

Feature

Building Connections with Graduate Students Through Credit-Bearing Instruction

Michelle R. Desilets and Kimberly Pendell

Abstract

Graduate students often need support with research skills and other professional development that is under-recognized by their programs. Librarians play a key role in helping students fill in these gaps. This case study reviews student feedback on a librarian-developed and -delivered credit-bearing course. The course, Library Research and Scholarly Communication Fundamentals, is offered to graduate students across all disciplines. The curriculum is flexible and applicable to each student's research, covering topics such as researching literature, citation and data management, and publishing in scholarly journals. The course has generated positive and constructive feedback from students, encompassing themes of self-efficacy, improved research skills, and increased confidence with scholarly publishing. The delivery of the course has been an effective and rewarding avenue for librarians to connect with graduate students and strengthen students' ongoing relationships with library services and resources.

Introduction

Librarians are uniquely situated to observe gaps in the professional development of graduate students. Librarians interact with students outside of their formal coursework and advising relationships by providing support based directly on students' requests for assistance or within a supplementary framework. In these spaces, librarians can observe a student's range of knowledge and skills that are essential to succeeding in graduate programs and professional careers, which departmental faculty and advisors often assume students possess. For instance, while some students have completed rigorous undergraduate programs, others find themselves in the uncomfortable situation of needing guidance on what might be considered basic skills such as literature searching and managing citations. Also, students are navigating expectations as they engage in new professional arenas such as data management and scholarly publishing. Librarians often support these students via individual consultations, workshops, or course-integrated instruction.

While the literature reports on many forms of graduate-level information literacy instruction, ranging from workshops to course-integrated instruction, examples of credit-bearing courses tend to focus on one topic (e.g., systematic reviews) and/or a single discipline (e.g., health sciences). There is little evidence of credit-bearing, disciplinary-neutral courses that cover a broad range of library and research-related topics to address graduate students' research needs. By sharing this case study,

the authors hope to help fill this gap in the literature. The case study describes the development of a credit-bearing online course offered by Portland State University Library faculty and uses student feedback and surveys to explore students' perspectives on the relevance of the course to their academic and professional growth. The course, Library Research and Scholarly Communication Fundamentals, represents the work of two librarians: Kimberly Pendell developed the course and taught it in Spring 2021 and Winter 2022; Michelle Desilets joined in teaching an additional section of the course in Winter 2023. Both continue to teach the course each year.

Portland State University has a substantial number of graduate students, many in professional programs. In Winter 2023, there were a total of 4617 graduate students, with 77.4% in master's programs and 12.2% in doctoral programs. The graduate student population includes 26.4% BIPOC (Black, Indigenous, and People of Color) students and 14.8% international students and is recognized as a federally funded Minority Serving Institution. Notably, Portland State University is 49.4% first-generation students.¹

Existing library instruction and graduate student support at Portland State University occur in a few different ways. Liaison librarians are responsible for course-integrated instruction, orientations, and individual consultations in their assigned areas. Uptake of these opportunities can be irregular depending on disciplinary faculty, program directors, and student awareness of librarian support. The Graduate School has offered a series of graduate student workshops for many years, including workshops developed and delivered by librarians. As a frequent instructor of workshops, Pendell had many conversations with students about what they felt expected to know but had never explicitly been taught. The workshops helped address these curricular and professional development gaps. However, post-pandemic, both online and in-person workshop attendance steadily declined.

With this in mind, Pendell developed the workshop content as a one-credit, asynchronous course via the learning management system. A one-credit course option seemed sensible and attractive for students. In Portland State University's quarter system, a full-time graduate credit load is nine credits while most courses are four credits, leaving students enrolled in two courses in need of one more credit. Existing one-credit courses are primarily professionalization seminars or guided reading. The proposed course added a new, complementary option. This study reviews the development of the course, explores student feedback, and reflects on the experience of teaching a credit-bearing course.

Literature Review

Graduate Student Research Needs

Graduate students' research experience and skills vary, and their research needs differ from those of undergraduate students. Their needs can be complex and nuanced, and students sometimes have gaps in the research skills required for graduate-level study. Understanding graduate student research needs and gaps in knowledge can help librarians develop instruction to better support the graduate academic experience.

