STEM Faculty & Graduate/Professional Students: 2019 Survey Results

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Survey results and comments available in full via interactive Tableau dashboards on the Assessment website.

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Executive Summary

Methodology & distribution

Surveys were distributed to all UW faculty and graduate/professional students in all Colleges and Schools in STEM and Health Sciences fields at the Seattle Campus only. The survey was distributed to 3669 faculty and 8516 graduate/professional students in April-May 2019. 704 faculty surveys were returned (19% response rate) and 1570 graduate student surveys were returned (18% response rate). Response rates in 2019 were down compared to 2016 for these groups, especially for STEM faculty. The number of faculty respondents does not allow for data analysis at the department level (only College level), but more robust numbers for graduate students means that additional breakdown of results at the departmental level is available.

Results

- The Libraries contribution to faculty keeping current in their field remained the highest contribution in all STEM Colleges. Most categories for contribution to faculty work increased from 2016. Overall satisfaction with the Libraries increased from 2016 for faculty in Environment and Engineering. Satisfaction for Natural Sciences faculty remained the same.
- Most categories of libraries contribution increased from 2016 for STEM graduate students. Despite a slight increase from 2016, the Libraries contribution to "find space to do your work" remained significantly lower for all STEM Colleges, particularly for PhD students. Overall satisfaction with the Libraries remained largely the same for graduate students in Environment and Natural Sciences. Satisfaction increased for Engineering.
- Journals, research databases, and books are high-priority materials for STEM faculty. Journal articles and research databases are high-priority materials for STEM graduate students, with no significant difference between Colleges or Masters/PhD students. STEM faculty and graduate students are usually able to access the articles they need.
- STEM Masters students are more likely to visit the Libraries in person than PhD students, with 39% visiting weekly or more often, compared to 14% of PhD students. 56% of STEM Masters students access the Libraries remotely weekly or more often, compared to 72% of PhD students.
- 35% of STEM faculty published in an Open Access journal in the past academic year, which was unchanged from 2016. Of STEM faculty who published in an OA journal, the top reasons given for doing so were journal quality (52%) and visibility/increased readership (48%). Journal reputation and impact factor continue to be the driving factors in faculty decisions about where to publish.
- 44% of STEM faculty reported that they paid a fee to publish a journal article in the past academic year. The overwhelming majority of those who paid a fee did so out of grant funds (78%).
- STEM faculty were more likely than Health Sciences counterparts to make their work available through a repository or website and ranked assistance with depositing data in a

repository as the service that would be most useful to their work. They tended to deposit scholarly output in disciplinary repositories (67%) followed by commercial repositories (51%).

- The majority of PhD students in STEM fields are publishing and presenting their work: 57% authored or co-authored a journal article and 55% presented a paper or poster at a conference.
- 71% of STEM graduate students are working on or planning to produce a thesis or dissertation for their program. Of this group of students, 57% indicated that they did not know if their department or faculty advisor provided guidance on submitting their work to the institutional repository/ETD program.
- For STEM faculty, the top priority is guidance on depositing data into a repository for long-term storage and/or sharing (51%). For the 35% of faculty who indicated an interest in assistance with assessing and communicating the impact of their research, there was an interest in support for citation metrics and communicating research to the public.
- Assistance with literature searching and citation management were top priorities for STEM Master's students (64% and 63%, respectively), while strategies for monitoring literature in their field was the top category for Doctoral students (60%).
- The top digital method STEM graduate students used for research/coursework was data visualization (54%), and graduate students who used various digital methods expressed interest in technology infrastructure and workshops/tutorials to support this work.

Opportunities

- Explore results and identify actionable next steps in cross-departmental teams.
- Increased, targeted citation management tool support is a top priority for STEM graduate student support.
- There are opportunities to develop partnerships between SCP, liaisons, and the Graduate School to expand outreach to STEM graduate students on the UW's ETD program.
- Given positive feedback about GSRI and other online offerings, it would be valuable to explore cross-departmental partnerships to enhance online/hybrid research support for STEM graduate students.
- STEM faculty have questions and concerns about Open Access and scholarly communication: resources, communication, and outreach could help to expand awareness and support for the OA Policy among this group.
- A key area of interest for STEM faculty is in assistance with data management. Further exploration of specific faculty needs could enhance services offered in collaboration between Libraries data services, liaisons, and external partners.
- Small-scale pilots and follow up assessments for STEM graduate students in the area of data visualization would be valuable in helping the Libraries learn more about specific needs and the kinds of support the Libraries and campus partners might provide.

Survey Details

Surveys were distributed to all UW faculty and graduate/professional students in all Colleges and Schools in STEM and Health Sciences fields at the Seattle Campus only. The survey was distributed to 3669 faculty and 8516 graduate/professional students. 704 faculty surveys were returned (19% response rate) and 1570 graduate student surveys were returned (18% response rate). The faculty population also included post-doctoral research associates.

Response rates were down compared to 2016 for these groups, especially for faculty in STEM fields. As there is variation between the surveys, care should be taken in comparing 2016 and 2019 results. The number of faculty respondents does not allow for data analysis at the department level (only College level). However, more robust numbers for graduate students means that some additional breakdown of results at the departmental level can be done in order to provide us with more nuanced insights into differences between specific fields.

Only those Colleges with a minimum of 20 faculty or 50 graduate/professional student respondents are shown in the results for academic areas.

Trends Overview

Satisfaction, Contribution & Impact

Faculty

What contribution does the UW Libraries make to your ability to...

- The Libraries contribution to keeping current in their field remained the highest contribution for faculty in all STEM Colleges. Most categories increased from 2016, though there was some variation (shown below).

Data shown a mean score of all responses on a 5-point scale.
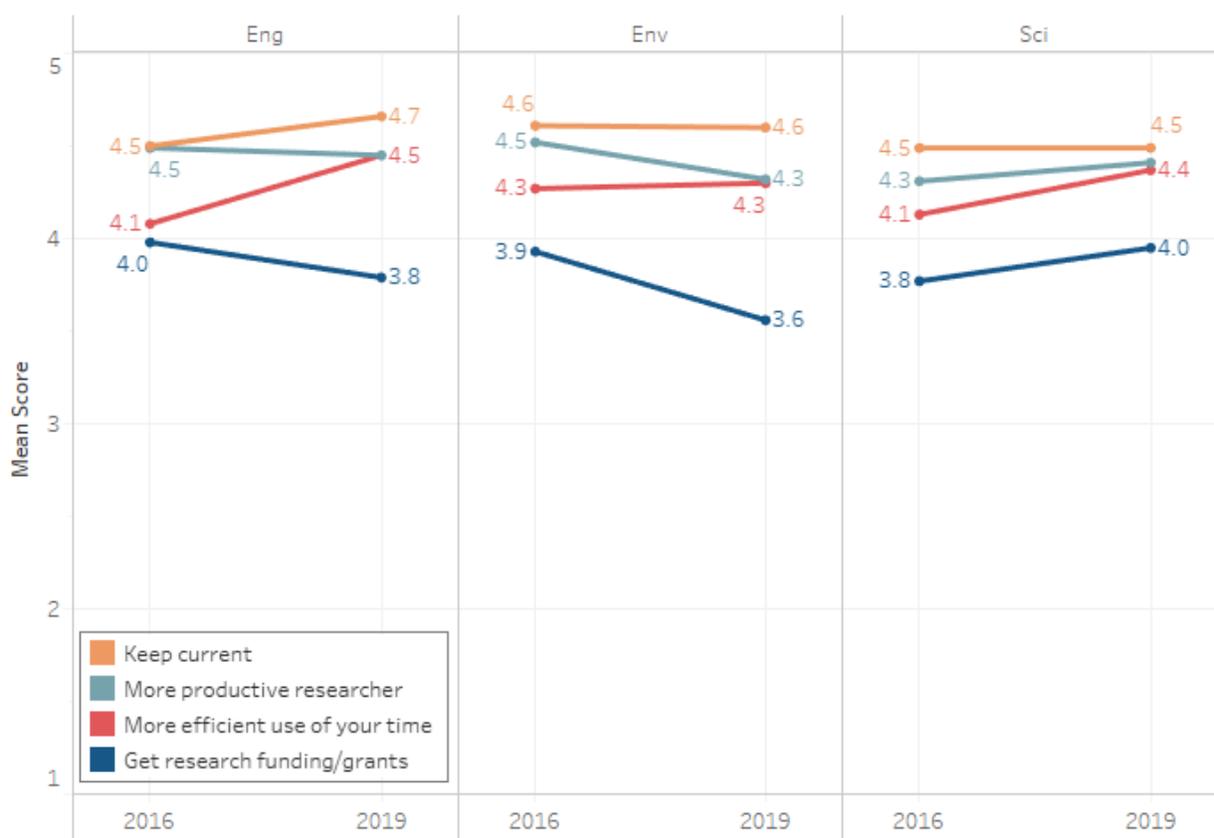
Overall, how satisfied are you with the UW Libraries?

- Overall satisfaction with the Libraries also increased from 2016 for faculty in Environment and Engineering. Satisfaction for Natural Sciences faculty remained about the same (4.47 in 2016 to 4.42 in 2019 on a 5-point scale).

Selected Faculty Impact Comments

Tell us in a few sentences about a time that Libraries staff, services, or resources had a positive impact on your work.

- I was interested in learning about open textbook publishing options and found that the libraries staff was very helpful in guiding me to resources available for this. (Faculty, Environment)
- Experience with data librarians, those working around open data and open science have all been great in promoting our work and making resources available for larger community. (Faculty, Environment)
- Very helpful in finding standards and codes, research reports, patent searches. They helped us find GIS data for our research. They help us with website identification for scientific research. They are very upbeat and supportive. (Faculty, Engineering)

- It is simply every day. I get books delivered to my faculty mailbox -- still, the ability to do this is my favorite thing about UW as an institution -- I ask questions of research librarians, I teach in the active learning classrooms, I access journals as a critical part of scholarship, etc. (Faculty, Environment)
- I was looking for a United Nations report in 1996 that was cited in many papers and could not find it anywhere. Then I chatted with a UW librarian online and she was extremely quick in locating the item in the government report/record section and sent it to my mailbox. Access to that hardcopy made my understanding/arguments much stronger. (Faculty, Engineering)
- Winter quarter, 2019, I was able to use library ebooks in place of texts for a class, thus saving my students a fair bit of money. Additionally, librarians sending PDF scans to me via email is extremely helpful. (Faculty, Natural Sciences)
- Every day I thank the UW for the outstanding library system. I could not function at the level that I do without the library. I mean it! (Faculty, Environment)
- I appreciate the extraordinary quality of the librarians, particularly the assignment of one as our departmental liaison who does superb outreach for input. Thanks also for responding to requests for books. I appreciate the amazing quality of the collections, especially access to the research journals I need. Also the interlibrary loan services are fast, efficient, and I could not do my work without this service. (Faculty, Natural Sciences)
- I love the speed at which Interlibrary loan is able to find any article or book I need, anywhere, and deliver it to my e-mail inbox or my physical faculty mail box within a matter of days. People regularly comment that I have a better knowledge of the literature than anyone else in my field, and this is due, at least in part, to the ease with which I am able to access all of that literature. Thank you! (Faculty, Engineering)

Graduate & Professional Students

What contribution does the UW Libraries make to your ability to…

- Most categories of libraries contribution increased from 2016 for STEM graduate students, though there was some variation (shown below). Despite the slight increase from 2016, "find space to do your work" remained significantly lower for all STEM colleges, particularly for PhD students.

