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PRACTICE

SHARPGrads: Development and Assessment of a Research Skills Workshop Program for Graduate Students at the University of South Carolina

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INTRODUCTION Academic libraries are placing increasing emphasis on the provision of instruction for graduate students in non-traditional research skills and competencies such as scholarly communication concepts, data management and visualization, and text mining. Since proficiency in these concepts is often expected of graduate students but training may not be offered in the classroom, the library is a natural home for such instruction. **DESCRIPTION OF PROGRAM** Librarians at the University of South Carolina created a two-day workshop series for graduate students called SHARPGrads. This paper describes the planning process, survey method used to develop and assess the program, and findings obtained from attendance and survey responses. A successful collaboration with the university's Graduate School led to higher than expected registration. Post-assessment feedback demonstrates that targeting training to graduate students early in their program of study is advantageous. Furthermore, students in social sciences and humanities disciplines reported that SHARPGrads met their expectations to a higher degree than students in the sciences and health sciences. Although a number of survey respondents reported that the training program was too short, participant retention during day two of the program dropped significantly. **NEXT STEPS** An evaluation of the range of second day training opportunities is considered for the next iteration of the program. Results taken from this study and recommendations for future programs will be useful for librarians involved in the development and implementation of workshops for graduate students.

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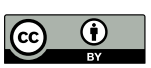


INTRODUCTION

The University of South Carolina System, consisting of eight campuses, is the largest higher education system in South Carolina. As its flagship campus, The University of South Carolina—Columbia is the largest research institution in the state, offering over 320 degree programs with an enrollment of approximately 21,000 undergraduate and 8,000 graduate students. University Libraries at the University of South Carolina serves the Columbia campus and is a primary center for learning, discovery, and the exchange of information.

In 2019, the University Libraries at the University of South Carolina (UofSC) established a new department called Digital Research Services (DRS), which supports faculty and students in the increasingly digital environment in which research is performed and disseminated. To effectively support this mission, DRS librarians conducted campus-wide conversations to understand the needs of researchers. Through this outreach, DRS librarians became aware that their department might be a natural home for graduate student training in non-traditional library skills, such as research data management, data visualization, digital projects, and text mining.

To fulfill graduate student training needs for emerging research skills, DRS librarians investigated workshops planned and implemented by other libraries. Following this preliminary literature review, the librarians formulated a plan to deliver a workshop series. In this paper, the authors will discuss relevant literature that led to the development and, ultimately, the assessment of a boot camp-style workshop series designated the SHARPGrads Program. In addition, logistics for the creation and implementation of the workshop series will be discussed. Details of specific considerations, including the content and timing, branding, and promotion of the event will be provided. Finally, the authors will provide an assessment of the workshop and considerations for librarians planning similar events.

LITERATURE REVIEW

While there is an abundance of published literature on creating and implementing library-sponsored workshops for graduate students, the authors have selected to review a subset that was the most influential in developing the workshops offered through the UofSC Libraries. Each of these works contributed to decisions that led to the structure and content of the SHARPGrads program. These studies are current and focus on the changing nature of graduate student education, workshops offered as multiple sessions, campus collaboration, and on making timing and content-based workshop determinations.

In recent years, the literature reflects upon an increasing focus in academic librarianship on creating quality, skills-based library training for graduate students. The library training needs of this population of students is changing as graduate students become ever more aware of the need to develop marketable skills not typically addressed within the curriculum of their graduate programs (Fong, Wang, White,& Tipton, 2016). Boot camp and series-style workshop programs have gained attention as effective means to train graduate students. Peacemaker and Rosebery (2017) described an increase in attendance that resulted from moving an existing a la carte graduate student workshop program to a day-long event. After repackaging standalone workshops at Cornell University into immersive three- or four-day bootcamps, Eldermire, Johns, Newberry, and Cole (2019) commented that "participants gain skills that help them to save time, boost organization, and develop a competitive edge as students and potential job applicants" (p. 394). They explained that this multi-day format provides students with a more comprehensive picture of the research process than traditional workshops.

Scheduling a training session can be one of the more difficult aspects of planning a workshop series and must be done with consideration of the availability of students, librarians, and other presenters. Eldermire noted that sessions scheduled even a few days too early or late can affect the availability of relevant stakeholders. Fong (2019) observed that events held outside of the regular semester can be easier for busy graduate students to attend. The author also stated that events scheduled during the evening are a popular choice for this population.

To understand and serve the needs of graduate students, many librarians choose to collaborate with other departments and groups across an institution. Critz et al. (2012) partnered with a newly formed Library/Faculty Advisory Board and the Graduate Student Government Association to identify and implement initiatives, including workshop series, to help students develop necessary research skills.

Library training is commonly offered to graduate students in the form of workshops. Traditionally covered topics include advanced searching, literature review, and citation management. Librarians also offer skill-based workshops such as conference poster creation and information visualization (Renfro & Shields, 2017). As they have sought to address the curriculum gaps in students' graduate programs, librarians have explored which topics are most in demand. O'Malley and Delwiche (2012) interviewed faculty to solicit recommendations for reshaping the library's existing instruction program. A clear faculty preference for a more practical workshop series emerged, with a strong emphasis on hands-on practice for mastering new skills. Graduate students, too, have shown a preference for workshops that deliver immediate practical value over those with a more theoretical focus, as discussed

by Lorente and Rempel (2019). The authors explored this trend by examining five years of workshop registration data from Oregon State University. After categorizing workshops into two groups, tool-based and theory-based, they determined that registration for tool-based workshops tends to be higher than for theory-based workshops.

The literature illustrates that libraries have found useful strategies to meet the ever-evolving needs of graduate students by offering relevant content packaged as workshops. In recent years, a shared understanding of this population's specific needs has dictated a focus on timing and skills-based learning. The insights gleaned from these practical studies strongly influenced the development of the SHARPGrads program.

DESCRIPTION OF PROGRAM

In August of 2019, Digital Research Services developed a pilot research skills boot camp for graduate schools and new faculty. This event, the forerunner of the SHARPGrads Program, was attended by 24 people, made up of 22 graduate students and two faculty members. This free, two-day program ran from 10:00 am until 2:00 pm each day. Lunch and snacks were provided. Feedback was encouraging, with 91% of attendees reporting that they would recommend the workshop to colleagues and many positive responses from attendees, such as "Great workshop! Thanks for doing this. Already have recommended to a colleague." and "Thank you so much for this workshop. I am so happy that I learn *[sic]* this service when I am in my second semester of PhD." This feedback suggested that a regularly offered event was desirable. It was decided that limiting participation at future events to graduate students might lead to a higher level of comfort for attendees and better learning outcomes. Once the decision to create a viable workshop series for graduate students was made, planning began to occur on several fronts. Content and timing, branding, and promotion were each considered to be important components of the planning stage for the workshop series that would become SHARPGrads.