In Riesen's study of research skills necessary for success in graduate school, University of Alabama Social Work students identified two top required skills as developing search strings and research questions, which were also areas of low confidence. In the same study, faculty noted the need for graduate students to have foundational research skills.² These findings echo earlier research by Bussell, Hagman, and Guder, whose study suggests that graduate student research needs span the spectrum from basic, foundational skills to more advanced skills and competencies.³

Bussell, Schnabel, and Rinehart's 2020 survey also examined graduate students' research needs and challenges.⁴ Their study "...found uncertainty, stress, and confusion about the research process and what is expected of graduate student researchers to be a common theme among participants across disciplines."⁴ Participants identified difficulty with or uncertainty around effective searching as a specific challenge and reported relying on social networks and connections to help with the research process. Moore and Singley's research also highlighted the role of social relationships to help graduate students identify and contextualize resources, as well as to connect them to other scholars.⁵ Lehnen's research emphasized the importance of structured opportunities for socialization and relationship building during the dissertation process and advocated for librarians to facilitate such socialization and engagement.⁶ In another study that also examined doctoral student research needs, Ince, Hoadley, and Kirschner identified four essential areas of skill development: information literacy, information management, knowledge management, and scholarly communication.⁷⁻¹²

Graduate-Level Curriculum and Information Literacy Instruction

Many of the advanced research skills or competencies required for graduate study build on foundational skills graduate students are assumed to possess. However, students enter graduate school with varying levels of experience, and some may need formal opportunities to acquire the foundational skills they lack. Scholars have identified areas for instructional focus to address specific gaps in knowledge, such as scholarly communications¹³ and data management.¹⁴ Research has also surfaced concepts related to the "hidden curriculum" of graduate school, including unclear expectations, the need to demystify the publication process, and helping students frame themselves as scholars and experts.^{6,8,9} Calarco describes the hidden curriculum of graduate school as "the things you're expected to know or do but won't be explicitly taught" and notes that "...unlike the formal curriculum, which tends to focus on ways of thinking, the hidden curriculum tends to involve ways of doing: how to do, write about, and talk about research, how to navigate complex bureaucracies, and how to ask others for help when you feel lost."¹⁵

Librarians have long recognized the need to develop curriculum and provide instruction on a broad range of library and research-related topics to address these gaps in graduate education. Baruzzi and Calcagno's survey of academic librarians revealed that librarians supported graduate students via direct, non-classroom contact as well as via formal instruction. Instruction mainly focused on finding and using specific resources, conducting literature reviews, and performing technical training.¹⁶ Critz and colleagues' scholarship discussed the development of a research skills workshop series for graduate students at Georgia Institute of Technology.¹⁷ Post-workshop assessments suggested that students experienced increased confidence as a result of the workshop series, "...with students gaining a better understanding of the overall research process, an increased facility with research tools (e.g., databases) and software for citation management, project management, and multimedia product creation, and an appreciation of the big-picture concepts necessary for authentic information competency."¹⁷

Since 2007, librarians at Virginia Tech have offered a one-credit, discipline-specific graduate information literacy course that evolved over time to include new skills and areas of inquiry (e.g., data management, impact metrics, and dissemination of scholarship) in addition to traditional information literacy skills.¹⁸ More recently, Anders described a multi-modal format of information literacy graduate instruction covering a broad range of information literacy topics at Texas A&M University. This instruction included workshops, short courses, retreats, and course-integrated instruction, but no credit-bearing instruction.¹⁹

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In addition to covering a broad range of information literacy topics, librarians have offered graduate instruction to address particular topics, such as publishing, or to meet specific student needs. For example, Syeda, Woodend, Liu, and Roy's needs assessment about graduate students' experiences with and perceptions of publishing revealed that more than half of participants had no prior experience with publishing. When asked about things they viewed as aiding the publishing process, participants identified supportive individuals; positive, constructive feedback; familiarity with the process; formal instruction on the process; and an institutional culture of research and publication. When asked about obstacles, two-thirds of participants identified a lack of knowledge about the publication process, and more than half noted a lack of supportive individuals or mentors.¹¹

McClellan and colleagues described the development of a semester-long "Publishing Academy" at the University of Louisville, a series of five workshops created to address the need for graduate instruction focused on the publishing process.¹³ They noted that "...publication continues to be a decisive indicator of success for scholars. Consequently, there is an expectation that graduate students must become experts, create new knowledge within a disciplinary niche, and ultimately share this new knowledge within a published format...."¹³ To help students successfully meet this expectation, Stuit and Caldwell call for a scaffolded introduction to publishing early in graduate studies.⁸ They assert that, "Without this guidance, learning and publishing is a slow, unequal, compartmentalized, and non-transparent process that is an emotional experience for students ... [and go on to say that] ...the library can contribute to the professionalization of graduate students by...uncovering at least some of the hidden curriculum in publishing that disadvantages first-generation students."⁸