Data shown as a mean score of all responses on a 5-point scale.
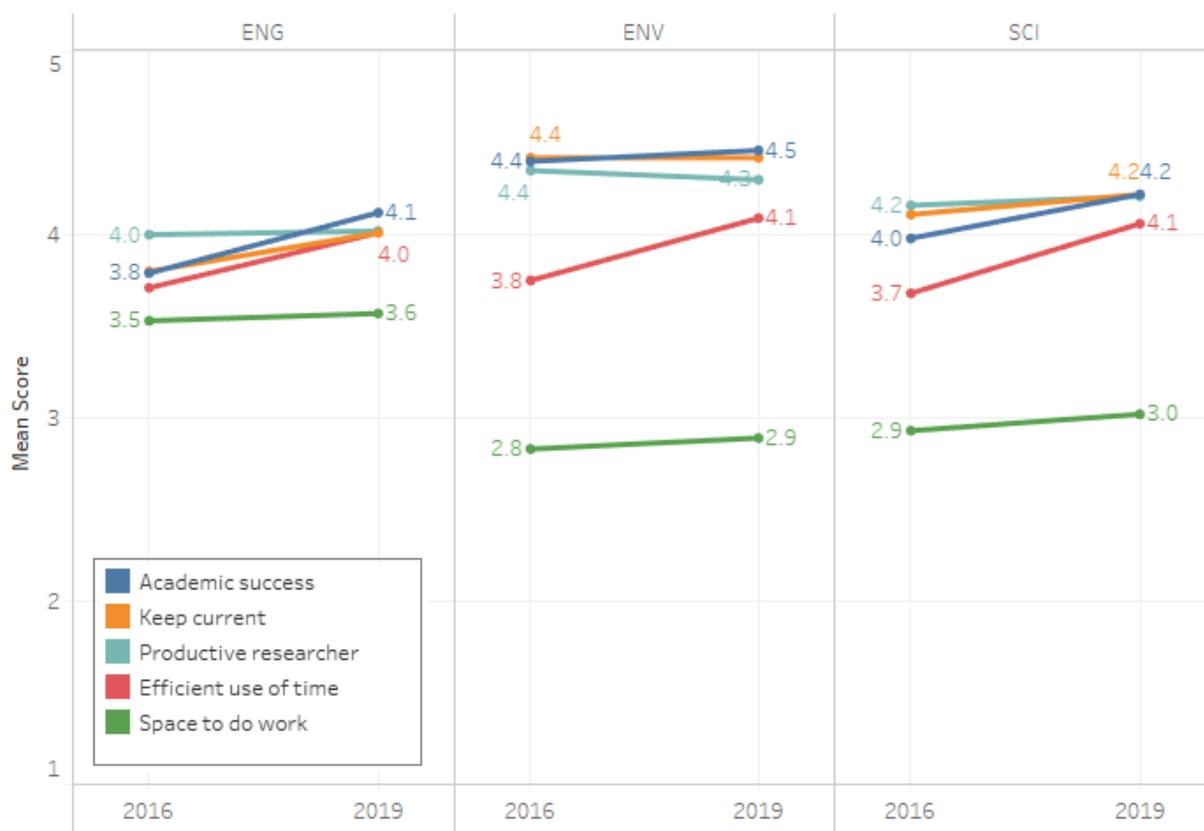
Overall, how satisfied are you with the UW Libraries?

- Overall satisfaction with the Libraries remained largely the same for graduate students in Environment and Natural Sciences. Satisfaction increased for Engineering from 4.22 in 2016 to 4.41 on a 5-point scale.

Selected Graduate & Professional Student Impact Comments

Tell us in a few sentences about a time that Libraries staff, services, or resources had a positive impact on your work.

- Since CSE opened a new building, a large number of groups have had to make a big move into a new space; this space is open, and can be disruptive and unergonomic. Since the move, I've rediscovered the joy of working from a library, and my productivity has increased as a result. The space that a library provides (not to mention the lovely scent of knowledge that permeates) has become an integral part of my routine, not to mention fostering more academic curiosity when I stroll through the stacks and spy an interesting title. (Graduate Student, Engineering)
- Every time I have done a literature review for a paper, I request dozens of article scans in the matter of only a few days - Library staff have exceeded my expectations for the speed in which they fill my requests. Additionally, during one such review, I needed a

one-of-a-kind print resource; the only copy was in Australia...and the library got it for me. That resource has been a cornerstone for one of my early masters projects. Thank you! (Graduate Student, Engineering)

- I've taken two online workshops offered by the Libraries staff - Data Management, and the Graduate Student Research Institute. These have been incredible resources and the format is perfect - free, online, on our own pace. I'm grateful for all the work and insight provided by the Libraries in these events. They've helped me develop better research practices and opened my eyes to new ideas and resources that are invaluable to success in graduate school and beyond. Thank you! (Graduate Student, Environment)
- Regarding a question on referencing articles using a specific style format, I was steered to a number of online style guides available through our library system by a library team member who works at the front desk. That guidance still serves me to this day! (Graduate Student, Engineering)
- The proxy bookmarklet makes getting to paywalled academic papers very easy, no need to log into anything and search for it, one click and I'm in. It will have saved me many hours of tedium by the time I graduate. (Graduate Student, Natural Sciences)
- I had questions about inconsistencies in data and nomenclature among inorganic chemists, physicists, and organic chemists and biochemists. UW librarians connected me to people and resources that helped me make sense of all the variety, and build upon my research of bringing them to a standardized platform. (Graduate Student, Engineering)
- I was able to obtain a pdf download of a book from the library that I really needed to study, which saved me from paying $90 for a copy. (Graduate Student, Natural Sciences)
- I've written every major milestone exam, paper, and other portions of my thesis in the libraries (Suzzallo, Odegaard, Law, Engineering) and can not overstate the importance of these spaces. Moreover, my work would be impossible if I did not have access to a wide range of journals. I'd also like to thank the folks who run the interlibrary loan (ILL) program, as these articles (especially old, foundational works) have been invaluable in my studies as well and I really appreciate the prompt service of the ILL. (Graduate Student, Engineering)
- Having textbooks with online access [h]as been an invaluable asset to my research and my studies as well. Complete textbooks are often expensive to come by, whether in time or in money, and provide a huge wealth of information that individual articles can't provide. (Graduate Student, Engineering)

Resources & Spaces

Faculty

How important are the following library resources to your research?

- Journals, research databases, and books are high-priority materials for STEM faculty. Journals received a mean score of 4.9 on a 5-point scale. Research databases received a 4.3 overall and books 3.9 overall.
- We received 71 STEM comments about resources and collections. 66% of these comments were about journals and databases, one of the highest categories overall. While most comments were about accessing journal articles or specific resources, 7 comments were about the cost of journal subscriptions to the Libraries.

Data shown a mean score of all responses on a 5-point scale.

	STEM			All STEM	All HS
	Env	Sci	Eng		
Journals	4.9	4.9	4.9	4.9	5.0
Research databases	4.2	4.3	4.5	4.4	4.9
Books	3.6	3.9	4.1	3.9	3.3
Conference papers/proceedings	2.9	3.1	3.8	3.3	3.1
Datasets	3.4	2.8	3.2	3.1	3.1
Lab protocols	1.9	2.6	2.8	2.5	2.8

How often are you able to find and access the journal articles you need through the UW Libraries system?

- STEM faculty were often able to find and access the journal articles they need, with a mean score of 4.6 (5 representing "Usually").

When you want a journal article that you do not have immediate access to through the UW Libraries, how often do you use the following methods to get that material?

Data shown a mean score of all responses on a 5-point scale. Question only provided to those who selected 1-3 in response to "How often are you able to find and access the journal articles you need through the UW Libraries system?"
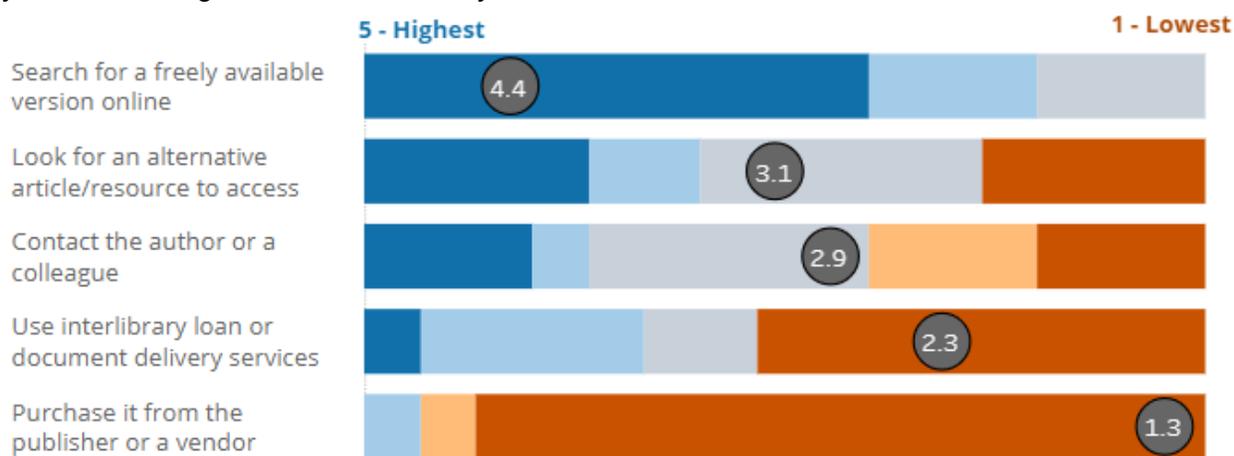
Selected Faculty Resources & Discovery Comments

- Cost of journal subscription to libraries is a factor I would probably consider more seriously if that information were more readily available. (Faculty, Natural Sciences)
- We should keep an excellent library totally independent of Google. Google has no academic objectivity and promote ignorance (Faculty, Engineering)
- An easier way to tell whether UW licenses specific years of specific journals. I sometime[s] get caught in loops on the library website. (Faculty, Natural Sciences)
- Often we do not have technical books in the library that I'm surprised we don't have; we can get them via Summit or ILL, but it takes a while. I recommend buying them individually when I think it is warranted, but on the whole, I would guess our library only has half of the books I'm looking for. Second, off-campus journal access is now better than it was, but it's still confusing to click through many screens to get to an actual PDF. Thank you for all you do! (Faculty, Environment)
- I use off-campus access to library resources all the time. Very useful. Because of the fast developments in my field, I use books and printed periodicals much less (Faculty, Environment)
- Online access to journal materials, combined with interlibrary loan for scans of those not available online is an incredible resource that makes my work much more efficient. Turn around times are great. (Faculty, Environment)
- I feel so lucky that UW has invested in access to such a wide range of journals and scholarly publications. I have actually not encountered a case in which I wanted to read something, but it was inaccessible. This especially goes for opportunities to have

Graduate & Professional Students

How frequently do you visit or access the UW Libraries?

- STEM Masters students are more likely to visit the Libraries in person than PhD students, with 39% visiting weekly or more often, compared to 14% of PhD students. 56% of STEM masters students access the Libraries remotely weekly or more often, compared to 72% of PhD students.