Content and Timing

From the beginning of the project, it was agreed that the workshop series should focus on skills and concepts that would make graduate students competitive in the job market and improve their ability to conduct research. For that reason, there was a heavy emphasis on data skills, such as data management, data analysis, data visualization, and text mining and content modeling. Scholarly communications skills, such as curating an online research presence, understanding author rights, and avoiding predatory publishers were also seen as significant. Citation management software training is an evergreen need at the University of South Carolina, so it was felt that a session on Zotero was in order.

Existing programs, such as Cornell's disciplinary immersion boot camps described by Eldermire, Johns, Newberry, & Cole, (2019) were examined as possible models. It was decided that at least one discipline-specific workshop should be made available to participants. DRS collaborated with the department of Research & Instruction, which houses the Liaisons program and provides most of the classroom instruction offered by University Libraries. For SHARPGrads, discipline-specific programming was broken up into four categories of study: Natural and Applied Sciences, Social Sciences, Health Sciences, and Humanities. A liaison from each of these general areas was contacted about providing a session. Participating liaison librarians each opted to teach a literature review session in their discipline. It was acknowledged that attempting these sessions within such broad categories of study would be imperfect but was a reasonable starting point.

A total of 14 SHARPGrads sessions were planned. To keep the duration of the program to two days, a breakout session format was selected. Students would need to choose between two sessions during each hour period. Although the planning group was unsure of how students would feel about having to choose, it was assumed that not all sessions would be of interest to all participants. Furthermore, several of the workshops are given regularly throughout the semester, offering other opportunities to take part. It was hoped that these factors would help guide students when making decisions about which sessions to attend. Students were invited to bring project ideas for an Open Lab period at the end of each day where they could spend time working one-on-one with the instructors of the sessions they'd attended (see Figure 1).

Timing was an important consideration. It was decided that the first SHARPGrads event would happen over a two-day period after the end of the fall semester, but before the December commencement exercise. It was anticipated that many graduate students would be finished teaching and taking courses and would, therefore, be available to participate.

The planning team was informed by the UofSC Graduate School that it is common for approximately half of registered graduate students to attend free programming. Because the rooms being used for programming held between 30 and 40 students, and each student would choose between one of two breakout sessions in any given hour, it was determined that registration would be capped at 50 students. During registration, students were asked to select the session they would be most likely to attend during each breakout session. Participants were free to change their mind during the event, but it was hoped that having this initial estimate would ensure that large enough rooms were reserved for each session.

Schedule

Day 1 December 12	Room 118 (Level 1 Thomas Cooper Library)	Room 304 (Level 3 Thomas Cooper Library)
9:00 - 9:15 Welcome - Everyone in Hollings Library Program Room		
9:30 - 10:00	Introduction to Open Science Framework	Predatory Publishers
10:10 - 11:00	Basics of Research Data Management	Creating an Online Research Presence
11:10 - 12:00	Introduction to Text Mining and Topic Modeling	Citation Management Software and Zotero
12:00 - 1:30 Lunch on your own		
1:30 - 2:20	Data Visualization - Basic Principles and Hands-on	Data Management Plans and DMPTool
2:30 - 3:00	Open Lab - practice what you've learned	
Day 2 December 13		
9:00 - 10:00	Introduction to REDCap	Digital Projects
10:10 - 11:00	Research Tips and Techniques for Your Literature Review: Health Sciences	Research Tips and Techniques for Your Literature Review: Education and Social Sciences
11:10 - 12:00	Research Tips and Techniques for Your Literature Review: Humanities	Research Tips and Techniques for Your Literature Review: Natural and Applied Sciences
12:00 - 12:15	Wrap up	
12:15 - 3:00 Lunch on your own	Open Lab - practice what you've learned	

Figure 1. LibGuides SHARPGrads schedule

Branding

Creating a name for the program was more challenging than anticipated. Several ideas were investigated, only to be found that they were already in use at other institutions. The planning group settled on Skills, Habits, and Research Program for Graduate Students at the University of South Carolina, or SHARPGrads.

After the name was selected and a simple logo was created, work began on designing a certificate of achievement that could be given to participants attending four or more workshops. Because the first iteration of SHARPGrads was being planned during the last two days of final exams, participants weren't required to attend all available sessions since they might have a final to attend (as a student or instructor), which would realistically mean missing at least two sessions. It was ultimately decided that participants who attended a simple majority (four of the seven possible breakout session times) would be eligible to receive the certificate. In the beginning it was unclear to the planning team whether participants would care about the certificate, but it was found that almost everyone attended at least the minimum number required, so it is likely that the certificate played a role in retaining students throughout the two-day event.

To ensure that the certificate met all university guidelines with regards to wording, the planning team worked with the university's Office of Continuing Education. Rules about certificates of completion or achievement may vary by institution, and librarians wishing to create a similar program should consult with the corresponding office at their own school.

Promotion

In addition to the collaboration with the Research & Instruction Department on offered content, the planning group felt that cooperating with the university's Graduate School would lend authority to the event and help with promotion. The idea of SHARPGrads was met with enthusiasm by the Graduate School, which supplied the library with door prizes and helped promote the event through their Professional Development Programming listserv. Within one hour of sending the Graduate School listserv email, all available spaces were taken and within 24 hours it was decided that the registration form should be removed from the guide because the waiting list had grown too long. In all, 146 students registered for 50 spaces. While librarians initially expected to need to be proactive in outreach to garner the desired attendance based on the experience gained from the previously held summer boot camp, it became clear that the Graduate School's endorsement lent significant credibility to the event. The planning team was slightly shocked but happy that graduate students were so interested in the event and spent the next several weeks in preparation.

Registration Form

A Google Form linked from the SHARPGrads website was used to register students for the event. Registering students were asked for contact information to allow the planning team to connect with them via email ahead of the event. They were also asked to make preliminary choices for each breakout session for room planning purposes.

The form included a request for permission to photograph students during the event and several respondents answered no. It was decided that two colors of nametag would be made available to participants: blue for those who gave permission to be photographed and red for those who did not. This worked well and, in the future, the planning team will not include the question on the registration form, opting instead to allow student to select the nametag of their choice.

Maintaining Contact

In order to maximize attendance, DRS librarians formulated a closely regulated procedure to maintain contact with registrants and those on the waiting list. After closing the registration form, a member of the planning team created two contact groups within the shared DRS email account in Microsoft Outlook. The first group, those whose attendance was confirmed, received a confirmation email and calendar invitations for the events. Importantly, a reminder was included to contact the planners if the registrant was no longer able to attend to allow a student on the waiting list to register.

