles or books that cite the one you're looking at. That can be useful if you found an article, and want to find more articles that look at the same topic. Or if you have an article that states a conjecture, and want to know if a more recent article has solved the conjecture (or if it is still open).

But in our case, the primary reason we are here is to get nicely-formatted citation information. Choose "AMSRRefs" from the "Select alternative format" drop-down menu:

The screenshot shows the MathSciNet search results page. The search query is "Author=(cox) AND Title=(ideals varieties algorithms)". The selected format is "AMSRRefs". The citation information displayed is:

Little, John (1-HLYX-CS); O'Shea, Donal (1-NCF-PO)
Ideals, varieties, and algorithms.
 An introduction to computational algebraic geometry and commutative algebra. Fourth edition.
Undergraduate Texts in Mathematics. Springer, Cham, 2015. xvi+646 pp. ISBN: 978-3-319-16720-6; 978-3-319-16721-3
 13P10 (13-01 14-01 14Qxx 68W30)
[Review PDF](#) | [Clipboard](#) | [Series](#) | [Book](#) | [Make Link](#)

From the preface: "The fourth edition incorporates several substantial changes. In some cases, topics have been reorganized and/or augmented using results of recent work. Here is a summary of the major changes to the original nine chapters of the book:

- Chapter 2: We now define *standard representations* (implicit in earlier editions) and *lcm representations* (new to this edition). Theorem 6 from §9 plays an important role in the book, as indicated by the solid arcs in the dependence chart on the previous page.
- Chapter 3: We now give two proofs of the Extension Theorem (Theorem 3 in §1). The resultant proof from earlier editions now appears in §6, and a new Gröbner basis proof inspired by Schauenburg (2007) [MR2355055] is presented in §5. This makes it possible for instructors to omit resultants entirely if they choose. However, resultants are used in the proof of Bezout's Theorem in Chapter 8, §7, as indicated by the dashed arc in the dependence chart.
- Chapter 4: There are several important changes: \itemitem- In §1 we present a Gröbner basis proof of the Weak Nullstellensatz using ideas from Glebsky (2012). \itemitem-In §4 we now cover saturations $I:J^\infty$ in addition to ideal quotients $I:J$. \itemitem-In §5 we now cover saturations $I:J^\infty$ in addition to ideal quotients $I:J$. \itemitem-In §5 we now cover saturations $I:J^\infty$ in addition to ideal quotients $I:J$. \itemitem-In §5 we now cover saturations $I:J^\infty$ in addition to ideal quotients $I:J$.

This takes us to a screen with the citation information we are looking for:

The screenshot shows the citation information in a BibTeX format:

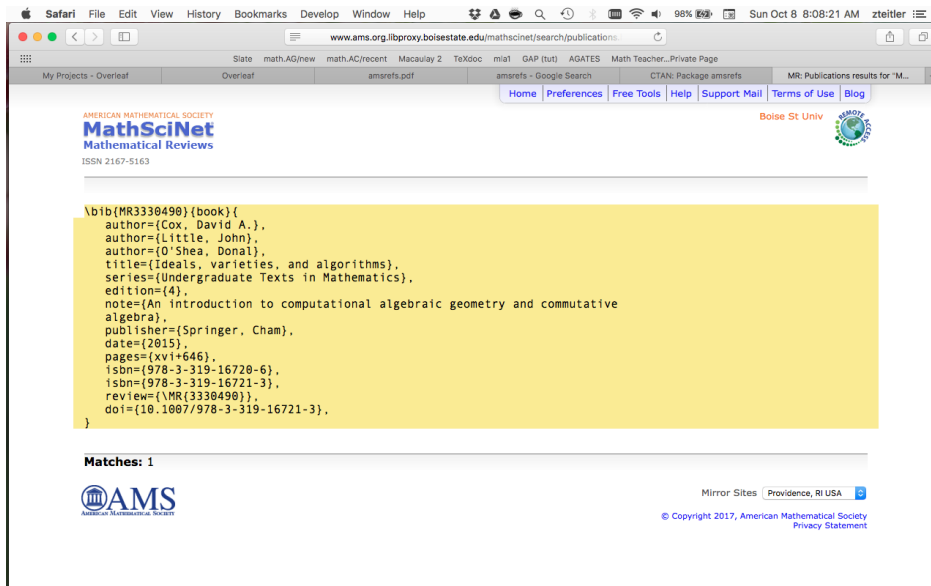
```
\bib{MR3330490}{book}{
  author={Cox, David A.},
  author={Little, John},
  author={O'Shea, Donal},
  title={Ideals, varieties, and algorithms},
  series={Undergraduate Texts in Mathematics},
  edition={4},
  note={An introduction to computational algebraic geometry and commutative algebra},
  publisher={Springer, Cham},
  date={2015},
  pages={xvi+646},
  isbn={978-3-319-16720-6},
  isbn={978-3-319-16721-3},
  review={\MR{3330490}},
  doi={10.1007/978-3-319-16721-3},
}
```