	2x a week or more	Weekly	Monthly	Quarterly	Less often/No response
Visit in person	16%	15%	19%	22%	28%
Access remotely	47%	25%	15%	6%	7%

How important are the following library resources?

- Journal articles and research databases are high-priority materials for STEM graduate students, with no significant change between Colleges or Masters and PhD students.

Data shown a mean score of all responses on a 5-point scale.

	STEM			All STEM	All HS
	Env	Sci	Eng		
Journal articles	5.0	4.8	4.6	4.8	4.8
Research databases	4.2	4.4	4.3	4.3	4.8
Books	3.8	3.7	3.7	3.7	3.2
Conference papers	3.3	3.5	4.1	3.7	3.2
Numeric/scientific data	3.6	3.4	3.7	3.6	3.4
Lab protocols	2.5	3.0	3.3	3.0	2.8

How often are you able to find and access the journal articles you need through the UW Libraries system?

- STEM graduate students were often able to find and access the journal articles they need, with a mean score of 4.3 (5 representing "Usually").

When you want a journal article that you do not have immediate access to through the UW Libraries, how often do you use the following methods to get that material?

Data shown a mean score of all responses on a 5-point scale. Question only provided to those who selected 1-3 in response to "How often are you able to find and access the journal articles you need through the UW Libraries system?"
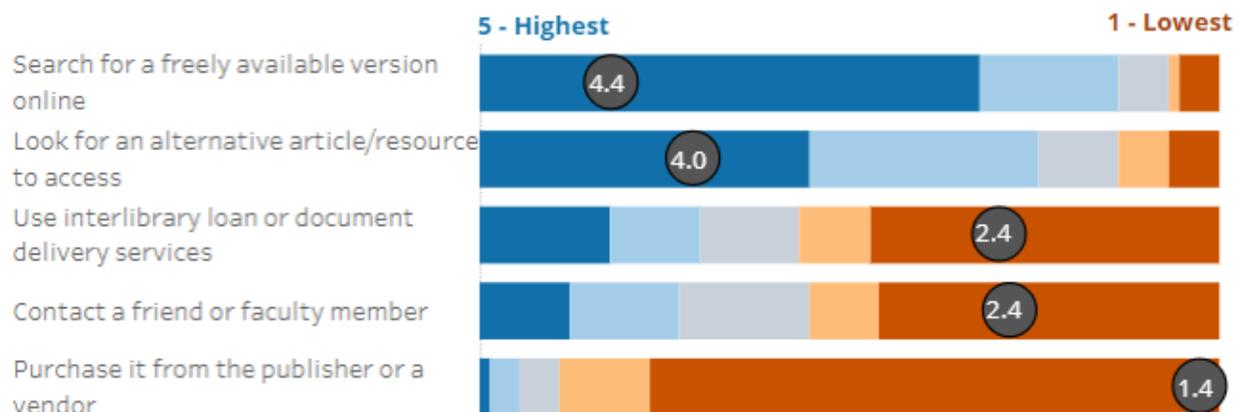
Selected Graduate & Professional Student Resources & Discovery Comments

- Even with UW system, I do not have access to some journals. But, my friends from another university do, so I sometimes ask them to download for me. (Grad, Engineering)

- I tried using the interlibrary loan system and my article never arrived. It was a very confusing process (Grad, Engineering)
- There are several occasions that I needed books to learn about technical or modeling aspects of my projects, and UW libraries had the books on hand, even when recently published. Being able to borrow those books for several months at a time while I learned about the skills and to have as references as I wrote up the research were invaluable. (Grad, Environment)
- One of the books currently sitting on my desk from UW library was critical for bringing my understanding of my field up to speed, and I will be forever grateful such a book was so readily available. Any time I start something new, I'm confident a quick trip to the library will be the best first step. Additionally, getting PDF scans through ILL is always a quick turn around, which is so important when I'm trying to connect important literature articles together for a greater understanding. (Grad, Natural Sciences)
- I found out about ILL through a library staff member at the Engineering Library. The textbook which I needed wasn't available here, but thanks to ILL I saved money. Thanks a lot everyone working at the libraries! :) (Grad, Engineering)
- Using the Libraries' access to articles makes it very easy and convenient to do research on campus. Because I work in a relatively new field, this is very important to me as papers and recent publications are really the only way for me to stay up-to-date in my field. Also, the ability to borrow books from other universities is great. (Grad, Engineering)
- Sometimes, there are research articles or book chapters that are not available online, but the UW Libraries have a copy. I have found the scanning to PDF service incredibly helpful in the cases where we have a print copy but not an electronic one. This allows me to keep all of my research materials digital as well as not having to worry about returning a print copy. (Grad, Environment)
- The UW Libraries proxy bookmarklet has saved me hours of time trying to access an article - I tell everyone to use it, because nobody seems to know about it! (Grad, Environment)
- Having textbooks with online access as been an invaluable asset to my research and my studies as well. Complete textbooks are often expensive to come by, whether in time or in money, and provide a huge wealth of information that individual articles can't provide. (Grad, Engineering)
- The folks responsible for making scans of articles in the Interlibrary Loan & Scanning Services department are my saviors. They have saved me so much time and effort in terms of locating and obtaining copies of critical research materials in terms of journal articles and conference proceedings related to my Ph.D. studies. (Grad, Engineering)
- I appreciate that UW Libraries is well organized so that obtaining a resource from the library gets to be the "easy" step in my research (something that has not necessarily been true at other institutions I have attended). My only recommendation would be to keep garnering access to more scientific journals, as even though ILL is great, immediate access to an article can sometimes be a "make or break" in decision making. (Grad, Natural Sciences)

- I download research articles on a very regular basis, without library access I would not be able to keep abreast of my field. (Grad, Natural Sciences)
- The scan-and-email service is simply amazing for access to those articles not otherwise available online! Nice to see the usability of the search tools improving over time. (Grad, Engineering)
- It would be nice if it could tie into Google Scholar instead of having to search in two separate databases. (Grad, Environment)
- The only thing I would change would be access to more journals. That being said, I am aware of the terrible practices of journal publishers and the outlandish fees they charge for basically contributing nothing. (Grad, Natural Sciences)
- Tools for off-campus use of research facilities seem to not be as well publicized as they could be. I was only recently informed of the proxy bookmarklet through friends, though I was informed of some tools when given a tour of library facilities when I arrived for my PhD. (Grad, Natural Sciences)
- Accessing journal articles online has not been very straightforward when I have tried it. Online access links led to websites with every single journal volume to look through, or required a request for a scan. (Grad, Engineering)
- I do wish that I could renew ILL books - there was one incident where I had to renew an loaned book then immediately re-request it. This essentially meant that the book was shipped across the state and back (twice) because I wasn't quite done with this resource. Maybe I should have purchased the textbook instead... (Grad, Environment)
- Library services have had a continuous impact on my research, since I can access academic articles through the Libraries online access rapidly and free. Keeping up to date in my field is very important when conducting research, and this has been a game changer for me all these years. (Grad, Environment)
- My biggest frustration is that my research is biomechanics so papers/journals I want to read are in the health sciences library and the engineering library which makes it difficult to get print resources. (Grad, Engineering)
- When I am using the library website looking for articles, books, ... it doesn't ask me for login until I want to see the availability of the book, articles... . That makes it a little harder to get back to the same page after logging in. So, it would be nice for the website, to ask for log in information in the beginning, before doing any searches. (This is usually when I open the library website from MyUW. Even though I am logged in into MyUW page). (Grad, Engineering)
- Sometimes I can find a pdf on Google Scholar that I can't in UW Libraries, so there are a few gaps in coverage. I wouldn't mind book delivery to my building, although that's a pretty primadona request for a grad student, I realize! It's just that sometimes I'm doing a lit search on a timeline and by the time the book shows up waiting for me at Suzzallo, I've moved on and wasted everyone's time. (Grad, Environment)

Faculty Research & Scholarly Activity

- 35% of STEM faculty indicated they had published in an Open Access journal in the past academic year (51% for Health Sciences), which was unchanged from 2016.

During this academic year have you…

	Yes	No
Received or used federal funding for research?	73%	27%
Received or used other external funding for research?	54%	46%
Paid a fee to publish in a journal?	44%	57%
Published in an Open Access (OA) journal?	35%	66%
Made your work available through a personal, faculty, or research group website?	53%	47%
Made your work available through a repository?	43%	57%
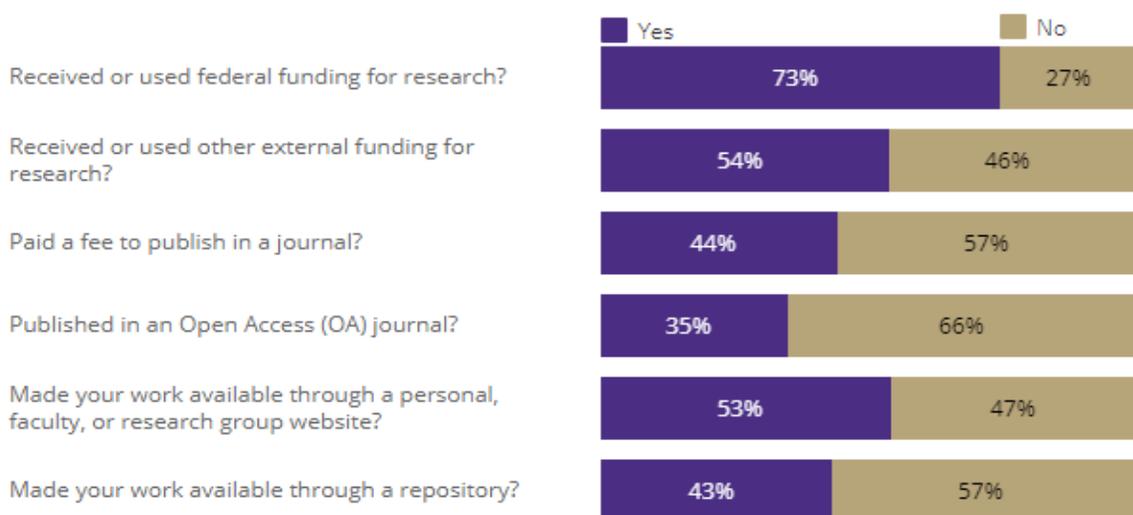
Why did you publish in an OA journal?

- Of STEM faculty who published in an OA journal, the top reasons given for doing so were journal quality (52%) and visibility/increased readership (48%).
- For those who did not publish in an OA journal in the past academic year, we asked an open-ended follow-up question about any questions or concerns respondents had about open access. We received 49 STEM comments, with comments largely centered on cost and quality: there were 30 comments that specifically mentioned cost of publishing in OA journals (including APCs) and 23 comments centered on quality (including fears about "sham" journals, perceived lack of rigorous peer review).

Question only provided to those who answered "Yes" to "Published in an Open Access Journal" in the past academic year.