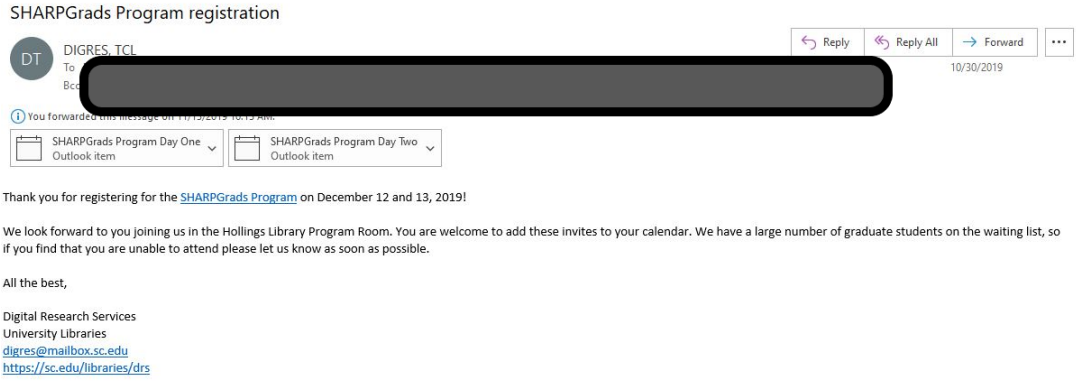
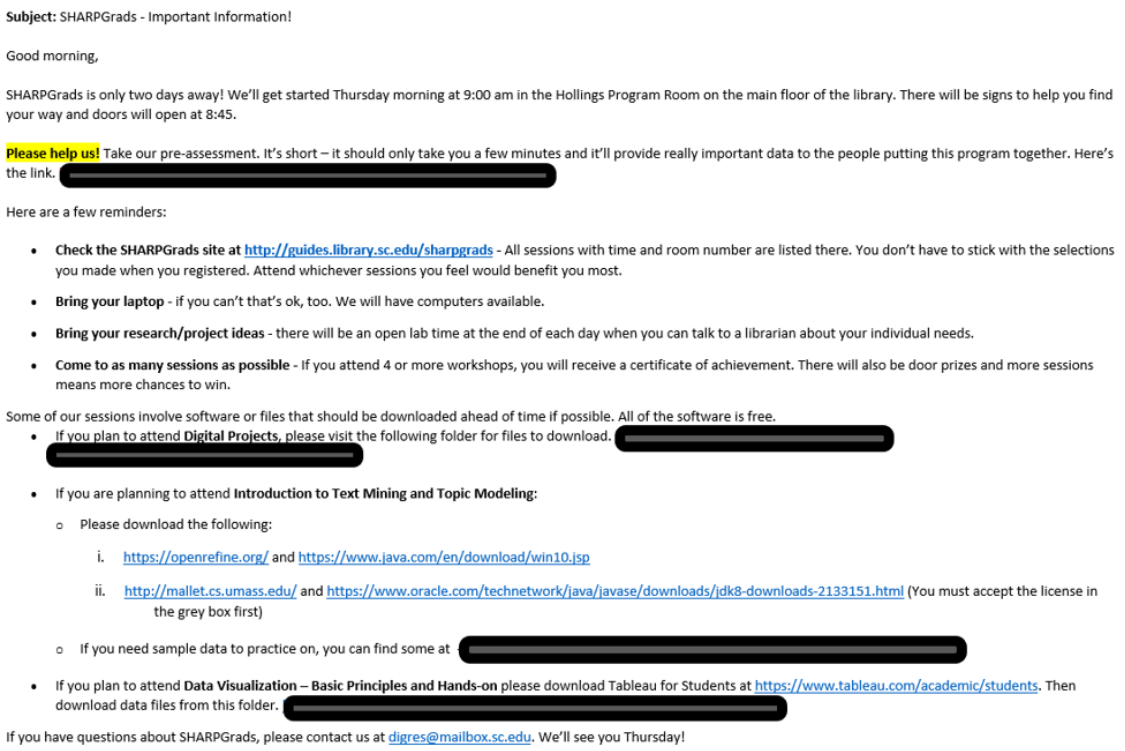


Figure 2. SHARPGrads registration confirmation

A separate email was sent to those who were assigned to the waiting list to let them know that if a space became available, they would be notified as soon as possible. As students notified the planners that they would no longer be able to attend, a librarian removed their name from the initial registered and contact list and emailed the person in the next waiting spot to alert them to their new position. This person was moved from the waiting list in Outlook to the registered list.

In the meantime, as turnover from the waiting list to the registration list was carefully handled, a second librarian sent weekly reminders to registrants. These reminders included

links to the pre-assessment survey and instructions for workshop preparation, such as software and data to be downloaded in advance to maximize session time.



Subject: SHARPGrads - Important Information!

Good morning,

SHARPGrads is only two days away! We'll get started Thursday morning at 9:00 am in the Hollings Program Room on the main floor of the library. There will be signs to help you find your way and doors will open at 8:45.

Please help us! Take our pre-assessment. It's short – it should only take you a few minutes and it'll provide really important data to the people putting this program together. Here's the link. [redacted]

Here are a few reminders:

- **Check the SHARPGrads site at** http://guides.library.sc.edu/sharpgrads - All sessions with time and room number are listed there. You don't have to stick with the selections you made when you registered. Attend whichever sessions you feel would benefit you most.
- **Bring your laptop** - if you can't that's ok, too. We will have computers available.
- **Bring your research/project ideas** - there will be an open lab time at the end of each day when you can talk to a librarian about your individual needs.
- **Come to as many sessions as possible** - If you attend 4 or more workshops, you will receive a certificate of achievement. There will also be door prizes and more sessions means more chances to win.

Some of our sessions involve software or files that should be downloaded ahead of time if possible. All of the software is free.

- If you plan to attend **Digital Projects**, please visit the following folder for files to download. [redacted]
- If you are planning to attend **Introduction to Text Mining and Topic Modeling**:
  - Please download the following:
    i. https://openrefine.org/ and https://www.java.com/en/download/win10.jsp
    ii. http://mallet.cs.umass.edu/ and https://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html (You must accept the license in the grey box first)
  - If you need sample data to practice on, you can find some at [redacted]
- If you plan to attend **Data Visualization – Basic Principles and Hands-on** please download Tableau for Students at https://www.tableau.com/academic/students. Then download data files from this folder. [redacted]

If you have questions about SHARPGrads, please contact us at digres@mailbox.sc.edu. We'll see you Thursday!

Figure 3. SHARPGrads important information email

The process of maintaining contact was seamless and not overly burdensome for any one individual but did prove somewhat time-consuming. The planners felt confident that the regular outreach provided to registrants would allow for the attendance of as many graduate students as possible, minimize unexpected absences, and allow attendees to come prepared for the workshop sessions offered.

Pre-Assessment Survey

The planners recognized that understanding student knowledge levels and expectations before the event would be helpful in shaping session content. To obtain this information, DRS librarians developed an anonymous, Institutional Review Board-exempt survey to administer to registrants before the start of the event. Students were asked to provide their major or discipline and the type of degree they were pursuing. Additionally, students were asked to report their familiarity with content to be taught in SHARPGrads. The possible

responses ranged from "very knowledgeable" to "not knowledgeable at all." Each topic included a session description to assist students in making an appropriate determination of their knowledge.