Matches: 1

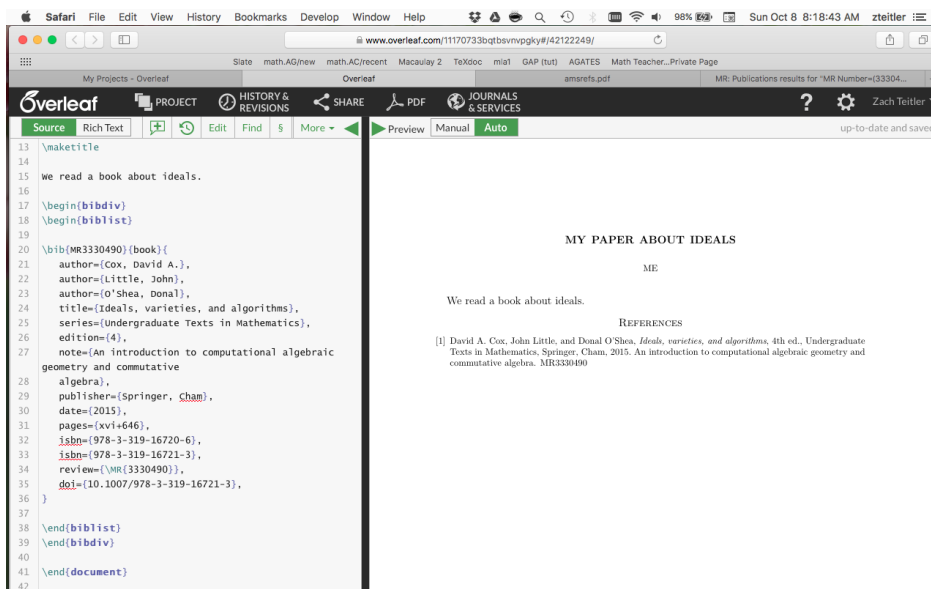
AMS
 American Mathematical Society

Mirror Sites Providence, RI USA
 © Copyright 2017, American Mathematical Society
 Privacy Statement

Select and copy everything from the `\bib{` at the beginning to the `}` at the end.



Copy that and paste it into your Overleaf document, in the bibliography space that was created earlier.



Repeat that for each published source you want to use.

6. UNPUBLISHED SOURCES

You may wish to cite an unpublished source such as a web page (say, <http://dacox.people.amherst.edu/iva/4ed.pdf>) or a preprint (pre-publication paper) (say, <https://arxiv.org/abs/1709.01606>).

6.1. Web page. If you're using AMSRefs, you will have to write your own `\bib` item. With built-in commands, it's simpler: Just write a `\bibitem` with the information you need to show: the title or name of the web page, author if available, URL, date retrieved; and any other information.

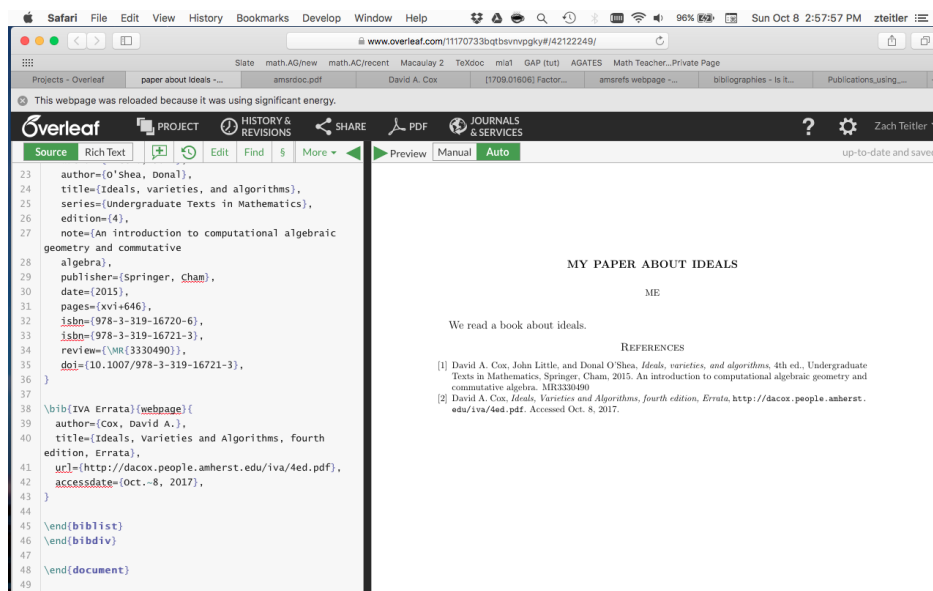
For AMSRefs, you may create a `\bib` item with the following information:

- accessdate
- author
- date
- note
- subtitle
- title
- url

For example we might want to refer to the Errata (errors) for the textbook. They are located on a webpage at <http://dacox.people.amherst.edu/iva/4ed.pdf>. We could write an entry as follows:

```
\bib{IVA Errata}{webpage}{
  author={Cox, David A.},
  title={Ideals, Varieties and Algorithms, fourth edition, Errata},
  url={http://dacox.people.amherst.edu/iva/4ed.pdf},
  accessdate={Oct.~8, 2017},
}
```

It will look like this.



We left `date`, `note`, and `subtitle` blank for this example. The `author`, `url`, and `title` should make sense. The `accessdate` is whatever date you accessed the webpage; this matters when webpages change after you access them, so the reader can make sure to look at the same version that you accessed (by contrast, `date` would correspond to the date that the webpage was last modified).

We made up the name “IVA Errata”. It could have been anything we wanted. We’ll see how to use it soon.

(In this example the webpage was a PDF. That is irrelevant; the same method would apply to any webpage.)

With built-in commands we could say

```
\bibitem{IVA Errata} David A. Cox,
\emph{Ideals, Varieties, and Algorithms, fourth edition, Errata},
```

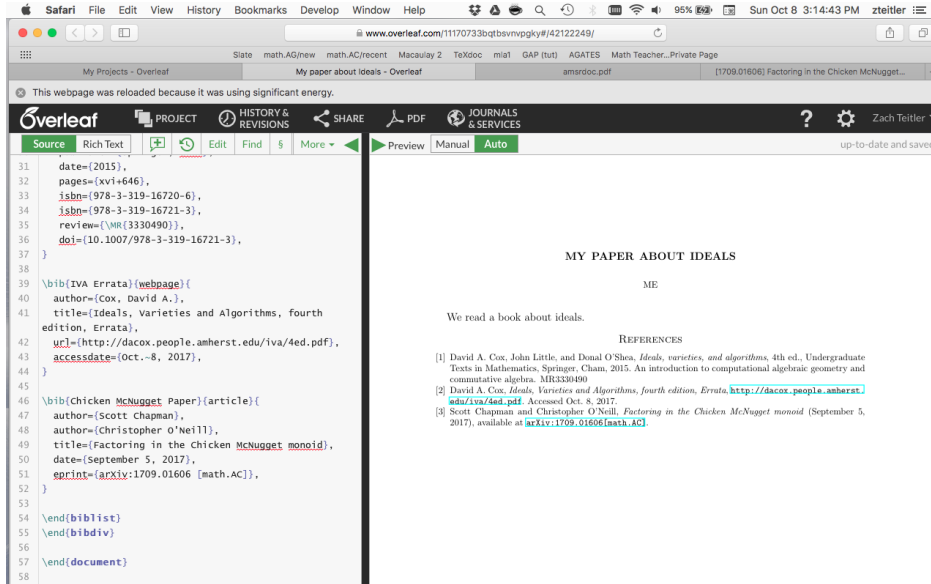

`\url{http://dacox.people.amherst.edu/iva/4ed.pdf}`. Accessed Oct. 8, 2017.
and it would give the same result as AMSRefs in the screenshot:

- [2] David A. Cox, *Ideals, Varieties, and Algorithms, fourth edition, Errata*, <http://dacox.people.amherst.edu/iva/4ed.pdf>. Accessed Oct. 8, 2017.

6.2. Unpublished items. We might want to cite an unpublished paper such as <https://arxiv.org/abs/1709.01606>. In AMSRefs we can write

```
\bib{Chicken McNugget Paper}{article}{
  author={Scott Chapman},
  author={Christopher O'Neill},
  title={Factoring in the Chicken McNugget monoid},
  date={September 5, 2017},
  eprint={arXiv:1709.01606 [math.AC]},
}
```

Here, the author, title, date, and “eprint” information were just copied manually from the corresponding webpage. It will look like this.



Optionally, you could also add

```
note={\url{https://arxiv.org/abs/1709.01606}},
```

As usual, with built-in commands it’s even simpler: we can just type a `\bibitem` with this information written out.

