

## Advanced Research Techniques Using Google Scholar - Maisha Duncan

Let's go ahead and dive in. My name is Maisha Duncan and I'm a librarian here at UD Library, Museums, & Press. I'm really excited to share some of the deeper techniques of how we can get "Googling" but with Google Scholar. So after today's session the things that I hope you all feel much more confident about are that you can search Google Scholar effectively and understand all the many features that it has, locate the core journals in your discipline. I'm gonna have some sample topics that I'll be searching but you all should be searching in your own fields, okay? How to configure alerts in your personal profile and all kinds of updates so you can stay connected to what's being published, and then really understand when to use Google Scholar vs. when you might want to use a different tool. General Google or one of our library databases okay?

So to get started. I think the best way to dive in is to just practice. Just wanna see what you're working with okay? So I'd like for everyone to go to Google Scholar and just try a sample search I asked you to kind of come with some keywords in mind. If you don't have any it's fine just come up with something think about maybe something in your research area. And I want you while you're doing that to think about what are the decisions you're making as you're searching and then if you refine your search you know how are you doing that? So just we're gonna take about five minutes and I just want you to dive into Google Scholar and just do a little test search maybe try it a couple times and then think about what you're doing.

[Music]

Okay so I know everyone's in different places right now in their search but as you're going along take a moment and maybe turn to your neighbor and you know think about some of these ideas. Start with these questions: What did you do? What are your decisions? If you don't have someone right next to you you might have to kind of move around a little bit but just take a minute think about it and then share with the person next to you. What decisions did you make? How did you choose the words? What did you click? That kind of stuff we're gonna just spend a minute or two you think talking about that with the person next to you.

[Music]

Alright so here's the next topic - What do you guys think of as what makes Google Scholar awesome? First of all show of hands how many of you use Google Scholar in your work before? Okay, about half. Cool!

For those of you who have what do you like about it? What makes it a good source? [inaudible student question] So it's kind of like multidisciplinary is pulling from all different things. Good. Anyone else? [student: "CVs for researchers. CVs."] Good. So you're seeing not just the articles themselves but you're seeing information about the people who are doing the research. Good. So then for those of you who are just doing this for the first time and of course everyone else are there any specific questions that have already come up or concerns you might have about how you would use this?

Anyone come here with some concerns in mind already? Yes. [inaudible student question] I've heard a lot of descriptions of you know our current information age being like opening a fire hydrant and it's just like [woosh!] right? So we're gonna have to really think about how to limit. That's a good point. How many of you were at some point in your educational career or work in the recently told not to go to Google? Anyone ever told that like only go to the library or don't go to Google? I know I've said that at times depending on the setting when I was working in K through 12 schools. But we're gonna talk about Google Scholar which is definitely a different thing than general Google right? You're still getting a lot of info but it is definitely a subset and we'll talk about how to do that even better.

Just to get started what are the highlights in my opinion? Well yes, it's Google that means that it's simple language searching in a traditional library database you have to think about keywords even more carefully. Here you get to be a little sloppier which is helpful and then it also has Google's famous ranking that none of

us really understand how it works but it seems to work for everyone because we all love Google. The multidisciplinary idea that came up. Generally in traditional library databases you're going to a database that might be really specialized. Google Scholar lets you search across disciplines and more importantly times where what you're getting at falls under so many that you don't even really know where to begin.

The discovery part is really cool. You get to see related works, you get to see cited by... I want everyone to take a minute and look at that on Google Scholar. So if I did a search all right so what I'm seeing under here do you guys notice these little links that are underneath each citation or each article? So you're gonna see and a lot of them the cited by, related articles, versions, and then links to other places. This cited by is telling you there are 74 articles that cited this article. And if I click on it I'm now gonna see that list. So this is how we get at this larger scholarly conversation that's happening around the topic that you're looking at. Similarly, related articles does the same thing. It's using an algorithm to then pull information pull other articles that are related in some way it's probably about you know similar citations and similar subjects.