	Yes	No
Visibility/increased readership	48%	52%
Journal quality	52%	48%
Principles/I wish to support OA publishing	30%	70%
Speed of publication	26%	74%
I did not care that it was OA	30%	70%
Funding body requirement		94%
Other (please specify)	12%	88%
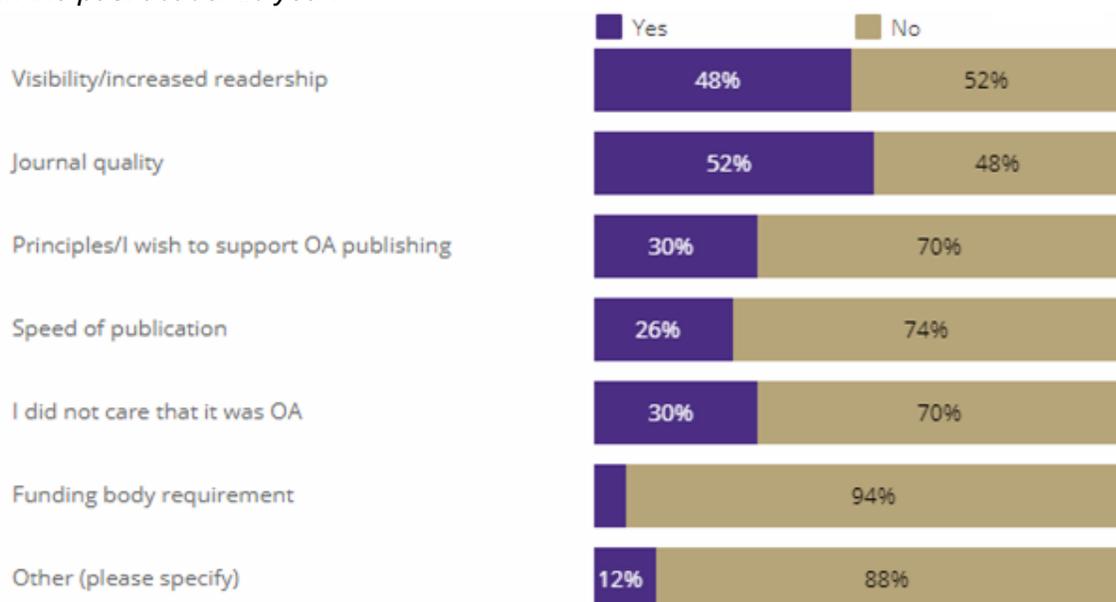
- The business model in which we pay to for research, generate content for free, pay to have it published, and then pay to have access to it is so completely insane that I am amazed it hasn't broken yet. We need to do what we can to break the hold that Elsevier, Wiley, and a few others have on academic publishing. I favor publishing in PeerJ and PlosOne, but I would further support dropping Elsevier/Wiley access -- the way Berkeley has done -- in order to better negotiate with them. (Faculty, Environment)
- I dislike open access because it favors wealthy labs who can pay the exorbitant fees. (Faculty, Engineering)
- I'm a believer in principle, but grouchy about the cost of it all, given that I have to raise the money to do the research and do a lot of (unpaid) peer review. (Faculty, Natural Sciences)
- If have published in a couple of very good Open Access journals that have no publication charges and have been around a while but there are only 1 or 2 that are any good. There are a lot of really bad Open Access journals that have been started recently that are set up in a predatory way with high publication charges. (Faculty, Engineering)
- High cost to authors to publish. Also, the general proliferation of open access journals that are for-profit gives me reason to believe that many are predatory and have poor quality peer-review process; after all, they make money publishing papers (not rejecting them). I don't even consider PLOSOne a legitimate journal anymore. (Faculty, Environment)
- Is it possible for the institution (UW) to cover the cost of setting up your work as Open Access? (Faculty, Engineering)
- You have to pay! It creates unequal access to publication outlets depending on authors' funding. (Faculty, Natural Sciences)
- There are too many predatory journals disguised as Open Access Journals. So, I don't really trust any of them. Additionally, I am concerned about the funding models for Open Access Journals. The funds for maintaining digital archives has to come from somewhere; how do I know the staying power of the Open Access Journal - what if they go bankrupt... what happens to my work then? (Faculty, Environment)
- I do not have funding for this -- NIH, etc does not readily provide such money. Also, I worry about quality. Where it is in the journal's best financial interest to accept as many articles as possible, the journal has an intrinsic conflict of interest. Finally, who will benefit from open access? All universities in developed countries have good access. Many companies are too cheap to buy the needed subscriptions so they want open access. The general public could care less! (Faculty, Engineering)
- I sometimes wonder if the University should start their own open access journals. Also, I know universities in Europe that pay open access fees for all staff and faculty. If there is really a switch from commercial access to open access that would help. I would also like to add that I am not convinced of open access journals for two reasons: first, open access journals have authors as customers, so they are more interested in publishing quantity than quality. Second, fees are so high that many researchers from developing nations have no chance to ever publish in these journals. So open access journal

Beyond journal reputation/impact factor, how important are the following factors in your decision on where to publish journal articles?

- Journal reputation and impact factor continue to be the driving factors in faculty decisions about where to publish (and considerations about whether to publish OA).

Data shown a mean score of all responses on a 5-point scale.
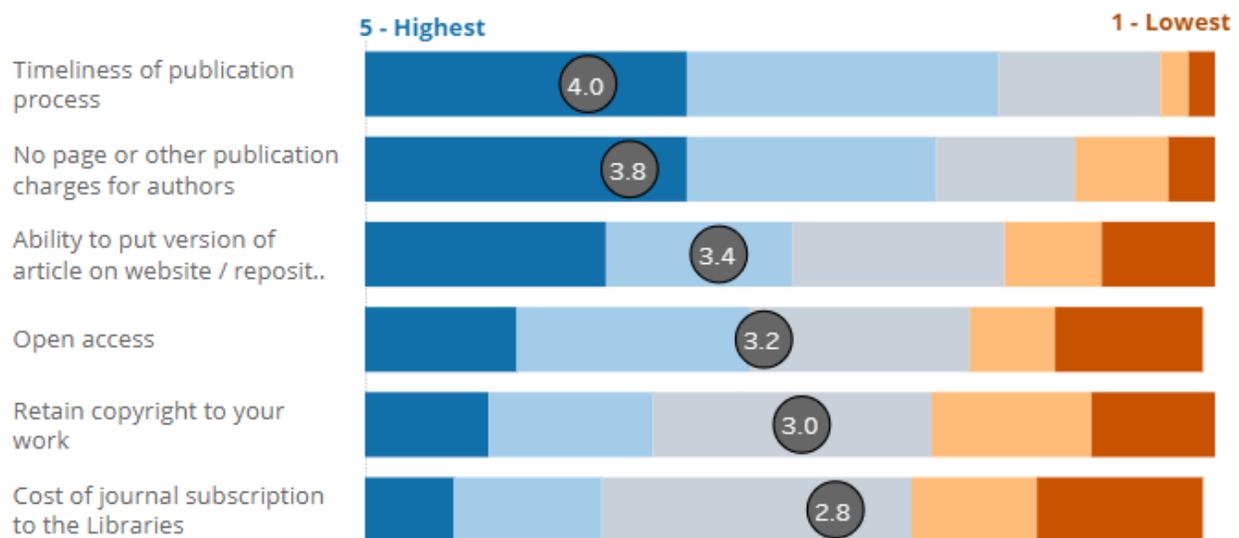
How did you pay the fees to publish your article (article processing charges?

- 44% of STEM faculty reported that they paid a fee to publish a journal article in the past academic year.
   - The overwhelming majority of those who paid a fee did so out of grant funds (78%). Faculty who do not have grant funds may perceive this as a barrier to making their work available via OA: "I dislike open access because it favors wealthy labs who can pay the exorbitant fees."

Question only provided to those who answered selected 1 or more responses to "which of the following digital research methods you use in your research/coursework."

	Yes	No
Grant funds	78%	22%
Departmental funds	11%	89%
Personal funds	13%	87%
Other (please specify)	9%	91%
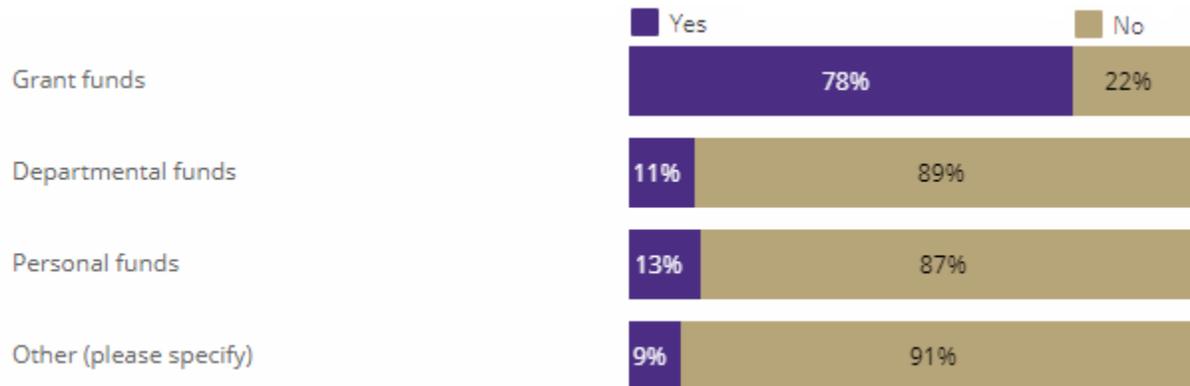
Where do you currently share your scholarly output after publication or presentation?

- STEM faculty were more likely to make their work available through a repository or website and ranked assistance with depositing data in a repository as the service that would be most useful to their work. They tended to deposit scholarly output in disciplinary repositories (67%) followed by commercial repositories (51%).

Question only provided to those who answered "Yes" to "Made work available through a repository."
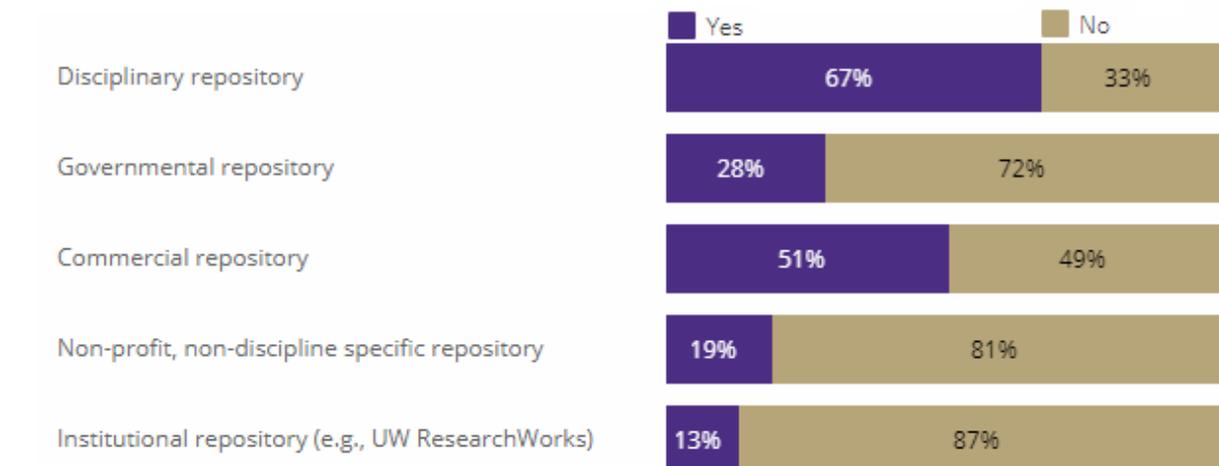
	Yes	No
Disciplinary repository	67%	33%
Governmental repository	28%	72%
Commercial repository	51%	49%
Non-profit, non-discipline specific repository	19%	81%
Institutional repository (e.g., UW ResearchWorks)	13%	87%

What types of scholarly work did you make available via a repository or website?