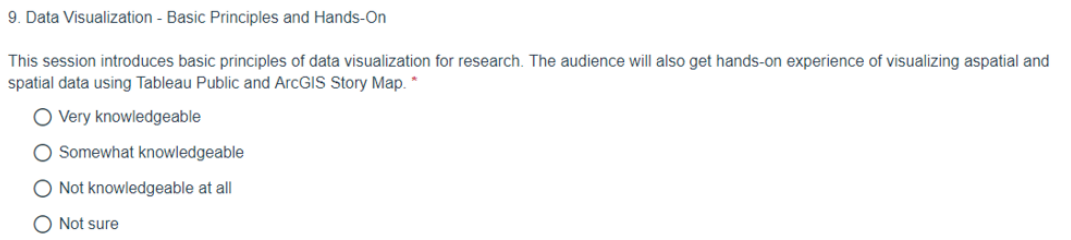


Figure 4. Example question from pre-assessment survey

Finally, the pre-assessment survey asked what skills students were the most interested in learning and provided an opportunity to share any additional information that the librarians should know. These written responses could potentially help the planners determine whether any content should be adjusted in advance of the event.

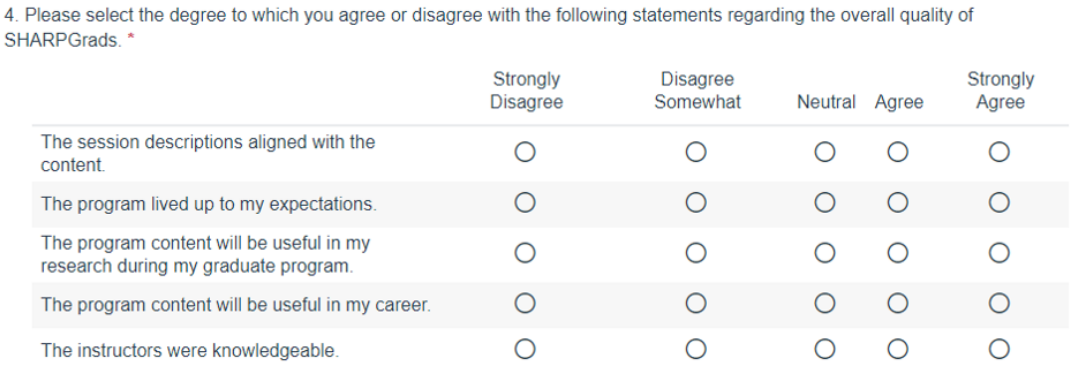
A public link to the survey instrument was created and was sent via email to all registered SHARPGrads participants. This link and a request to complete the survey were included in each email sent to students before the event occurred.

Post-Assessment Survey

The planning team developed a post-assessment survey to evaluate whether students felt they'd benefitted from attending SHARPGrads. Since participants would be asked to complete the survey during the winter break, it was intentionally short and was not expected to provide a full assessment of the program. Because of the tight schedule during SHARPGrads, it was also decided that there was not time for pre- and post-testing of content, which would have provided additional insights into the value of the sessions. This is being considered for the future.

As with the pre-assessment survey, two preliminary questions asked students to provide their major or discipline and the type of degree they were pursuing. Additionally, the survey requested that students respond how far into their degree programs they were, which the planners hypothesized may influence the extent to which the SHARPGrads program was useful. Of interest was the overall response to the full program, including whether the workshop series lived up to student expectations and would be useful both during the students'

degree programs and future careers. The DRS librarians provided a series of statements for which students were asked to provide the extent to which they agreed or disagreed using a Likert scale.



4. Please select the degree to which you agree or disagree with the following statements regarding the overall quality of SHARPGrads. *

	Strongly Disagree	Disagree Somewhat	Neutral	Agree	Strongly Agree
The session descriptions aligned with the content.	○	○	○	○	○
The program lived up to my expectations.	○	○	○	○	○
The program content will be useful in my research during my graduate program.	○	○	○	○	○
The program content will be useful in my career.	○	○	○	○	○
The instructors were knowledgeable.	○	○	○	○	○

Figure 5. Example question from post-assessment survey

Questions about satisfaction with program length and timing during the semester were included on the post-assessment. Responses will help librarians better plan around graduate student schedules in the future.

To determine whether students felt they'd learned something new as a result of attending SHARPGrads, they were asked to select all sessions they'd attended from a list. For each one selected, the instrument revealed a new question that asked students to choose the degree to with they agreed or disagreed with a statement using a Likert scale response: "My level of knowledge about [session title] increased as a result of this session." The individual session feedback will help the planning team adjust content to make it more useful for attendees the next time the program is held (see Figure 6).

Because of the limited time available to graduate students, librarians knew it was imperative to offer practical sessions to make attendance worthwhile. With this feedback, librarians hoped to determine which sessions garnered enough interest to offer in the future and which could potentially be removed from the schedule to make room for other offerings. The individual session feedback would allow librarians to adjust the session content to make it more useful for attendees. With this data, librarians hoped to understand which sessions were poorly attended and could be eliminated, while positing that sessions that were well attended but received poorer feedback could be adjusted to improve effectiveness. While librarians intended to calculate which students would receive a SHARPGrads Certificate by consulting the sign-in sheets from each session, students also answered whether

they had attended enough sessions to obtain the certificate (at least four). This information, paired with the feedback regarding the overall quality of the program, could inform librarians as to whether attendance could potentially affect program satisfaction and other outcomes.

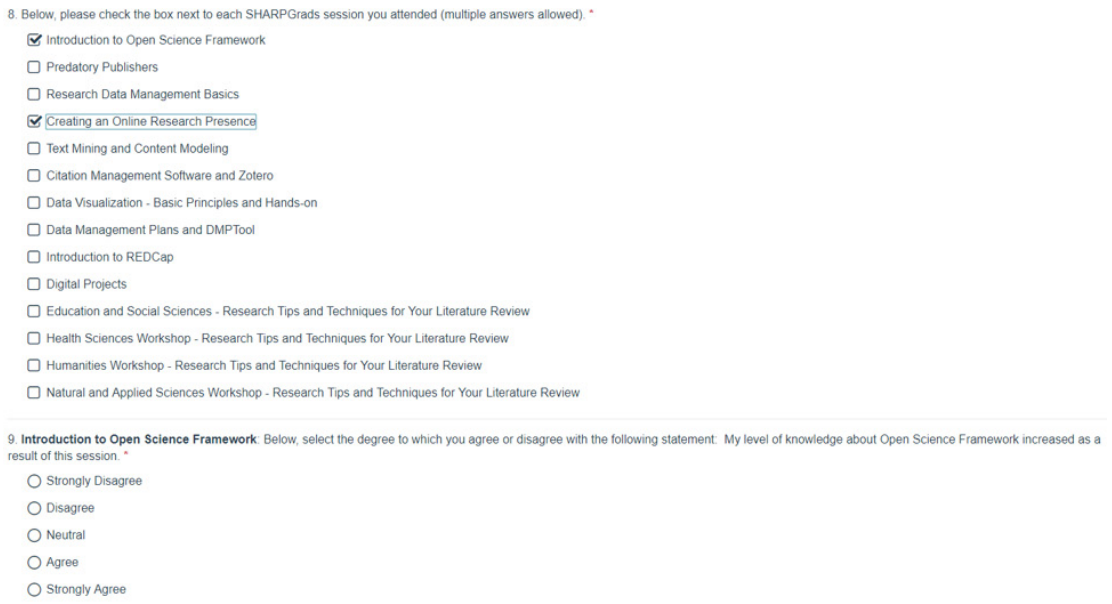


Figure 6. Example question requesting session feedback

Finally, students were asked to complete two open-ended responses requesting suggestions for program improvement and for general comments. Data trends drawn from these written responses could provide valuable insights for improving future SHARPGrads programs by allowing students to share any thoughts or ideas that didn't fit into the more structured questions of the survey.