Versions is really cool, and versions is something that's going to come in handy at the end of your research or when you're working on those reference lists and work cited pages. You're cleaning up your citations this is going to pull together all of the versions of a specific article right so I was looking at one article: "The next generation of diversity and intergroup relations research", and when I clicked all versions now I'm seeing all the different versions of it that are available. This is important especially when you're publishing because you know there may be a more up-to-date version that you want to cite you know a lot of times articles come out electronic only before they actually get a space in an issue of a journal. [inaudible student comment] Exactly - all that kind of stuff right I mean or also it's just they want to get it out there but the issue is not going to come out for six months right so they might publish it issue online first. Sometimes there are PDFs available through universities and other places, so being able to see all the different versions and where that's been published where it's been listed can be helpful to your research as well. So pay attention to these things, some of them you notice they're even linking out to other - this is a library database here: "Web of Science". Full-text links how many of you when you were looking at, when you were doing your search everything you wanted to see you were able to view the full-text? Were you all able to see the entire article, you wanted to click on? Yes/no? No. Okay. Interesting. Okay so yes, one of the big "cons" of Google Scholar that a lot of people complain about is that sometimes you're gonna hit a paywall. Sometimes the article that you want to see you can't actually access. Really quickly I want to show you something that's going to really help with that.

If everyone can open a new tab on their browser and go to the library homepage. So: library.udel.edu - Now I'm talking about this as not a database right Google Scholar or something separate but to make your life a little easier the library has actually listed Google Scholar as one of its databases. So if I click the database tab here and then search for Google I'm getting a link to Google Scholar - which is "Get It" enabled. So if you're in a rush and you want to quickly look up something on Google Scholar you don't feel like logging into your own account you can log in this way like the way you would with any other database off-campus. And you're gonna get to see UDel Library link to it. The the best way to do this however, to make sure on your device you're always connecting to University of Delaware's content, is if you click these little lines here at the top and go to your settings, you want to set up your library links. So for those of you who have your own computer now you can definitely take a look at your settings in Google Scholar and see if UDel is listed there. Because you guys are on campus everyone else everyone has access to it right now. But you want to make sure that when you're logged in as yourself and your even off-campus that these library links show up. Yes. [inaudible student question] Yep. You set it up and you're gonna be linked to University of Delaware. Now what would happen if you choose an article that you want to read when you click on the link and it takes you to, you know, uses "Get It" to take you to a database, you'll have to authenticate with your UDel credentials but you can access it anywhere. So this is really important, this "Library Links" because like I showed you a second ago when I was looking at my results you know I'm getting linked to database information here and then I'm getting these "Get It" links. This is telling me "click here" and the library is gonna link you to where you need to go. Okay? So a lot of those paywalls not all of them because of course we don't subscribe to every single thing that's published, but a lot of those paywalls are gonna now come down if you are using the University of Delaware

library links.

So we talked about a lot of these awesome highlights of Google Scholar, we have all the versions and all that information along the bottom underneath each item, we have links to full-text. The next one that I really think is incredible is "Notifications and citations tracking". If you are looking at your search and you see a scholar that you think you would be interested in following - If you click on their name and they have a Google profile you can now follow them. You can follow that scholar alright? So why don't we all take a second and instead of just looking at your list you have thus far, look up a scholar that you know. So it can be one of your professors, it could be one of your advisors, it could be someone that you've read before. Go ahead and type their name into the box. Into the search box. So let's say I do who should I do? All right so I'm gonna do a library scholar. But when you're in the profile you get a really robust look at all of their publications okay when how many times they've been cited and by whom. You can link and all of these are hyperlinks notice so I can go here and see what are the articles that have cited these articles. I can also see rankings. He has a really awesome list of subject headings that I can now click on and then you can follow him. Everybody try that out try to find a scholar and see if you can set up a notification to follow them.