Research also reported on graduate instruction to address literature reviews and systematic reviews. For example, Rempel considered the effects of a library workshop on the literature review process of graduate students. One outcome of the workshop was participants' increased feelings of confidence about searching and the literature review process.²⁰ In another case, McGowan, Reed, and Yacilla developed a one-credit systematic review course for health sciences graduate students, and post-class assessment indicated increased student confidence after taking the course.²¹

Course Curriculum and Pedagogy

The course has been offered each year since it was first initiated in Spring 2021, with a second section added in 2023. Each section is capped at twenty students. The overarching course objectives are as follows: students will learn to search, retrieve, and organize information sources relevant to their research topic; students will understand data management best practices; students will explore different methods of communicating research information; and students will examine scholarly communication practices broadly and in their discipline. The course curriculum is based partly on existing workshop curricula, as well as new content on foundational skills, such as communicating visually, communicating broadly, and scholarly publishing. The weekly modules of the course are outlined in Table 1.

Pendell employed backward design for the curriculum development process, first establishing learner-centered outcomes for each weekly topic, then developing the assessment activities. Each week includes selected readings, videos, and tutorials to support the desired outcomes. For example, the learning outcome of the module on communicating broadly is to "demonstrate elements of effective communication to non-academic audiences using your own research topic." The associated activity is to create a 90-second video on their research project for an audience

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Table 1. Course Curriculum

Week	Topic	Activity
1	Introductions and the hidden curriculum	Introduction video and discussion post on hidden curriculum
2	Searching for literature reviews	Literature searching worksheet
3	Citation management	Evidence of citation management account and at least ten saved citations
4	Data management basics	Data management plan worksheet or discussion post on readings
5	Communicating visually	Discussion post on readings or creation of graph, figure, or infographic
6	Communicating broadly	"Elevator pitch" video and peer review
7	Scholarly publishing	Journal selection and evaluation worksheet
8	Scholarly publishing continued	Discussion post on finding academic community, scholarly identity, and engagement
9	Final project work time	No weekly activity
10	Final project due	Project and final statement

unfamiliar with the research and why it is important. Readings and videos explain the value of communicating to audiences outside of one's research area, as well as examples of short, concise videos like "Three Minute Thesis" submissions or social media posts. Submissions are then peer reviewed using provided criteria for research communication.

The authors prioritize student autonomy and engagement in the course. The activities are designed to be flexible enough for students to apply to their own scholarship, no matter the discipline or specific project. They encourage students to leverage the course by connecting activities to other coursework or research projects whenever possible. Some weeks students may reflect on the week's topic rather than complete the practical application activity. For example, students can choose to write a data management plan for their current project or explore core elements of data management planning in a discussion post. Full points are usually awarded if it is clear the student made an honest attempt to understand and complete the activity. The authors address the quality of student work through feedback and opportunities to revise and resubmit. Generally, points are deducted only when activities are submitted late without prior communication.

Students develop final projects that are directly related to their program coursework or professional goals. In week five, they submit a final project proposal outlining the project and identifying potential hurdles for instructor feedback. The range of projects has included seminar papers, drafts of thesis and dissertation chapters, annotated bibliographies, and conference presentation slide decks. Students also submit final project statements, eliciting their thoughts on the course and its impact on the project.

The authors engage with students throughout the quarter by responding to posts, providing feedback on activities, and creating short videos to address common questions. It is particularly important to start building trust and community with the students in week one, especially as module one's discussion post about the hidden curriculum asks students to be vulnerable and share their own experiences of "not knowing" in graduate school. Students are also encouraged to interact with each other, especially during the introduction week and with peer review activities.

Methodology

This case study is based on retrospective analysis, using existing course data from three years of instruction. The data includes the anonymous mid-quarter check-in survey (Table 2) and course evaluation responses from Spring 2021, Winter 2022, and Winter 2023 (Table 3), as well as anonymized final project statements from Winter 2022 and Winter 2023. Access to final project statements from Spring 2021 was lost due to a learning management system migration. Institutional review board approval was granted for the use of this data retrospectively (exempt determination, #238141-18).

The authors used simple descriptive analysis for the survey and evaluation responses. To analyze the anonymized final project statements from Winter 2022 and Winter 2023, they used grounded theory to open code the data and identify common themes.²² The authors independently coded a subset of statements and reviewed the coding collaboratively to establish intercoder reliability. Each of the authors then coded the entire set of statements separately. Once completed, they shared and reviewed their descriptive and analytic codes, deriving themes based on multiple instances of similar statements.

Table 2.

Mid-Quarter Survey Questions

- The content of the course so far is relevant to my work as a graduate student [scale of less or more relevant]
- The workload of the course is...[scale of less than expected to more than expected]
- The instructions and expectations for the weekly activities are well explained and clear [scale of agreement/disagreement]
- The instructor's feedback is constructive and helpful to my understanding of the curriculum [scale of agreement/disagreement]
- Any comments or suggestions for improvement at this point in the course?