Question only provided to those who answered "Yes" to either "Made work available through a repository" or a "Made work available through a website" in the past academic year.

	Yes	No
Journal articles	80%	20%
Data sets	40%	60%
Conference papers/presentations	31%	69%
Code/software	39%	61%
Images/video	19%	81%
Working papers	20%	80%
Technical reports	20%	80%
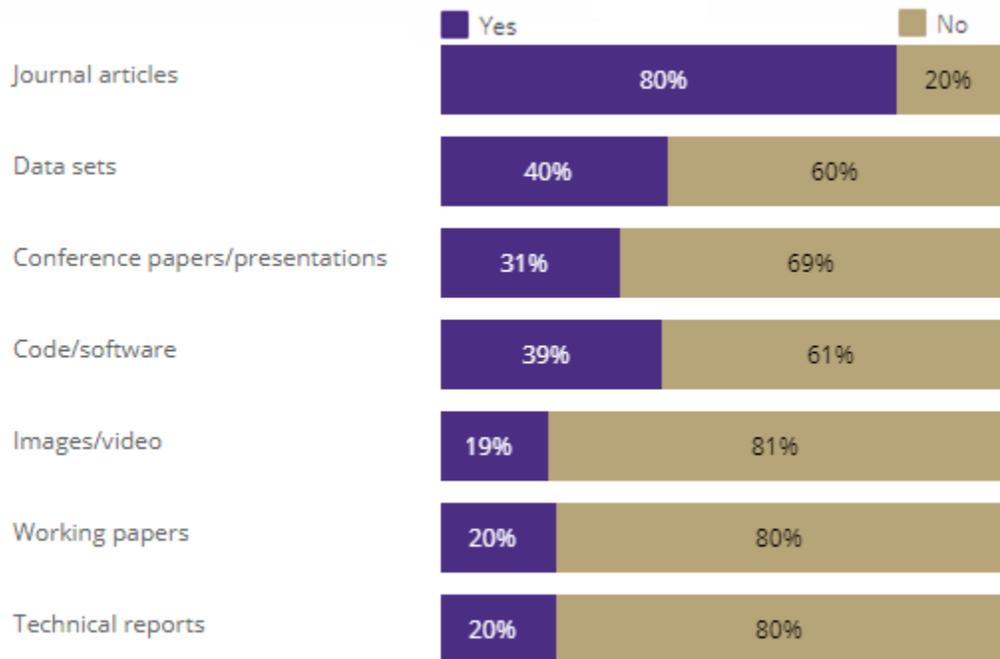
Graduate & Professional Student Research & Scholarly Activity

- The majority of PhD students in STEM fields are publishing and presenting their work: 57% authored or co-authored a journal article and 55% presented a paper or poster at a conference. For STEM Masters students, 18% presented at a conference and 12% authored or co-authored an article.

During this academic year have you…

Data shown as % of those answering "yes."

	Masters	PhD
Worked on federally/externally funded research project	27	78
Presented conference paper/poster	18	55
Authored/co-authored journal article	12	57
Made your work publicly available through a website	20	38
Made your work publicly available through a repository	3	28

Data shown as % of those answering "yes."

	STEM			All	
	ENV	SCI	ENG	STEM	All HS
Externally funded research	66	63	53	59	31
Presented at conference	59	41	35	42	30
Authored/co-authored article	53	48	30	40	26
Work available through web	34	34	29	31	12
Work available through repos.	13	24	17	19	5

What types of scholarly work did you make available via a repository or website?

Question only provided to those who answered "Yes" to either "Made work available through a repository" or a "Made work available through a website" in the past academic year.
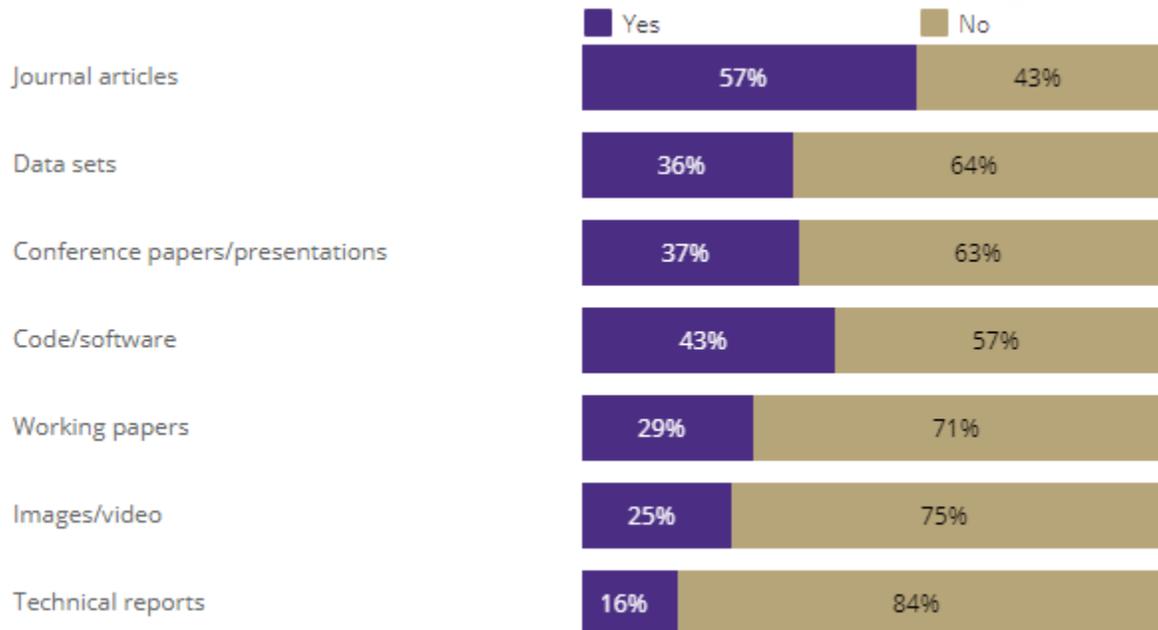
Data shown in %.

	STEM			All	
	ENV	SCI	ENG	STEM	All HS
Journal articles	47	67	53	57	63
Code/software	32	44	47	43	16
Conference papers/presentations	36	23	49	37	37
Data sets	60	31	30	36	40
Working papers	21	26	35	29	34
Images/video	28	17	31	25	18
Technical reports	19	6	24	16	12

Are you currently working on/planning to produce a dissertation of thesis?

- 71% of STEM graduate students are working on or planning to produce a thesis or dissertation for their program.
  - Of this group of students producing a thesis/dissertation for their program, 57% indicated that they did not know if their department or faculty advisor provided guidance on submitting their work to the institutional repository/ETD program.

Data shown as % of those who are producing a thesis/dissertation.

	STEM		All	
Env	Sci	Eng	STEM	All HS
90	73	62	71	46

Does your department or faculty advisor provide guidance or training on…

Question only provided to those who answered "Yes" to "Are you working on/planning to produce a thesis/dissertation." Only one category, "Submitting your Thesis/Dissertation to UW's institutional repository" was shown to Masters' students.

	Yes	I don't know	No
(PhD & Doctoral only) Disseminating research from your dissertation/thesis in published arti..	57%	32%	
(PhD & Doctoral only) Open access publishing options	27%	50%	24%
(Masters, PhD & Doctoral) Submitting your thesis / dissertation to UW's institutional repo..	20%	57%	23%
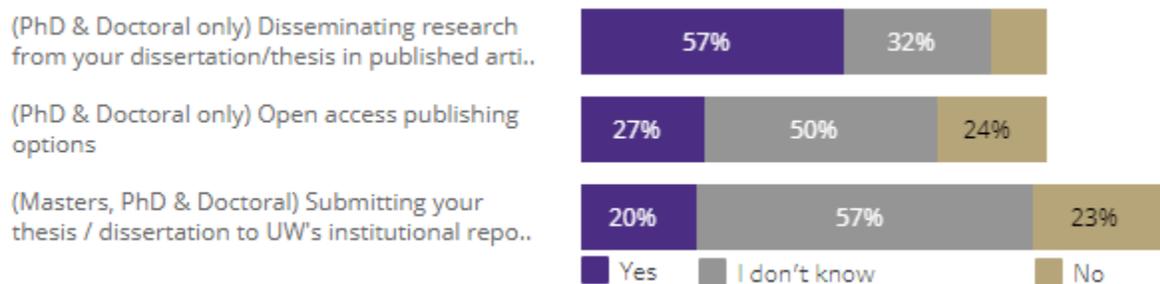
Selected Graduate & Professional Student Open Access & Departmental Support Comments

- It would be really cool if there was a resource to help students pay for journal publication costs for those students who don't have grants to cover those expenses. I am primarily funded through teaching so I've had to pay a lot of money to get my papers published. SEFS does not have a fund for this. It seems like the library might be a centralized entity that could help distribute money to those students that have a similar problem. (Grad, Environment)
- I would encourage the UW to increase support for open access journals and push for more content to be made publicly available (including datasets and previously published work). This would include encouraging submission to open access journals while boosting their reach and level of impact. (Grad, Environment)
- In regards to open access, my advisor has avoided doing this with me because of the cost to publish in open access journals. Neither he or I can cover the cost. (Grad, Natural Sciences)

User Priorities & Needs

Communication with users

- Overall, as in previous surveys, there are a number of comments highlighting the desire for more communication from the Libraries about the services and resources available to faculty and graduate students.

- It would be nice if the UW Libraries could send a monthly or quarterly email that highlights available resources: like, help with open access journals, how to submit thesis/dissertation, etc. These things are listed in this survey but I didn't know the library offered these types of things. An email update every so often would be a helpful way to alert graduate students to the resources available by the UW Libraries. Otherwise, we are entirely dependent on word-of-mouth or our own website browsing. It is hard to find resources you don't know exist.... (Grad, Environment)

Faculty Priorities

- For STEM faculty, the top priority is guidance on depositing data into a repository for long-term storage and/or sharing (51%). As one STEM faculty member noted in a comment, "I would like help on how to address journal requirement to share data and code. Advice on how to do this for very large data sets, such as climate model output is also needed."

Which of the following library services would be useful for your research and scholarly activity?

	Yes	No
Assistance with strategies for monitoring literature in your field	44%	56%
Assistance with literature searches or systematic reviews	39%	61%
Assistance with assessing and communicating the impact of your work	35%	65%
Guidance on depositing data into a repository for long-term storage and/or sharing	51%	49%
Assistance with establishing an online professional identity	20%	80%
Assistance with understanding copyright and author rights issues	35%	65%
Assistance with describing, organizing, and preparing data for discovery and reuse	34%	66%
Guidance on finding alternatives to commercial publishing	22%	78%

Which of the following library services would be useful for your research and scholarly activity?

Data shown in % who responded "Yes" where number of respondents in a college are above 20.

	STEM			All STEM	All HS
	Env	Sci	Eng		
Understanding copyright/author rights issues	30	42	30	35	23
Strategies for monitoring literature in your field	52	47	31	44	59
Preparing data/digital files for discovery reuse	50	29	30	34	21
Literature searches/systematic reviews	35	41	41	39	59
Establishing an online professional identity	18	21	20	20	32
Depositing data into a repository	53	49	50	51	34
Assessing/communicating impact of your work	32	32	41	35	43
Alternatives to commercial publishing	28	22	19	22	25

Which of the following would be most helpful in assessing & communicating the impact of your research?