[Music]

Alright, so if you all want to you can definitely log in and also set up your own profile. Now I've set up a profile and as you can see I have 0 articles because I've not published anything yet. Yet, I say! But if you did have publications and when you setup your account you can also set up alerts for yourself. And that's really important as a scholar to know. Especially the new citations to my articles right? So if you want to know when your numbers are going up how many people are citing you that's a great way to do it. There are other ways out there of course but Google Scholar is a good way to do it. So if you want to set up a personal account now you can or you guys can wait and do it later. We've seen how to set up some alerts for another scholar. The third and I think probably the most interesting for you students is you can also set up a search alert. So if you have a search that you are running and you think that it seems to be working really well for you, you're getting good articles. You can also set an alert for that search. So that anytime new articles come up that meet the criteria of that search you're gonna get it a notification you would get an email. Let's do my same search again. [student question about "brackets"] We're gonna talk about that. No. In fact I didn't even need to use the word "and". Google Scholar automatically puts "and" between words alright. So that's important for you all to know. If you type words it's gonna automatically put an "and" there. Meaning we want to find every one of these words somewhere in the record. But we will talk a little bit about why brackets might be useful or quotation marks. We'll do that in one second okay? So I did my search this is a really lazy search please don't set up a quite an alert for a search this basic okay? It's not really going to be worth your while. But if this was my amazing search, I really got it exactly what I was researching. I can now click this link here and say "Create alert". So I would create an alert. Here's my query. I want emails. How many results do I want? And then it's giving me sample results So that - let's say I am setting up my query and the things I see in sample results aren't looking so good I might want to change it. Questions? How many of you think you might use this at some point? Yeah. You know, if you're like in if you're like knee deep in a research assignment you don't want to go every day and see what's new but it would be kind of nice to be able to get alerts if something new is coming out. You can do the same thing for an author's name right? You can do it for an institution or a publication whatever kind of search do you can set up alert for it. Questions?

Alright, let's dive into the actual searching okay? So everybody take a moment to kind of like get yourself back to the Google Scholar homepage. Finish up whatever it is you're doing now. And we're gonna just take a second and think about what are the actual search techniques that you know things you type in the box that might make a difference to your searching. There's lots of different advanced searching techniques that Google offers. Some of these will not be something you use on a regular basis. Some of them you might want to just keep in your back pocket. And then just so you all know at the end of this I will be sending out an email to you guys with some of this information so if you don't have it written down it's totally fine okay.

First thing, this goes for most searching, quotation marks means exact phrase okay. If I put quotation marks around a phrase then Google is gonna look for that exact phrase in that exact order. If you're searching for something really specific or a multi-word phrase that's really well known or not well known putting quotation marks around it will help. Plus (+) and minus (-). Plus (+) and minus (-) symbols in a search are telling Google to add or subtract, or omit. I should say so if I put a subtract sign in front of a word that means I don't want that word searched. So for example if I was you know doing education in prisons minus (-) private prisons that means I don't want anything that has private prisons in it. I can omit certain words from my search.

Nesting. This is what you were talking about Jeff. Using want to expand your search. So take a look at this example on the board and we can try it out if you guys want to start type this in? Why don't you type it without the... type it with the parentheses and see how it works. Teachers and and then I have four phrases, four terms within the parentheses. What this is telling Google Scholar is I want, follow me, articles that have teachers and diabetes OR teachers and asthma. It's like math! OR teachers and seizure OR teachers and allergies. OR all of these words or a combination of these words. But teachers have to be there and then at least one of these. I'll I'll share this stuff with you don't worry about it don't worry about it. So give it a try. Try this out in Google Scholar. You can type this this search or you can make up one that relates to your topic. So think about a place that you might want to expand okay. You might want to expand what you're looking for. So if you have multiple concepts and you want to include as many of them. The things inside of here they could be "like" concepts meaning they're synonyms of one another, or vary or related to one another or they could be various concepts that you might want to relate to something else. In this case I'm relating all these concepts to the term teachers. For your research it might look a little different. Just give it a quick try, see how it works. This is one of those things that when you first see it you're like oh that's not that tricky and then you try it and you go whoa I got too many results. Don't forget "OR" does expand your search. If you're saying OR that means I'm not as picky about this part of the search. Any of these things can come up so you will get more results if you use "OR" than if you don't. If you put an "and".