Table 3.

Course Evaluation Questions

- Rate your overall satisfaction with the course curriculum. [scale of very satisfied to very dissatisfied]
- Overall, the content of the course was relevant to my work as a graduate student. [scale of less or more relevant]
- The weekly activities complemented the readings and videos. [scale of agreement/disagreement]
- The instructions and expectations for the weekly activities were well explained and clear. [scale of agreement/disagreement]
- What content did you find most helpful?
- What content did you find least helpful?
- Rate your overall satisfaction with the course instructor. [scale of very satisfied to very dissatisfied]
- The instructor's feedback was constructive and helpful to my understanding of the curriculum. [scale of agreement/disagreement]
- The instructor encouraged student interactions and class participation. [scale of agreement/disagreement]
- Would you recommend this course to fellow graduate students? [Yes/No]
 - If you answered "no," please offer any comments you have on improving the course and/or interactions with the instructor.
- How did you hear about the course?

Student Demographics

Course enrollment has included students from multiple disciplines, including the sciences, social sciences, and humanities. Table 4 outlines the academic demographics of the students enrolled in the ULIB 511 course sections analyzed in this case study (n = 51). The over-representation of social work graduate students can be attributed to Pendell’s role as the subject librarian for social work. Enrolled students by program type are shown in Table 5.

Results and Discussion

The findings are based on data from anonymous responses to mid-quarter check-in surveys, end of course evaluations, and de-identified final project statements.

Mid-quarter Surveys and Course Evaluations

The authors used mid-quarter surveys as formative assessment to learn how well students were connecting to the curriculum, format of the course, and workload expectations. The surveys also provided an opportunity to request feedback (e.g., “Any comments or suggestions for improvement at this point in the course?”) and to solicit input on topics relevant to the curriculum (e.g., “Have you used an AI tool for literature searching?”). The mid-quarter survey was optional, and the data in Figure 1 is based on 41 responses (80%).

Course evaluations demonstrated students’ high satisfaction with the course. Of the 36 students (71%) who completed the course evaluation and rated their overall satisfaction with the course curriculum, 30 students responded as very satisfied and 6 as satisfied. All 36 students indicated that the course content was relevant to their work as graduate students. Students universally agreed they would recommend the course to others and provided overwhelmingly positive feedback. For example, one student commented: “I feel this course should be a required class for all first year grad students. It was so helpful, comprehensive, and relevant. I don’t think grad students get the opportunity to learn about the practical side of things. I hope you offer this class again. It was the highlight of my winter quarter!” Another student said the course was “A must-take 101 for graduate students, especially first-gen.”

Course evaluations asked students to indicate which course topics were

Table 4. Academic Degree Programs of Enrolled Students Spring 2021, Winter 2022, and Winter 2023 (n = 51)

Academic Program	Number of Students
Anthropology	3
Biology	4
Civil and Environmental Engineering	4
Communication	2
Computer Science	2
Conflict Resolution	1
Creative Writing	1
Education	1
Electrical Engineering	1
Engineering and Technology Management	1
Environmental Science and Management	1
Finance	1
Gender, Race, and Nations	1
German	1
History	2
Mathematics Education	3
Physics	1
Public Affairs	5
Statistics	1
Social Work & Social Research	13
Urban Studies	1

Table 5. Distribution of Graduate Students by Program Type

Quarter	PhD	Masters	Certificate	Total
Spring 2021	9	5		14
Winter 2022	7	1		8
Winter 2023 (two sections)	11	17	1	29
	27	23	1	51

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the most and least helpful. Many students made broad statements of finding all the course curriculum helpful. Those who responded with specific comments predominantly noted the searching for literature reviews and citation management weeks as particularly helpful. One student added that “Every week had incredibly helpful information— data storage and finding/assessing journals stands out as the two topics that were most useful/that I had the least experience with.”

In response to the question of which content they found least helpful, the majority of responses were some variation of “nothing,” or “it was all helpful.” The students who called out specific topics as least helpful mentioned data management planning, communicating visually, and communicating broadly. These topics were identified by some students as having less relevance to their particular research areas, or as new concepts that they had trouble understanding. A student commented: “I found the data management plan content to be the least helpful, not because it was useless to my future career path, but because there were a lot of terms and concepts that I did not understand.” Feedback like this is reviewed and addressed each year when the authors refresh the curriculum. In this instance, more foundational information and definitions of terms were added to the data management curriculum.