Question only provided to those who selected "Assessing/communicating the impact of your work" in response to "Which of the following library services would be useful for your research and scholarly activity?"

Legend: ■ Yes ■ No

	Yes	No
Communicating the impact of your work after publication using citation metrics	68%	32%
Communicating the impact of your work after publication using journal impact factors	51%	49%
Communicating your research to the public	68%	32%
Communicating the impact of your work using social/web-based metrics	42%	58%
Communicating the impact of community-engaged research and scholarship	27%	73%
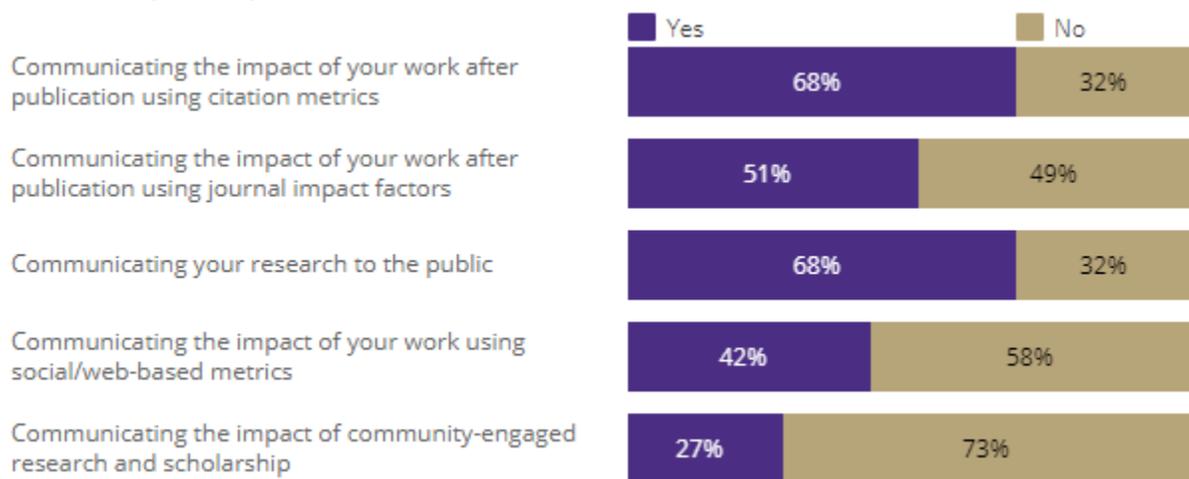
Selected Faculty Research & Learning Support Comments

- I would love more support in data management, publication, open access (Faculty, Environment)
- Unfailingly gracious staff. Helpful to me and my students in searching for obscure references. (Faculty, Engineering)
- Our subject librarian, Matthew Parsons, has always been super helpful - he is quick to find things that I can not locate myself. (Faculty, Environment)

- The Math Librarian has located out of print, hard to locate items, when I had no ideas about the exact reference or location. She [h]as helped with copyright issues and obtained scans of items that are only available in remote foreign locations. (Faculty, Natural Sciences)
- Ms. Julie Cook helped one of my students access non-traditional databases to identify government reports on a new research topic. (Faculty, Environment)
- 'Our' librarian, Maureen Nolan, consistently and rapidly answers my questions; from finding an obscure thesis to helping set up journal alerts. (Faculty, Environment)
- Susan Redalje (Chemistry) exceptionally helpful to undergraduate research program (Faculty, Environment)
- Kari Anderson is always very responsive and helpful. I don't use Library services often, and should use more, but whenever I ask for help, she responds quickly and effectively. (Faculty, Environment)
- Having staff that can help guide hunting for the proper material is essential to my research and productivity. Library staff have always been helpful. (Faculty, Natural Sciences)
- I was having trouble accessing a journal article not available through the Library online. I talked with a librarian in person and learned how to request journal articles online through the library. It was extremely helpful. (Faculty, Natural Sciences)
- I took the Data Management class a few weeks ago-- it was very helpful. I have also been inspired by the accessibility office (I believe this is part of the library) to improve how I write and make my work more easily accessible to people with visual disabilities. (Faculty, Engineering)
- It is not clear that the libraries have the expertise to help manage data sets and accessibility of these data sets. Providing a resource to find new articles in a specific field or (even more helpfully) articles for specific methodologies from different fields would have a huge impact. (Faculty, Natural Sciences)
- We repeatedly needed a journal that UW didn't have a subscription for. The librarian managed to find a way to get UW access to the journal. (Faculty, Natural Sciences)
- The loans are great, you can get the documents right away. I also really like how one of the science librarians came to one of our classes to show me and my students how to search terms for our review. (Faculty, Environment)
- accessing articles from other libraries, helping students with systematic reviews - both are invaluable services! (Faculty, Natural Sciences)
- I would like a more efficient way of getting citations into my database that creates my reference lists for publications. I use zotero but I do not think either it or Mendeley works great with the library catalog. Too often the direct "Find It" links to journal articles fail. I find it frustrating I cannot easily forward the problem (e.g., a screenshot) to report to the library [for] help. (Faculty, Environment)

Graduate & Professional Student Priorities Across Colleges

Which of the following library services would be useful to your research and scholarly activity?

- There are expected differences between STEM students at the Master's and Doctoral degree levels, with citation management and assistance with literature searching coming up higher for Master's students (60% and 56%, respectively), and strategies for monitoring literature in their field coming up higher for Doctoral students (62%).

Data shown in % who responded "Yes".

	Masters	PhD
Strategies for monitoring lit	49	62
Citation management tools	60	49
Publishing issues	41	49
Literature searches/reviews	56	38
Electronic theses/dissertation	31	49
Data management	38	44
Online professional identity	30	41

Data shown in % who responded "Yes" where number of respondents in a college/school are above 50.

	STEM			All STEM	All HS
	Env	Sci	Eng		
Strategies for monitoring lit	59	61	53	57	58
Citation management tools	56	49	54	53	62
Publishing issues	52	42	46	46	34
Literature searches/reviews	33	42	51	45	67
Electronic theses/dissertation	53	45	36	43	28
Data management	56	36	40	42	30
Online professional identity	41	41	31	37	32

Selected Graduate & Professional Student Research & Learning Support Comments

- Maureen Nolan has positively impacted my work by helping me find digital and physical resources (journal articles, books, etc.) for my research. She has done so via email and in person on UW campus and at Friday Harbor Laboratories. Her presence at FHL has been critical to my success as a graduate student. In addition to Maureen, the staff at the Suzzallo/Allen circulation desk (and whoever helps them fulfill book requests) positively impact my work by efficiently, professionally, and amicably giving me books that I hold. (Graduate Student, Natural Sciences)

- The data management planning workshop recently offered by Jennifer Muilenburg and her team was excellent! That should be mandatory for every grad student in their first quarter, as far as I'm concerned. I also very much appreciate the people who make the document scanning service available for articles not accessible digitally. (Graduate Student, Environment)
- The librarian for Speech and Hearing Sciences met with me when I was doing a systematic review and gave me guidance on search strategies. (Grad, Natural Sciences)
- A librarian from the Health Sciences Library came to give a presentation about some of the resources we have access to through the library, and walked us through setting up email alerts for new research in the NCBI. Since then, I have set up several alerts that have allowed me to stay up to date on new articles in my areas of interest, which has helped me progress greatly as an informed, independent researcher. (Grad, Engineering)
- I was given a tutorial on Zotero in the research commons (I believe) my first year in graduate school, which was instrumental in my graduate career! (Grad, Environment)
- Hav[ing] guest lectures that delve into how to find research in our field specifically has been very helpful. (Grad, Natural Sciences)
- I appreciated that a librarian quickly replied to my emailed request for help. She was great and more than I thought I would find in a large university's library system. (Grad, Environment)
- I'm so grateful for the library staff in so many ways - the data management workshop you recently provided was fantastic!! You folks are saints. (Grad, Environment)
- I cannot stress enough how useful it is to have access to academic work and to request work that may not be directly accessible through our library. Additionally, some of the webinar/workshops have been quite useful, such as the data management workshop that I believe was hosted by the UW Libraries. (Grad, Environment)
- Training provided on data management with an accompanying list of resources when I started my program was very helpful in trying to manage the data I generate better. (Grad, Engineering)
- I took the research online course for graduate and professional students before starting my program and it helped orient me to the UW library services (Grad, Natural Sciences)
- So grateful for the data management workshop earlier this year!! (Grad, Environment)
- Going through my Masters Thesis submission process through UW ETD was a little confusing and I couldn't find all the information in one place (grad.uw.edu had some bits of information/help guides, and then https://guides.lib.uw.edu/research/etds also had some bits of information, but it was spread out and hard to find what I needed) (Grad, Engineering)
- Would love for a citation management expert to come to our department and give a workshop! (Grad, Environment)
- A better guide for how/where to find spatial data would be great! Or, a place where all different departments could compile the data they have. (Grad, Environment)
- I don't know how to efficiently stay up-to-date with research in my field. (Grad, Environment)

- I have seen a presentation from Mel DeSart on searching databases for a thorough literature review given in an undergraduate class that would have been so useful to me at the beginning of my graduate student career. Having that walk-through available to first year graduate students would be amazingly useful! (Grad, Engineering)
- Could someone teach me to use Mendeley? Please. (Grad, Engineering)
- Please provide support on resource management. (Grad, Natural Sciences)
- The biology library recently helped us via purchasing resources we use frequently. (Grad, Natural Sciences)
- The interlibrary loan system allows me to have access to journals in other countries, which is very important for my systematic review. The librarians also gave me tips on how to use keywords and boolean terminology for my searches. (Grad, Natural Sciences)
- So far, I've primarily only used the online services, like journal subscriptions and databases. I hope to meet with a librarian to prepare for my thesis! (Grad, Environment)
- Perhaps more resources on how to manage literature and publications more effectively through programs such as Mendeley, or if those resources already exist, making them more known. (Grad, Natural Sciences)
- Some journals are not available from UW, or are difficult to download. More assistance with searching. (Grad, Engineering)

Which of the following digital research methods do you use in your research/coursework?