While, ultimately, data collected from the post-assessment survey was intended to shape future workshops for graduate students held by the University of South Carolina Libraries, DRS librarians considered that the information could prove valuable to other academic libraries hoping to create programs with similar goals. Equipped with this initial assessment data, stakeholders from peer libraries may be able to glean insights into the curricular needs of the graduate student populations they hope to serve.

SHARPGrads Attendance

Total registration for SHARPGrads included 80 students on the registered list and 51 on the waiting list. Of those registered, a total of 42 Masters and PhD students (52.5 % of registrants) attended at least one SHARPGrads workshop session. Participation ranged across many departments and through all colleges within the University. Because SHARPGrads was scheduled during the last two days of final exams, it was anticipated that some students would come and go as their schedules and level of interest in the workshops offered during any of the breakout sessions allowed. Of the 42 SHARPGrads participants, 34 (81%) attended 4 or more workshops, earning the Certificate of Achievement.

Attendance taken in the classrooms indicated that the most well-attended session was Introduction to Open Science Framework, with 30 of 42 students (71%) attending, followed by Introduction to Text Mining and Topic Modeling, with 24 of 42 students (57%) in attendance. The two least-attended sessions were the Humanities Workshop, with 4 of 42 attendees (9.2%) and Natural and Applied Sciences, with 2 of 42 attendees (4.8%). However, there are several factors that could potentially have influenced attendance beyond the perceived use of the session. Because students had to choose between two options each hour, high attendance rates in certain sessions inevitably led to lower attendance rates of other sessions held simultaneously. The time that the sessions were held may have influenced participation, as lower attendance was reported at sessions held later in the day and on the second day of the program, when only 50% of Day 1 attendees took part.

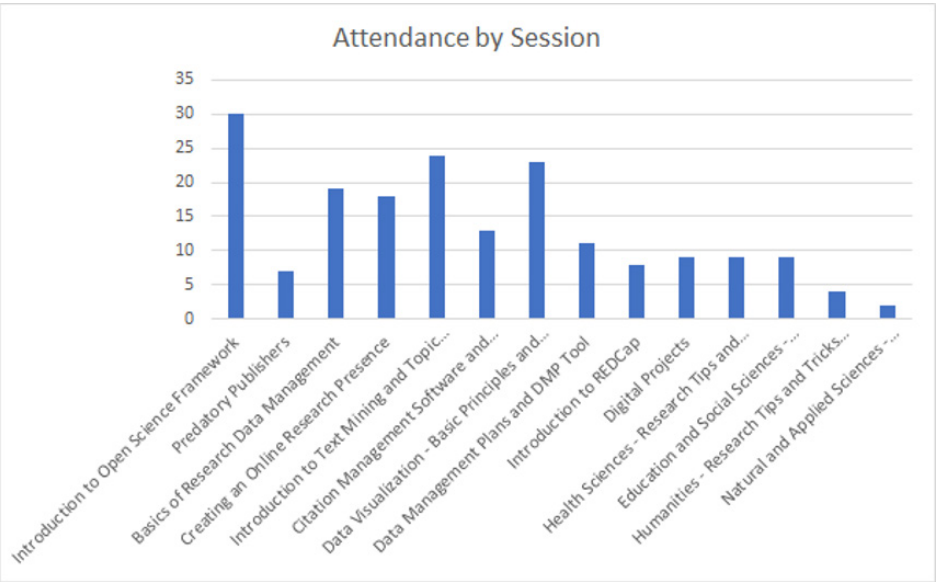


Figure 7. Session attendance

Feedback

Eighteen students, or 43% of SHARPGrads participants, completed the post-assessment survey. Several solicitations for survey participation were made, the first of which was paired with an announcement of door prize winners. It was hoped that students would be more likely to read and respond to the request if it were accompanied by the prize announcement. A follow-up survey participation solicitation was sent out along with the Certificates of Achievement, which were emailed. Although a higher response rate would have made the post-assessment more valuable, it did allow for some insight into the program.

All but one survey respondent (17 students, or 94.4%) reported that they were in a PhD program. The remaining student was enrolled in a master's program. Respondents were enrolled in a large variety of majors or disciplines.

Figure 8. SurveyGizmo-generated word cloud: survey responders' majors or disciplines

When evaluating whether attending more sessions correlated positively with the degree to which SHARPGrads program expectations were met, librarians examined responses from survey respondents who earned a Certificate of Achievement. Of these recipients, 9 of 15 agreed or strongly agreed (60%) that SHARPGrads met their expectations.

Likert scale questions about the overall quality of the SHARPGrads program resulted in generally favorably feedback. When asked whether session descriptions aligned with the content, 15 of 18 respondents (83.3%) agreed or strongly agreed. Similarly, 15 students (83.3%) agreed or strongly agreed that the program content would be useful in research during their graduate programs. The same response was received when students were asked if the program content would be useful in their careers. Sixteen respondents (88.9%) agreed or strongly agreed that the instructors were knowledgeable. When asked if the program lived up to expectations, 11 students (61.1%) agreed or strongly agreed. This result, while disappointing, was enlightening and will inform future iterations of the program.

4. Please select the degree to which you agree or disagree with the following statements regarding the overall quality of SHARPGrads.

	Strongly Disagree	Disagree Somewhat	Neutral	Agree	Strongly Agree	Responses
The session descriptions aligned with the content.						
Count	1	1	1	9	6	18
Row %	5.6%	5.6%	5.6%	50.0%	33.3%	
The program lived up to my expectations.						
Count	1	2	4	7	4	18
Row %	5.6%	11.1%	22.2%	38.9%	22.2%	
The program content will be useful in my research during my graduate program.						
Count	1	1	1	9	6	18
Row %	5.6%	5.6%	5.6%	50.0%	33.3%	
The program content will be useful in my career.						
Count	1	1	1	9	6	18
Row %	5.6%	5.6%	5.6%	50.0%	33.3%	
The instructors were knowledgeable.						
Count	1	0	1	7	9	18
Row %	5.6%	0.0%	5.6%	38.9%	50.0%	
Totals						
Total Responses						18

Figure 9. SurveyGizmo-generated chart: example post-assessment survey response

Responses to the questions about whether students felt their level of knowledge had increased as a result of attending the individual sessions were important to the planning team. As expected, certain sessions received more favorable feedback than others; however, the majority of attendees either agreed or strongly agreed that their level of knowledge improved for almost all sessions (see Figure 10).