Another thing that can be helpful with your search are doing title, author searches, publication searches, or site searches. What this is is basically the equivalent of telling Google Scholar exactly what part of the record you want it to search. Every record within Google Scholar you know has a title has an author it has a publication that originally was published at. It may have a website where it was originally published. If you want to tell Google Scholar exactly which one of those places to look, you just right you know title colon and then put the title. Or author colon put the author. Same thing with site. I use this a lot. Site colon UDel.edu. So if I'm saying I want to know about if there's anything on education and prisons on the University of Delaware website this is going to search things that are linking through the website. Or if I want a title I'm gonna do in title and then now I want to only look in the title part of the record. Same thing with author because of course if I look for an author Google's probably smart enough to know that I want to know things written by them but maybe it's something that there's someone who have been written about so their name might come up somewhere else in the record or in the citations list or something. But if I only want it to look in the author field I can write author colon and then their name. Yes. [Student discussion: "I just ran into something exactly but search myself and my name of the agency I used to work for was always printed all that scientists were printed on the inside and those are showing up is not like something I wrote all the way searching yeah so I don't know perfect filter?"] That's the way to do it. That's the way to do it. Yeah that's definitely one way to do it is to do author and that way it's only looking in the author field. The other thing other way to kind of do this exact same thing is of course to just use advanced search. Okay you can write in all those little words and colons or you can just do an advanced search where you're telling Google Scholar that same information but it's kind of like a fill in the blank for you.

Okay so... You put your name here right? I want articles authored by this person. Or I want articles published in this journal. You can put your date ranges here as well and then of course they're asking you some really pointed questions about how to search for the words that you're typing. So all words exact phrase, that was the same thing as quotation marks right, at least one of the words, and then there's the omission without words okay. And then you can also say I only want to look in the title or I want to look in the whole body of the

article. I personally like to use advanced search on almost anything I mean I guess that's because I'm a librarian I like to be as specific as possible. Of course if I'm doing a quick search I mean I'm not doing this on Google every day guys don't think I'm like looking up what actor is in a movie by using advanced search I'm not doing that. But when I'm doing research I think advanced search is really helpful. It just helps me think about the relationship between the things that I'm looking for a little better alright.

Advanced search is an option you definitely might want to try and then the last kind of big thing that I want to point out that a lot of people don't necessarily use in Google Scholar is the metrics. Now I will be honest metrics it's not something I would usually click on and in fact it's kind of scary to me. Just the word I'm like I don't want to know anything about that sounds like math! But, metrics and Google Scholar is a little different. This is basically the closest thing Google Scholar has to browsing. There is no browsing feature in Google Scholar you know you can do relational links between different articles but you can't just browse in a publication or browse a subject area. But this is kind of as close as it gets. What this is doing is it's giving me a list of what Google Scholar considers to be the top publications period. This is based on the h5 index which is the index that Google Scholar uses to determine how good a publication is. This is different than a lot of other databases I think Google Scholar is really the only one that uses this ok. But h5 it's basically an author level measurement which is saying what's the total number of papers written by this author and then the number of times it's been cited okay and then they kind of mash it all together and come up with this number. You know it's similar to most citation metrics in that it is about the productivity of the authors within the given journal and then how many times those authors are being cited by other authors and in other journals. Not surprising by some of these names are at the top right. This is an index however that it's used more in the hard sciences than in social science or arts and humanities and other fields. So you know you can't really compare it's like apples to oranges when it comes to the different fields. Don't pay that much attention to what's on top in my opinion. But this is a way to get to other publications. So the browsing. You can do classic papers or you can do top publications. I tend to do that top publications and then you see this categories - it's like this is really hidden if anybody knows anyone at Google tell them they needed like add some color here or something so I feel like it's hard to tell that you can click this. But you can now go to categories and I can say okay to stick with what I've been doing I'm going to go to social sciences and now I can go to education, and now I'm again getting this list of the top journals. It's a little bigger than that first original list and now I can click on these index links here to see you know what are now the top most popular articles in these journals. Not quite you know the what we think of as browsing you're not looking through the entire journal but you are seeing some sense of what's coming out of them and then you can come back and you know and look at who the authors are who are the people at the top that you now might want to go and follow.