	Yes	No
I use one or more of these digital research methods	74%	26%
Data visualization	54%	46%
Editing, annotation, or automated analysis of digital images or video	21%	79%
Data mining	23%	77%
Geospatial analysis	22%	78%
3D printing/scanning/modeling	25%	75%
Web/digital publishing or digital storytelling	14%	86%
Computational text analysis	12%	88%
Virtual reality and simulation	13%	87%
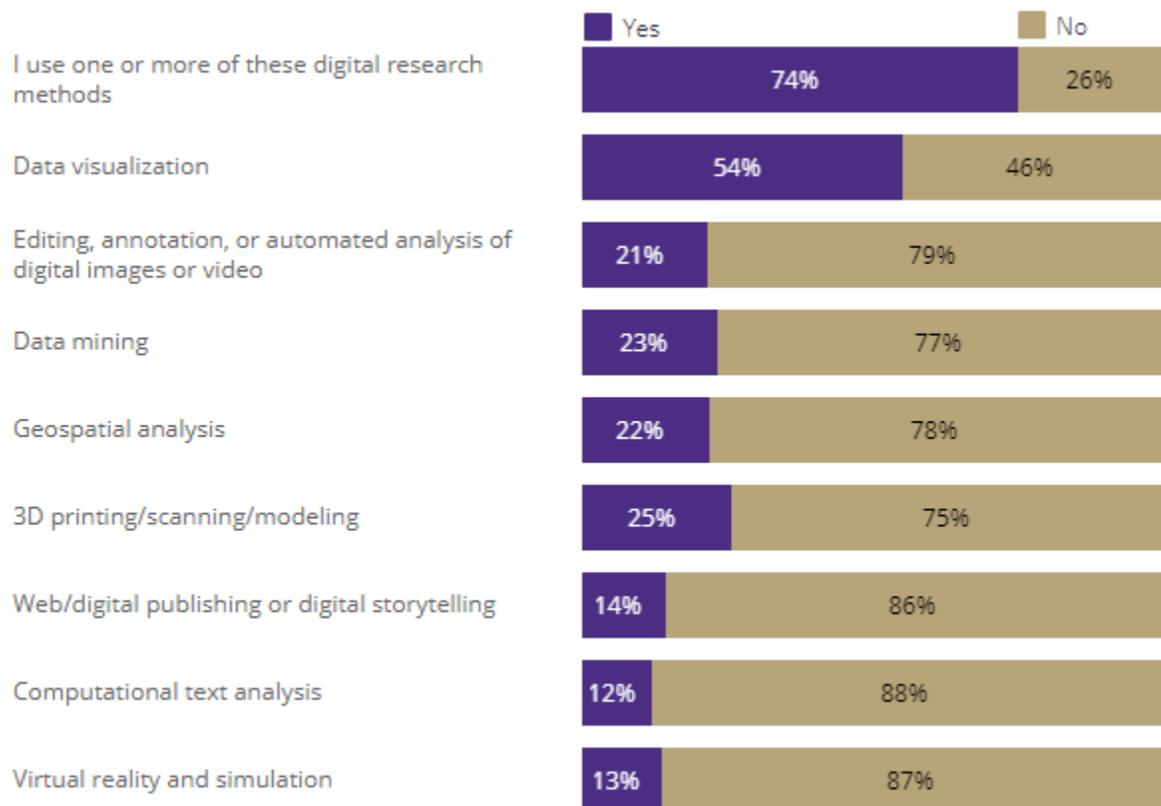
Data shown as a % of respondents who made a selection on a multiple-choice question where number of respondents in a college/school are above 50.

	STEM			All STEM	All HS
	Env	Sci	Eng		
Use 1 or more of these digital research methods	85	66	74	74	47
Data visualization	65	52	51	55	32
3D printing/scanning/modeling	7	21	36	25	8
Data mining	18	26	23	23	12
Geospatial analysis (e.g., GIS, mapping)	64	5	14	22	12
Editing, annotation, or automated analysis of digital images/video	18	17	25	22	16
Web/digital publishing or digital storytelling	17	11	16	14	13
Virtual reality and simulation	3	8	21	14	6
Computational text analysis (e.g., text mining)	12	8	14	12	9

UW Libraries currently offers, or is considering offering, a variety of services to support digital scholarship work. Which of the following services would be useful to you?

Question only provided to those who selected at least one response to "Which of the following digital research methods do you use in your research/coursework?" Respondents could select up to 3 categories in this question.

Service	Yes	No
Technology infrastructure	64%	36%
Workshops/tutorials	50%	50%
Referral services	29%	71%
Physical spaces	32%	68%
Availability of digital content corpora	31%	69%
Consultation services	24%	76%
Events that showcase digital scholarship projects	7%	93%
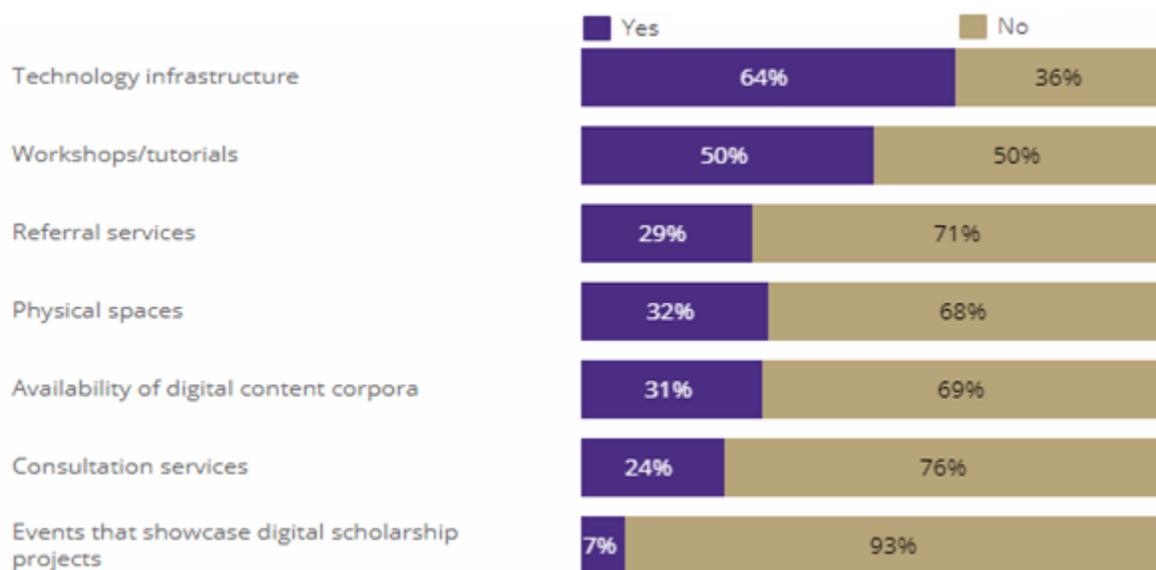
Data shown in % who responded "Yes" where number of respondents in a college/school are above 50.

	STEM			All STEM	All HS
	Env	Sci	Eng		
Technology infrastructure	55	64	68	64	52
Workshops/tutorials	56	51	46	50	54
Physical spaces	28	29	35	32	30
Availability of digital content	28	34	30	31	24
Referral services	28	28	30	29	43
Consultation services	40	21	18	24	32
Events to showcase DS projects	6	8	8	8	9

Opportunities

- Survey results for faculty and graduate students indicate a number of areas that could be explored collaboratively in cross-departmental teams, including Science liaisons, Scholarly Communication & Publishing, Communications, the Research Commons, and other functional librarians with expertise in areas such as research impact and instructional design.
- Faculty and graduate students continue to express the desire for more updates on the services and resources offered by the Libraries. A pilot collaboration between between Science liaisons, the Research Commons, new Communication Director and external partners such as the Graduate School/Office of Postdoctoral Affairs could trial and assess targeted communication strategies to improve user awareness.
- Citation management support continues to be a top priority for graduate students (in line with previous survey results). After the 2016 Triennial Survey, additional assessment was conducted to further develop Research Commons services in this area. Sciences liaisons and Research Commons staff can revisit this previous assessment work and consider ways to provide increased, targeted citation management tool support for STEM graduate students.
- Survey results indicate that STEM graduate students are often unsure about the support available to them from their departments or faculty advisors in terms of depositing their thesis/dissertation in the UW's Electronic Thesis and Dissertation (ETD) program. This finding is consistent with feedback from the Libraries' Graduate & Professional Student Advisory Committee after the 2016 survey (and Libraries staff experience in working with graduate students). There are opportunities to develop partnerships between SCP, liaisons, and the Graduate School to expand outreach to STEM graduate students on the UW's ETD program.
- Given the positive feedback about GSRI and other online offerings, it would be valuable to explore cross-departmental partnerships to enhance online/hybrid research support for STEM graduate students.
- STEM faculty have questions and concerns about Open Access and scholarly communication, and there are varying patterns of OA publishing across Colleges:

resources, communication, and outreach could help to expand awareness and support for the OA Policy among this group.

- Faculty comments about scholarly publishing and communication (including the cost of fees to publish, and the ways in which this may restrict options to those who do not have grant funds to pay the fees) could be useful to communicate more widely to UW partners and administration, and to advocate for funding to support OA publishing.
- A key area of interest for STEM faculty is in assistance with data management and sharing research data. STEM faculty were more likely to make their work available through a repository or website and make data sets available through repositories/websites. They also ranked assistance with depositing data in a repository as the service that would be most useful to their work. Further exploration of specific faculty needs could enhance services offered in collaboration between Libraries data services, liaisons, and external partners.
- Small-scale pilots and follow up assessments for STEM graduate students in the area of data visualization would be valuable in helping the Libraries learn more about specific needs and the kinds of support the Libraries and campus partners might provide.
- There is interest among faculty in support for assessing and communicating the impact of their research (also a top category from 2016), in particular support for citation metrics and communication research to the public. Targeted, small scale pilot efforts would help to flesh out these results and help to position the Libraries a critical partner in faculty's ability to understand and communicate research impact (a crucial element in the Faculty 2050 report).

Appendix 1: Results Breakdown By Department

STEM Graduate & Professional Student Priorities: College of Arts & Sciences - Natural Sciences

During the past year, have you…

Data shown in % who answered yes

	A & S							
	Amath	Biol	Chem	Math	Phys	Psych	SpHs	Stat
Externally funded research	33	78	83	27	71	61	48	53
Authored/co-authored article	27	67	62	40	38	61	28	41
Presented at conference	40	44	40	40	38	61	28	29
Work available through web	33	61	39	33	27	9	16	47
Work available through repository	20	28	13	53	29	22	4	35

What contribution does the UW Libraries make to your ability to…

Data shown a mean score of all responses on a 5-point scale.

	A & S							
	Amath	Biol	Chem	Math	Phys	Psych	SpHs	Stat
Academic success	3.9	4.1	4.4	4.4	4.0	4.4	4.1	4.3
Keep current	3.9	4.6	4.6	4.1	3.7	4.2	4.3	3.9
Productive researcher	4.2	3.9	4.4	4.4	3.8	4.3	4.4	4.3
Efficient use of time	4.0	3.6	4.2	4.2	3.6	4.1	4.4	4.4
Space to do work	3.5	1.9	3.1	3.0	2.8	3.3	3.4	3.4

Which of the following library services would be useful to your research and scholarly activity?

Data shown in % who made a selection.

	A & S							
	Amath	Biol	Chem	Math	Phys	Psych	SpHs	Stat
Strategies for monitoring lit	62	56	62	50	70	83	56	47
Citation management tools	46	50	50	21	47	61	80	27
Literature searches/reviews	38	17	28	71	40	52	60	53
Publishing issues	54	44	44	57	27	43	32	40
Electronic theses/diss.	38	61	66	36	37	30	20	47
Online professional identity	31	44	34	57	50	43	24	40
Data management	54	61	42	21	30	22	32	13

Are you currently working on/planning to produce a dissertation of thesis?

Data shown in % who answered "Yes."

A & S							
Amath	Biol	Chem	Math	Phys	Psych	SpHs	Stat
64	94	83	80	76	65	52	59

Does your department of faculty advisor provide guidance or training on:

Data shown in % who answered "Yes." Question only shown to those who are working on a thesis/dissertation.

	A&S							
	Amath	Biol	Chem	Math	Phys	Psych	SpHs	Stat
Disseminating research in publications	44	82	58	100	42	67	56	56
Open Access publishing options	33	29	21	17	8	17	22	22
Submitting your thesis/diss electronically	33	5	21	25	12	13	23	0

How important are the following library resources?