Open-ended questions requesting suggestions for program improvement and for general comments resulted in numerous textual responses. The data trends received from these survey questions provide the program leads with insights into improving future SHARPGrads programs. Several responses mirrored one that stated, "Longer sessions that go more in-depth." Other attendees reported that providing more advanced instruction would be valuable. "I understand that the workshops were meant to be introductory, but it might be helpful to have intermediate section offerings (either within this workshop program or as a separate workshop)." Several responses suggested that more hands-on learning would be appreciated.

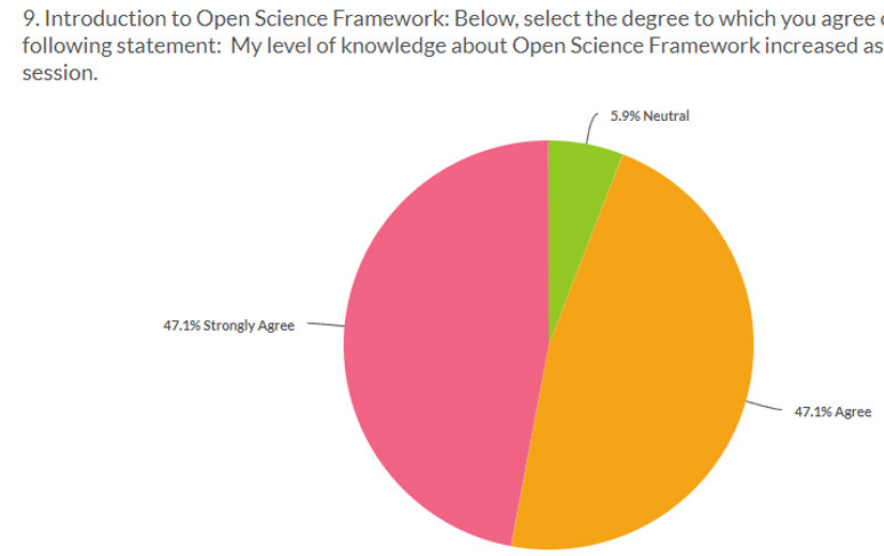


Figure 10. SurveyGizmo-generated chart: session feedback for Introduction to Open Science Framework

Many respondents provided appreciative feedback, noting that the program was informative and would be useful for future research. One pleased attendee shared that the program provided "incredibly helpful content. Maybe asking folks to attend with advisors could be a nice way to help some of this go to the many faculty that it should also go to." Other examples of positive responses included:

> "I appreciate the program. I feel better equipped to do research."
> "The workshop was a great initiative! Congratulations on creating and organizing it. I also appreciate the panelists/librarians' availability and willingness to help students outside the workshop."
> "Great job with the program! Thank you for organizing this very helpful and informative workshop."

This written feedback, along with other thoughtful responses, will shape future programming to be of greater usefulness for graduate students.

Further Analysis

Beyond the results generated by registration numbers and survey feedback, planning librarians analyzed several data points. The team was interested in finding out how overall satisfaction with SHARPGrads corresponded with progress made toward program comple-

tion (Just Beginning, Mid-Program, or Nearing Completion). They were also interested in finding out, in broad strokes, how overall satisfaction aligned with discipline of study. To do this, scores of zero to four were assigned to each of the survey answer selections. The survey prompt was "This program lived up to my expectations." Answer choices, with assigned numerical values, are *Strongly Disagree = 0, Disagree Somewhat = 1, Neutral = 2, Agree = 3, Strongly Agree = 4.* A tally of answer selections was counted for each variable and averaged. To determine if there was a correlation between how far along students were in their graduate programs and whether the SHARPGrads program met student expectations, librarians examined the average scores associated with each of the program progress points. Students who were classified as "just beginning" their program averaged a 3.16 score. These students agreed that the program lived up to their expectations. Students identifying as "mid-program" averaged a 2.37 score and were neutral in their response; therefore, they neither agreed nor disagreed that the program lived up to expectations. Students who reported that they were nearing completion of their program averaged a score of 2.25, once again showing neutrality in their response. While based on a small sample size, less than half of attendees, this data points to a correlation between progress made in program completion and satisfied expectations with SHARPGrads content. The nearer students were towards the beginning of their programs, the more they agreed that the SHARPGrads program met their expectations.

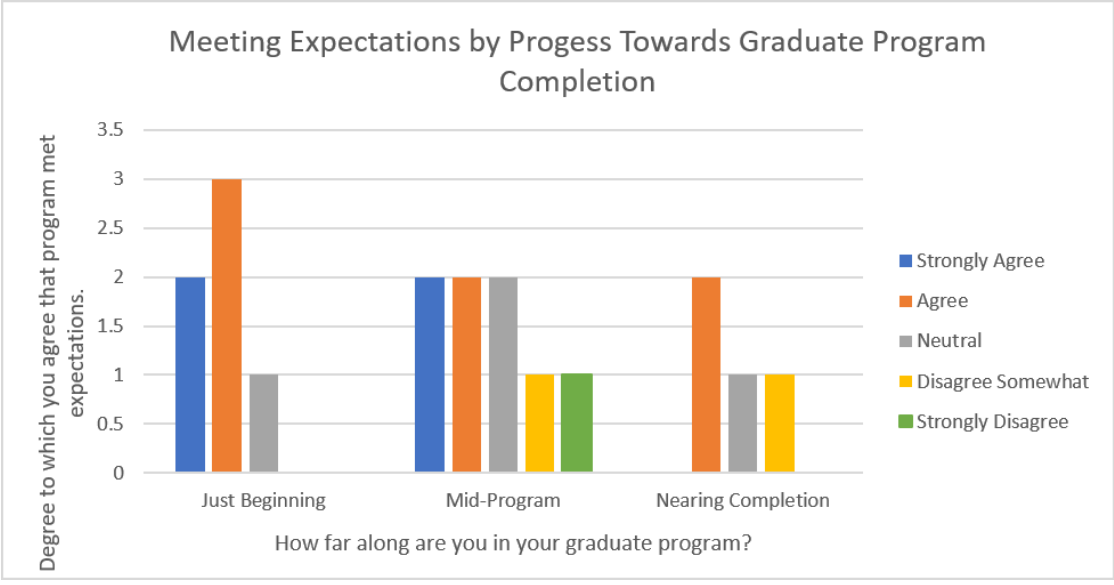


Figure 11. Agreement with "This program lived up to my expectations" by graduate program completion

The planning team was also interested in whether attendees in particular fields of study agreed more strongly that their expectations for SHARPgrads were met. It was difficult to categorize many attending students by discipline. Since scholarship is highly cross-disciplinary in nature and because of the school and college structure at the University of South Carolina, it was decided to group students into two broad categories – Sciences/Health Sciences majors and Humanities/Social Sciences majors. Sciences/Health Sciences majors reported an average score of 2.1, which closely corresponds with a feeling of neutrality in agreement with the statement "This program lived up to my expectations." Humanities/Social Sciences students reported a much higher average score of 3.25. This score aligns with agreement with the survey prompt.