Final thoughts on adding items to bibliography. You know the basics of how to add items to your bibliography:

- (1) Published items can be pulled from MathSciNet.
- (2) For webpages and unpublished items, you can write a “bib” item manually.

Or you simply write “bibitem” items manually for everything.

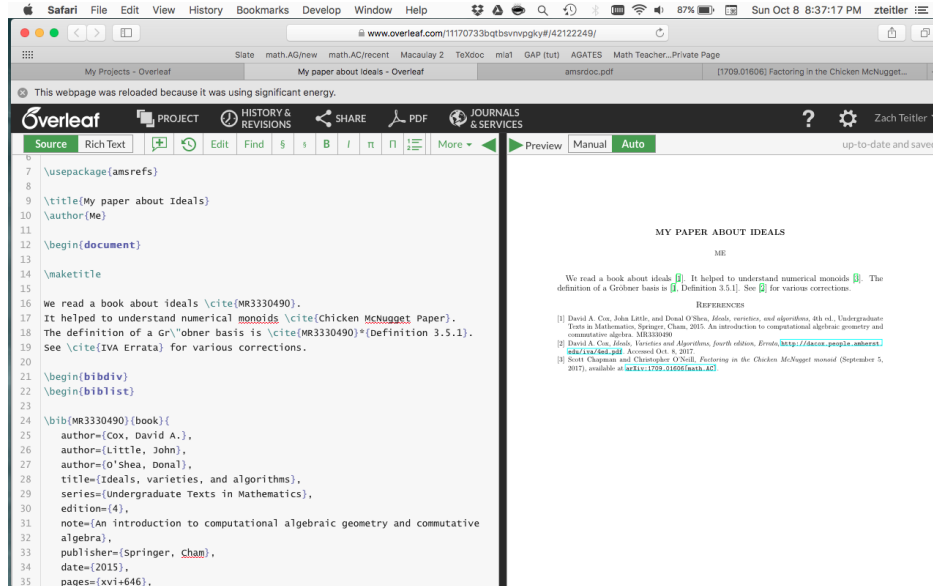
However please notice that the items in the bibliography are not automatically alphabetized. You should put the items into your file in alphabetical order. (If you put things out of order, you can always fix them later.)

7. ADDING CITATIONS FROM THE TEXT TO ITEMS IN YOUR BIBLIOGRAPHY

Finally, make the text of your paper actually refer to things in the bibliography. This part is mostly the same whether you use built-in commands or AMSRefs.

With AMSRefs we can say:

We read a book about ideals `\cite{MR3330490}`.
 It helped to understand numerical monoids `\cite{Chicken McNugget Paper}`.
 The definition of a Gröbner basis is `\cite{MR3330490}*{Definition 3.5.1}`.
 See `\cite{IVA Errata}` for various corrections.
 It will look like this.



With built-in commands we would say

We read a book about ideals `\cite{MR3330490}`.
 It helped to understand numerical monoids `\cite{Chicken McNugget Paper}`.
 The definition of a Gröbner basis is `\cite[Definition 3.5.1]{MR3330490}`.
 See `\cite{IVA Errata}` for various corrections.

Things to note:

- (1) The basic command is `\cite`. You say `\cite{which paper you want to cite}`.
- (2) This is where that string comes into play, in `\bib{name to refer to the paper}`. It's called a "cite key" and it can be pretty much anything you want. In this example the cite keys were MR3330490, IVA Errata, and Chicken McNugget Paper. You could change "MR3330490" into something easier to remember such as "IVA Book" or whatever you like.
- (3) You can refer to specific sections, pages, or numbered items within a book or article. With AMSRefs, use `\cite{cite key}*{specific reference}`, as in the command in the above example, `\cite{MR3330490}*{Definition 3.5.1}`.
- (4) With built-in commands, use `\cite[specific reference]{cite key}`.

8. FINAL THOUGHTS

You can let AMSRefs take care of formatting the bibliography and the citations. If you want to, it is possible to adjust to different formats. For example, you might like

`\usepackage[alphabetic]{amsrefs}`. However, it does mean learning to use AMSRefs and getting the needed “bib” information in the right format.

The built-in commands are more flexible (it will let you style the text however you want) and simpler, but nothing is automatic (it won’t automatically put the title, publisher, etc., the right way).

I made a few mistakes here.

- (1) I listed names like “Scott Chapman”. It should have been “Chapman, Scott”.
- (2) I listed dates like “September 5, 2017”. It should have been in the format “2017-09-05”.
- (3) I entered bibliographical items in non-alphabetic order. At some point I should fix that and add another screenshot of that.
- (4) The IVA errata actually does list an explicit last-modified date. That could be entered into a `date` field, in addition to the `accessdate`.