Questions? [inaudible student conversation] It's not the quite the same in terms of going into a paper index the way it used to be. It's all online. There's databases like "Web of Science" and Scopus that do a good job of that keeping track of citation numbers and the metrics. Google Scholar does it a little differently than them though. I mean if you went to Scopus they may not have the same publications at the top as what you see here but you kind of have to all take it together and stick it in a bowl and mix it up and then see what you come up with right? The the old pull open the book and see what's been published that's that's yeah that's pretty much a thing of the past. Librarians use Google Scholar a lot for citation this kind of citation work you know looking and see what the different versions are of something. If we get a citation that looks kind of funky I'm not going to go to a database and try to find it I'm gonna come to Google Scholar it's just gonna be quicker and easier to see you know maybe where the mistake was in the citation and then also linking that relational linking between articles "who cited who" this does it really well.

Okay so we have 15 minutes left. Oh my God yes I did good time! So what I want us to do for the last 15 minutes is just practice this thing these ideas. I'm gonna leave this on the board so that you guys can try some of these tricks try them out see which ones work, see which ones are weird.

One other thing I missed here is that word order matters. I want to share this with you because it's not obvious. So if you're in a normal database and I type a series of words the database is going to just search for

all those words. But in Google Scholar, Google is assuming that if you put something in a specific order the first word you put is more important than the next word. You don't need to think about that every time you search but if you're doing a multi word search and you're not really liking what you get you can think about rearranging your word order and that will actually change your search which would not be the case in most databases. Just one more thing to add.

So we're gonna just practice alright so what I would like for you to do is you know go back to your sample search or try a new one. Try out some of these advanced techniques. Go to the advanced search screen. Limit your dates to see what changes. Just play with it and get comfortable okay? And then you can also spend some time setting up alerts if you want to again look at scholars or yourself and see what you can change about your profile. I'm just gonna walk around please grab me. Raise your hand and I'm happy to help!

[Music]

Do you guys anticipate, does anybody think they might use Google Scholar differently than they have in the past? Show of hands. How many of you think you might use that metrics thing sometimes right? Depends right? You probably know some of you know what the top journals are in your field but you know as you're exploring that that might be a good way to do that? How about that follow like the notifications the alerts? Does anybody think they might use those maybe? Good way to get in with getting good with a professor is to pay attention and when they publish something new... Oh Dr. I saw that you have a new article out! How about anyone have any discipline specific ideas, anything that they've seen from the searches that they've done related to their discipline specifically that they think is interesting? I don't know if we got anything like that today.

Alright, so before we call it quits for the day I just want to point out one more thing. And I don't want this to feel like a leftover because this is a really important thing. Everybody who has done research knows there's nothing more frustrating than doing a search finding something great and then never being able to find it again. So please take a moment to practice how do you save what you find. There's many ways to do that all. If you're going to the full text of the article especially if it's through the li-- it takes you through to a library database you can do it there you can send yourself an email from there. Of course you can write down which you find. Another way would be to use this little citation thing here if you end up sending it to RefWorks or whatever citation manager you use. You can actually set that up as part of your settings - I don't know if you guys noticed that there? But in your settings you can choose your bibliography manager so you can say don't show or show me links to how to send this to RefWorks if that's what yeah and you know allow you to import it directly into your RefWorks account. On my computer I have this the save to RefWorks link like on everything anyway but this is just another way to do that okay so keep that in mind. And then you know you have this whole "My Library" thing that we didn't really use but you can save whatever you find into a library that you create in Google Scholar. There's lots of different ways to keep track of what you find but I would definitely encourage all of you to make that a part of your plan from the beginning think about how you're gonna keep track of the articles that you find and you know save yourself a lot of heartache.

So as we close out I just want to throw my contact information up here and like I said I will be sharing this stuff with you guys by email I will be available to help you out in any way we can sit down one-on-one I can answer any questions that you have. Take it even beyond Google Scholar if that's something that you need and then in the email you will also receive these two links that if you want to write them down now you can as well. One is to a survey that is just kind of a general survey about how the workshop went. We are always looking to make our workshops stronger and better so I would love feedback - honest feedback about how we can make this even better. And then other one is the release that I already sent to you in an email but I'm going to send it again. And that's just saying if while we were doing the class you were on camera a little bit are you ok with that or do you want to be cut. That's all that is so if you're ok with you know an over-the-shoulder shot or

whatever of us working together as we create some online tools, just go ahead and do the release form for us and then you can be a star!

Thank you guys so much and I'm gonna hang around if you have any questions. Take care.

[clapping]

[Music]