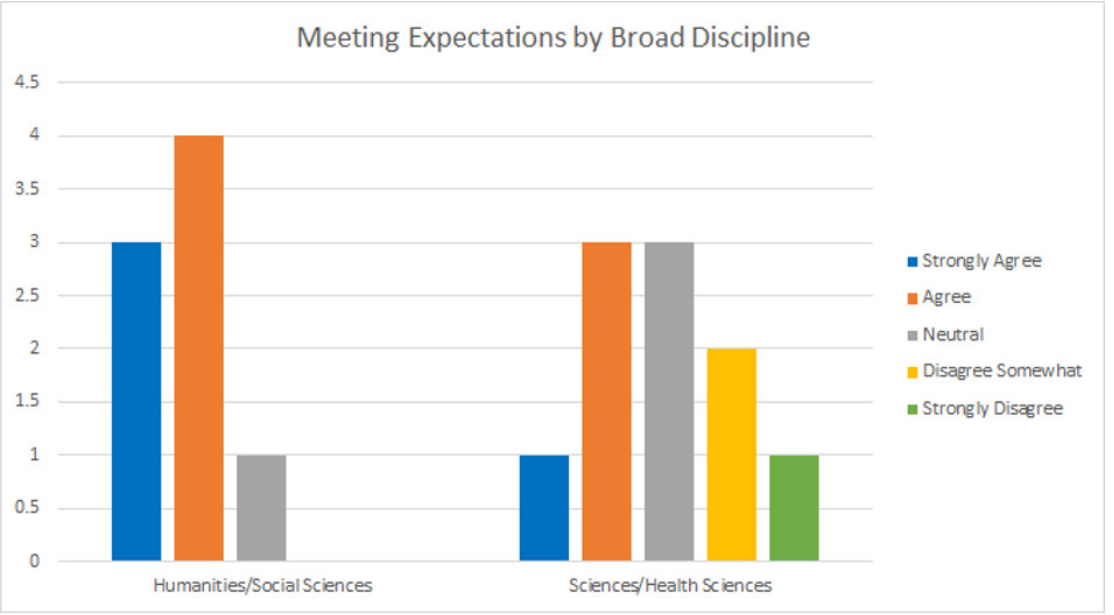


Figure 12. Agreement with "This program lived up to my expectations" by broad discipline area

Next Steps

Overall, the planning team considers SHARPGrads to be a success. Feedback was generally positive, with most post-assessment respondents reporting satisfaction with the overall quality of the program. With that said, it is clear that improvements can be made.

Despite the fact that the two open labs held at the end of each day were intended to allow students to obtain hands-on practice under the supervision of instructors, neither lab received any attendance, and several students reported in the survey that they were unclear as

to the objective of the labs. One student suggested "building in lab time after each session to allow hands-on work after learning the content while it's fresh on our mind." It is evident that the intended purpose of the open labs was confusing and misunderstood by students. Therefore, if open labs or practice time is offered in the future, the planners will make the purpose of the lab time unequivocally clear both in advertising the workshop and through verbal announcements at the event.

As Lorente and Rempel (2019) reported, students tend to prefer learning skills over theoretical concepts. Student responses, both in the form of attendance and survey feedback, signify the importance of delivering sessions focused on skill-based learning. Future programs will not only primarily offer sessions that focus on the acquisition of a specific skill but will attempt to make each session as hands-on and practice based as possible. The librarians involved intend that every session in future workshops will provide a deliverable, tangible skill that students can take away for future use.

As is noted in the analysis, students who attended earlier in the course of their graduate programs agreed that the SHARPGrads program met their expectations more so than those who were at the mid-point or nearing completion. Additionally, students studying social sciences and humanities disciplines had their expectations met at greater levels than students studying sciences and health sciences. Because of these findings, librarians could plan to be more targeted in publicizing the event to ensure that more participants with the potential to be exposed to new content are in attendance. Alternately, planners could expand or narrow the session content to meet the more specific needs of certain student populations. For future iterations of SHARPGrads, the programming team may also solicit presenters from fields that science majors will benefit from more.

While only two survey respondents reported the program was too long (11.1%) and seven reported that SHARPGrads was too short (39%), there was, in actuality, a steep drop in attendance on the second day. As was noted earlier, only 50% of first day attendees were present on the second day. One possible approach in a future iteration might be to combine the content into one longer, full day of sessions that attendees would be reluctant to miss regardless of outside circumstances. A reevaluation of day-two content should also be considered.

An Open Science Framework project was created for the SHARPGrads program. It is available at https://osf.io/uvhnb/. Session handouts, slides, and other materials are available there and provided under a CC-BY Attribution 4.0 International license. This content is available for SHARPGrads participants' review and for librarians who wish to create similar programming and would like examples or templates. Several of the librarians didn't use

slides or handouts, so there are several sessions that lack documents. All of the respondent data for this project is available under a CC-BY 4.0 International License at https://osf.io/9x7w3/.

CONCLUSION

Digital Research Services librarians at the University of South Carolina Libraries were pleased to be able to offer the graduate student training necessary to provide support for emerging research skills. While data analysis of attendee feedback and professional reflections will lead to changes in future programs, overall, the librarians were successful in their endeavor to deliver a useful, skills-based workshop for graduate students.

It is the hope of the authors that sharing the logistics, experiences, outcomes, and program assessment will be useful for other librarians considering implementing workshops or other learning-based programs for graduate students.

REFERENCES

Critz, L., Axford, M., Baer, W. M., Doty, C., Lowe, H., & Renfro, C. (2012). Development of the graduate library user education series. *Reference Services Review; Bradford*, *40*(4), 530–542. https://doi.org/10.1108/00907321211277341

Eldermire, E. R. B., Johns, E. M., Newberry, S., & Cole, V. A. (2019). Repackaging library workshops into disciplinary bootcamps: Creating graduate student success. *College & Research Libraries News*, *80*(7), 394–397, 410. https://doi.org/10.5860/crln.80.7.394

Fong, B. L. (2019). Boot camps for graduate student success: A collaborative initiative. *Journal of Library Administration*, *59*(4), 373–394. https://doi.org/10.1080/01930826.2019.1593710

Fong, B. L., Wang, M., White, K., & Tipton, R. (2016). Assessing and serving the workshop needs of graduate students. *The Journal of Academic Librarianship*, *42*(5), 569–580. https://doi.org/10.1016/j.acalib.2016.06.003

Lorente, C. L., & Rempel, H. (2019, December 17). Give them what they want: Graduate student workshops focused on skills, not theory. *ResearchDataQ*. https://researchdataq.org/editorials/give-them-what-they-want-graduate-student-workshops-focused-on-skills-not-theory/

O'Malley, D., & Delwiche, F. A. (2012). Aligning library instruction with the needs of basic sciences graduate students: A case study. *Journal of the Medical Library Association: JMLA*, *100*(4), 284–290. https://doi.org/10.3163/1536-5050.100.4.010

Peacemaker, B., & Roseberry, M. (2017). Creating a sustainable graduate student workshop series. *Reference Services Review; Bradford*, *45*(4), 562–574. https://doi.org/10.1108/RSR-04-2017-0010

Renfro, C., & Shields, E. (2017). Transforming libraries to serve graduate students: Trends and issues from a new conference. *College & Research Libraries News*, *78*(4). https://doi.org/10.5860/crln.78.4.9649

APPENDIX A
Pre-Assessment text and questions

Welcome to the SHARPGrads Pre-Assessment. Survey responses may be used for University Libraries research purposes. Completion of the survey signifies your consent to take part. Your participation is voluntary and anonymous.