Data shown a mean score of all responses on a 5-point scale.

	A & S							
	Amath	Biol	Chem	Math	Phys	Psych	SpHs	Stat
Journal articles	4.7	5.0	4.9	4.9	4.7	5.0	4.9	4.8
Research databases	4.3	4.6	4.6	4.1	3.7	4.9	4.8	4.4
Books	4.0	4.0	3.6	4.2	4.0	3.3	3.4	3.7
Conference papers	3.7	4.0	3.1	3.7	3.5	3.0	3.5	3.5
Numeric/scientific data	3.7	3.7	3.2	2.6	3.5	3.6	3.4	3.4
Lab protocols	2.8	2.9	3.5	3.3	2.4	2.8	2.9	3.0

Which of the following digital research methods do you use in your research/coursework?

Data shown in %.

	Sci							
	Amath	Biol	Chem	Math	Phys	Psych	SpHs	Stat
Use 1/more of these	80	100	60	43	63	71	40	85
Data visualization	60	83	40	29	57	65	20	85
Data mining	40	50	16	0	27	18	0	77
3D printing/scanning/modeling	0	56	26	21	17	18	7	0
Editing, annotation, analysis of digital imag..	0	33	24	0	13	24	13	8
Computational text analysis	0	6	2	0	7	18	0	54
Web/digital publishing or digital storytelling	0	22	8	7	10	18	7	8
Virtual reality and simulation	0	17	6	0	13	12	7	0
Geospatial analysis	0	33	0	0	0	6	0	15

UW Libraries currently offers, or is considering offering, a variety of services to support digital scholarship work. Which of the following services would be useful to you?

Data shown in % who responded "Yes." Question only provided to those who selected at least one response to "Which of the following digital research methods do you use in your research/coursework?" Respondents could select up to 3 categories in this question. Minimum of 10 respondents.

		Sci			
	Bio	Chem	Phys	Psych	Stat
Technology infrastructure	61	83	63	67	36
Workshops/tutorials	72	53	47	50	27
Availability of digital content	28	30	32	42	55
Referral services	17	30	26	25	45
Physical spaces	22	17	42	25	36
Consultation services	33	7	32	33	9
Events that showcase DS projects	6	3	21	8	18

STEM Graduate & Professional Student Priorities: College of Engineering

During the past year, have you…

Data shown in % who answered yes

					Eng				
	AA	BioE	ChemE	CivE	CSE	EE	HCDE	MechE	MSE
Externally funded research	64	86	58	39	54	56	15	55	69
Presented at conference	25	41	42	32	43	49	20	30	31
Authored/co-authored article	37	52	17	34	29	26	30	26	44
Work available through web	42	17	17	25	45	36	25	26	31
Work available through repository	29	14	8	9	33	26	10	11	13

What contribution does the UW Libraries make to your ability to…

Data shown a mean score of all responses on a 5-point scale.

					Eng				
	AA	BioE	ChemE	CivE	CSE	EE	HCDE	MechE	MSE
Academic success	4.4	4.3	4.3	4.0	3.8	4.4	3.9	4.0	4.1
Keep current	4.3	4.5	4.4	3.7	3.7	4.1	3.8	3.8	4.0
Productive researcher	4.5	4.3	4.2	4.0	3.5	4.3	3.6	3.8	3.9
Efficient use of time	4.4	4.2	4.2	4.0	3.6	4.2	3.7	3.9	3.9
Space to do work	4.1	2.6	3.3	3.7	2.9	3.9	3.6	4.0	3.4

Which of the following library services would be useful to your research and scholarly activity?

Data shown in %.

					Eng				
	AA	BioE	ChemE	CivE	CSE	EE	HCDE	MechE	MSE
Citation management tools	52	63	48	61	51	71	43	46	47
Strategies for monitoring lit	65	67	61	49	49	46	50	54	40
Literature searches/reviews	52	44	43	46	38	46	50	60	80
Publishing issues	57	59	65	29	38	57	29	42	27
Data management	39	33	61	41	36	46	43	38	40
Electronic theses/diss.	57	30	39	32	31	49	36	42	7
Online professional identity	39	41	30	39	23	29	21	27	27

Are you currently working on/planning to produce a dissertation of thesis?

Data shown in % who answered "Yes."

		Eng						
AA	BioE	ChemE	CivE	CSE	EE	HCDE	MechE	MSE
80	86	79	50	65	55	35	65	56

Does your department of faculty advisor provide guidance or training on:

Data shown in % who answered "Yes." Question only shown to those who are working on a thesis/dissertation.

			Eng					
	AA	BioE	ChemE	CivE	CSE	EE	HCDE	MechE	MSE
Disseminating research in publications	58	65	53	47	52	55	0	59	60
Open Access publishing options	17	44	40	47	26	20	0	29	20
Submitting thesis/diss electronically	10	42	32	41	20	33	14	29	0

How important are the following library resources?

Data shown a mean score of all responses on a 5-point scale.

			Eng					
	AA	BioE	ChemE	CivE	CSE	EE	HCDE	MechE	MSE
Journal articles	4.8	5.0	4.8	4.6	4.2	4.6	4.4	4.6	4.9
Research databases	3.9	4.6	4.7	4.5	3.8	4.5	4.2	4.2	4.6
Books	4.2	3.1	3.2	3.9	3.0	4.3	3.8	3.9	3.9
Conference papers	4.3	3.6	3.2	3.9	4.7	4.5	4.1	4.1	3.8
Numeric/scientific data	3.4	3.6	3.2	3.7	3.9	4.0	3.6	3.5	3.9
Lab protocols	3.1	4.0	3.5	2.7	2.7	3.4	3.0	3.3	3.7

Which of the following digital research methods do you use in your research/coursework?

Data shown in %.

			Eng					
	AA	BioE	ChemE	CivE	CSE	EE	HCDE	MechE	MSE
Use 1/more of these	78	71	68	80	73	75	79	76	67
Data visualization	52	64	40	52	57	53	63	41	33
3D printing/scanning/modeling	35	29	36	9	32	39	53	54	60
Editing, annotation, analysis of digital imag..	26	43	24	11	23	22	53	17	33
Data mining	9	25	16	23	35	36	16	15	20
Virtual reality and simulation	26	4	6	16	33	25	42	17	13
Web/digital publishing or digital storytelling	13	22	8	7	23	14	53	13	13
Computational text analysis	0	0	2	0	40	19	32	9	20
Geospatial analysis	13	0	0	52	8	6	11	7	0

UW Libraries currently offers, or is considering offering, a variety of services to support digital scholarship work. Which of the following services would be useful to you?

Data shown in % who responded "Yes." Question only provided to those who selected at least one response to "Which of the following digital research methods do you use in your research/coursework?" Respondents could select up to 3 categories in this question. Minimum of 10 respondents.

	AA	BioE	ChemE	CivE	Eng CSE	EE	Hcde	MechE	MSE
Technology infrastructure	94	65	60	71	76	56	60	66	80
Workshops/tutorials	28	65	53	63	28	33	47	46	50
Physical spaces	28	10	27	40	24	44	53	49	30
Referral services	39	15	53	31	28	19	33	31	30
Availability of digital content	33	30	20	20	55	37	33	23	20
Consultation services	17	40	20	11	14	11	20	11	40
Events that showcase DS projects	0	10	13	6	7	7	0	11	10

STEM Graduate & Professional Student Priorities: College of the Environment

During the past year, have you…

Data shown in % who answered yes

	Env					
	ASF	Atmos	EFS	ESS	Mar	Ocean
Externally funded research	73	75	48	81	37	95
Presented at conference	65	58	52	81	21	73
Authored/co-authored article	59	58	38	63	37	82
Work available through web	32	33	41	38	21	32
Work available through repository	23	8	3	25	0	18

What contribution does the UW Libraries make to your ability to...

Data shown a mean score of all responses on a 5-point scale.

|	Env					
	ASF	Atmos	EFS	ESS	Mar	Ocean
Academic success	4.3	4.5	4.3	4.6	4.7	4.6
Keep current	4.4	4.7	4.3	4.6	4.4	4.3
Productive researcher	4.1	4.3	4.2	4.5	4.3	4.6
Efficient use of time	4.0	4.1	3.9	4.2	4.2	4.4
Space to do work	2.4	2.8	3.0	2.1	3.8	3.2

Which of the following library services would be useful to your research and scholarly activity?

Data shown in % who made a selection.

	Env					
	ASF	Atmos	EFS	ESS	Mar	Ocean
Strategies for monitoring lit	48	83	52	67	42	77
Citation management tools	61	75	59	40	58	45
Data management	61	50	62	53	47	59
Electronic theses/diss.	61	42	62	33	32	68
Publishing issues	43	42	62	47	58	45
Online professional identity	43	33	38	53	47	41
Literature searches/reviews	13	25	32	33	63	32

Are you currently working on/planning to produce a dissertation of thesis?

Data shown in %.

	Env					
	ASF	Atmos	EFS	ESS	Mar	Ocean
	96	92	93	94	63	95

Does your department or faculty advisor provide guidance or training on:

Data shown in % who answered "Yes." Question only shown to those who are working on a thesis/dissertation.

	Env					
	ASF	Atmos	EFS	ESS	Mar	Ocean
Disseminating research in publications	69	60	33	69		52
Open Access publishing options	46	60	27	15		19
Submitting thesis/diss electronically	9	0	7	0	42	10

How important are the following library resources?

Data shown a mean score of all responses on a 5-point scale.

	Env					
	ASF	Atmos	EFS	ESS	Mar	Ocean
Journal articles	5.0	5.0	4.9	5.0	5.0	5.0
Research databases	4.5	4.2	4.3	3.7	4.1	4.4
Books	3.8	3.6	3.7	4.1	3.6	4.0
Conference papers	3.4	3.3	3.0	3.6	3.3	3.6
Numeric/scientific data	3.7	3.6	3.2	3.6	3.6	3.8
Lab protocols	2.9	2.2	2.7	2.6	2.2	2.7

Which of the following digital research methods do you use in your research/coursework?

Data shown in %.

	Env					
	ASF	Atmos	EFS	ESS	Mar	Ocean
Use 1/more of these	78	92	93	87	64	86
Data visualization	57	92	75	50	36	67
Geospatial analysis	52	67	86	63	50	48
Editing, annotation, analysis of digital imag..	17	17	18	31	7	19
Data mining	22	8	18	19	7	24
Web/digital publishing or digital storytelling	9	17	25	0	7	24
Computational text analysis	13	0	14	6	21	5
3D printing/scanning/modeling	13	8	4	6	0	10
Virtual reality and simulation	4	0	0	13	0	0

UW Libraries currently offers, or is considering offering, a variety of services to support digital scholarship work. Which of the following services would be useful to you?

Data shown in % who responded "Yes." Question only provided to those who selected at least one response to "Which of the following digital research methods do you use in your research/coursework?" Respondents could select up to 3 categories in this question. Minimum of 10 respondents.

			Env		
	ASF	Atmos	EFS	ESS	Ocean
Technology infrastructure	39	55	46	79	56
Workshops/tutorials	50	55	50	21	89
Consultation services	50	27	46	36	39
Referral services	28	27	27	36	39
Availability of digital content	44	27	38	36	6
Physical spaces	11	36	38	14	33
Events that showcase DS projects	0	18	8	7	0