1. What is your major or discipline?
2. What type of degree are you pursuing? (MS, PhD, etc)

   In the next section, select your familiarity with the topics discussed in each of the SHARPGrads session descriptions. (Respondents select Very knowledgeable, Somewhat knowledgeable, Not knowledgeable at all, Not sure)
3. Introduction to Open Science Framework

   Open Science Framework is a free online project collaboration platform and data archive, and it is NOT just for science. In this short workshop, learn how you can use OSF to work on research projects with others and share your outputs if desired.
4. Predatory Publishing

   With recent advances in online publishing and the rise of newly formed open access journals, it can be challenging to distinguish legitimate from predatory publishers. While many high-quality open access journals charge fees to support themselves, others take advantage of this publishing model for financial gain. Many of these questionable publishers use techniques, such as fake impact factors or inflated editorial boards, to solicit submissions and payments. How can you protect your work, your reputation, and your budget? Learn to identify and avoid predatory publishers in this brief session.
5. Research Data Management Basics

   Learn about concepts you should consider when planning a research project and why you might want to create a data management plan to save time and effort, enhance the value of your data, increase your impact, and meet funder requirements.
6. Creating an Online Research Presence

   Discover ways to develop an effective research presence and to promote your scholarship for maximum visibility and impact using ResearchGate, Google Scholar, and other tools. We'll discuss pre-publication considerations, promotional tools and techniques, and monitoring your research impact.

7. Introduction to Text Mining and Topic Modeling

   Scholars are answering new questions by mining large amounts of textual information and content online. In this session you will learn how to access this content and gain some experience with tools for topic modeling, text and content mining.

8. Citation Management Software and Zotero

   Learn how using citation management software to create a personal research library can change your (research) life! This session discusses several products while focusing on Zotero, a free open-source tool

9. Data Visualization—Basic Principles and Hands-on

   This session introduces basic principles of data visualization for research. The audience will also get hands-on experience of visualizing aspatial and spatial data using Tableau Public and ArcGIS Story Map.

10. Data Management Plans and DMPTool

    Is a Data Management Plan required to obtain funding for your research? Would you like to plan for the management of your research data to make life easier down the road? Learn about Data Management Plans and get hands on experience using DMPTool, an online resource for creating DMPs that meet specific funder requirements.

11. Introduction to REDCap

    REDCap is a secure web application for building and managing online surveys and databases in a HIPAA-compliant environment. In this session, you'll learn how to access REDCap, build and manage projects and surveys, and export identified and de-identified data.

12. Digital Projects

    Technology has allowed for scholarship to be created and shared in new and exciting ways. In this session, you'll learn to create plans for digital projects, identify content management systems and web hosting for your scholarship, and will discover tools that can help bring your research to life on the web.

13. Research Tips and Techniques for Your Literature Review: Education and Social Sciences

    Go deep into the literature to find out what has been done before! We'll cover techniques for identifying places and strategies to look for sources and some ways to search for related works, overviews, highly cited works, and other tricks.

14. Research Tips and Techniques for Your Literature Review: Humanities

    Explore the literature to find ways to contribute to the scholarly conversation in your discipline! We'll cover strategies for identifying and accessing sources and texts as well as techniques for searching and identifying relevant existing research.

15. Research Tips and Techniques for Your Literature Review: Health Sciences

    Have you heard PubMed is getting a makeover? Come and learn about the exciting changes to PubMed. Discover techniques to search the health science literature more effectively.

16. Research Tips and Techniques for Your Literature Review: Natural and Applied Sciences

    Learn the techniques and resources to search for existing research in your field! We'll cover search strategies, locating cited works, and more.

17. What skills are you most interested in learning? (Free text field)
18. Please enter any additional information you would like us to know. (Free text field)

APPENDIX B
Post-Assessment text and questions

Welcome to the SHARPGrads Post-Assessment. Survey responses may be used for University Libraries research purposes. Completion of the survey signifies your consent to take part. Your participation is voluntary and anonymous.

1. What is your major or discipline?
2. What type of degree are you pursuing? (Masters, PhD, etc.)
3. How far along are you in your graduate program? (Respondents answer Just Beginning, Mid-Program, Nearing Completion, Other)
4. Please select the degree to which you agree or disagree with the following statements regarding the overall quality of SHARPGrads. (Respondents answer Strongly Disagree, Disagree Somewhat, Neutral, Agree, or Stongly Agree for each of the following)

   The session descriptions aligned with the content.
   The program lived up to my expectations.
   The program content will be useful in my research during my graduate program.
   The program content will be useful in my career.
   The instructors were knowledgeable.
5. Was the length of the SHARPGrads program (select one): (Respondents answer Too short, Just right, Too long)
6. The SHARPGrads program was scheduled after classes ended but before graduation. Was this event well timed (Respondents answer Yes, Neutral, No)
7. Logic: Hidden unless respondent answered "no" to number 6: You answered that the timing of SHARPGrads was not very good. What other times of the year would work better? (Open text field)
8. Below, please check the box next to each SHARPGrads session you attended (multiple answers allowed).

   [ ] Introduction to Open Science Framework
   [ ] Predatory Publishers
   [ ] Research Data Management Basics
   [ ] Creating an Online Research Presence
   [ ] Text Mining and Content Modeling
   [ ] Citation Management Software and Zotero
   [ ] Data Visualization - Basic Principles and Hands-on

[ ] Data Management Plans and DMPTool
[ ] Introduction to REDCap
[ ] Digital Projects
[ ] Education and Social Sciences - Research Tips and Techniques for Your Literature Review
[ ] Health Sciences Workshop - Research Tips and Techniques for Your Literature Review
[ ] Humanities Workshop - Research Tips and Techniques for Your Literature Review
[ ] Natural and Applied Sciences Workshop - Research Tips and Techniques for Your Literature Review

Questions 9-22 – Logic: Hidden unless boxes in number 8 were selected. For each selection, respondents are asked to select Strongly disagree, Disagree, Neutral, Agree, or Strongly agree for the statement "My level of knowledge about (concept covered in session) increased as a result of this session."

23. Were there any skills you hoped to learn but did not? (Open text field)
24. What other topics would you like to see offered at future events? (Open text field)
25. Overall, how satisfied are you with the SHARPGrads Program on a scale of 1 to 5 with one being NOT SATISFIED AT ALL and five being VERY SATISFIED?
26. How likely are you to recommend the SHARPGrads Program to others on a scale of 1 to 5 with 1 being NOT AT ALL LIKELY and 5 being VERY LIKELY?
27. How would you improve the SHARPGrads workshop program? (Open text field)
28. Did you attend enough sessions to obtain a certificate of completion (at least 4)?
29. Please enter any additional comments you'd like to share with us. (Open text field)

All data were collected using SurveyGizmo.