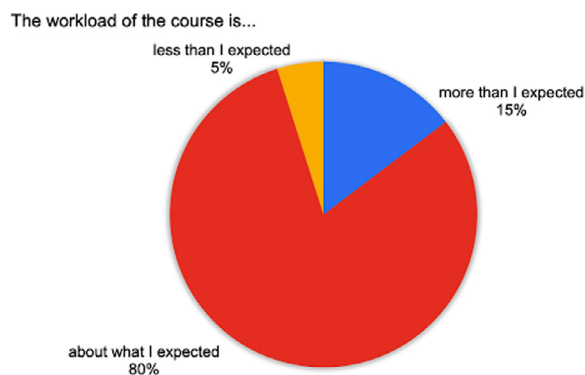


Figure 1. Survey responses about workload expectations.

Final Project Statements

The final project statements provide students with an opportunity to reflect on their learning and give instructors additional insight into students' experience with the course. The statement prompt asks them to discuss their goals going forward as a graduate student and a scholar, incorporating knowledge gained from the course. The themes identified through analysis of final project statements from the Winter 2022 and Winter 2023 sections demonstrated students' sense of growth, excitement, and belonging in graduate school. Across the thirty-eight total statements, the authors identified themes of confidence, self-efficacy in discrete skills, the creation of connections between the course curriculum and future goals, and reflections on the hidden curriculum. The following representative quotes reflect these themes, with the anonymous students coded as “S” and a number.

Increased confidence and self-efficacy

Many students cited their increased confidence and sense of self-efficacy in their final project statements (eighteen instances). These findings echo the course evaluation and mid-quarter check-in survey results in which students found the curriculum to be relevant: “I have gained a deeper understanding of the critical thinking necessary to i) gather pertinent information, ii) display this information in a way that fits my audience...” (S12); and “this final project... has resulted in me finding a vein of research on the topic that I had previously not seen. It filled in research gaps and raised my confidence in tackling the subject again in my exam” (S4).

The authors also identified subsets of this theme of confidence and self-efficacy: increased organizational skills (sixteen instances), improved search skills (eighteen instances), improved communication skills (fourteen instances), and increased awareness of library resources (five instances). Regarding increased organizational skills, a student reported: “I am certainly going to

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be a more *organized* scholar going forward. I've always been kind of a disaster in organizing my research I'm at the stage in my academic career where I've started working with other people, and I can't justify being so scattered.... This course introduced me to standardized ways of collecting and sharing research" (S10).

Improved search skills were also remarked on: "Quickly connecting with specific search engines related to my field helped me efficiently access articles I needed. It also allowed me to branch out when I thought I needed more knowledge from a certain field (e.g., education)" (S1). S38 commented on their improved communication skills: "Outside of academia, I now see what I have to say as not only interesting to myself (and hopefully others) but as something I have somewhat of a responsibility to do. Significant to that last part is being able to communicate in a way that is accessible and engaging."

Regarding increased awareness of library resources, S24 stated: "My learning to identify resources in a literature review, identify databases relevant to my discipline and research area, and use a subject heading and keyword searches properly left me embarrassed to admit I knew so little of how the library at PSU tied into my being a successful graduate student...."

The authors' experience teaching the course and the study's findings align with existing research about graduate student needs and the effects of information literacy instruction. The findings related to increased confidence and sense of self-efficacy in the final project statements are consistent with research about graduate students' increased information literacy self-efficacy and confidence after receiving information literacy instruction.^{17,20,21}

Connecting the course curriculum to academic and professional work

The findings demonstrated that students frequently connected the course curriculum to future academic or professional work and recognizing themselves as scholars (thirty-three instances). Some instances referred to specific skills or knowledge gained and how those would impact their future work, or to a broader notion of their path from a novice to a more professional identity: "I feel a lot better equipped to pursue a career in academia than I felt before taking this course" (S6). S32 remarked: "I am happy that I took [the class] when I did. In part because I gained so many resources ahead of my research methods class that I will take next term and in part because I think it was a really ripe time to consider my scholarly identity and my long and short term academic and professional goals." The student statements tying elements of the course to their future work echo their consistent responses that the course curriculum was relevant to their work as graduate students. This relevance allows students to more easily apply what they have learned.

Publishing

When coding the final project statements, the authors encountered many mentions of pursuing publishing (fourteen instances). The course includes evaluating journals for possible submission, defining terms such as "desk reject," responding to reviewers, and navigating publishing access models. Students appeared to have gained confidence related to submitting an article for publication. Some stated that having a better understanding of the process made publishing feel more attainable, or that the related activity had tangible benefits. For example, student S4 stated, "This course allowed me to think through the publication process in a step-by-step way. This information has given me a new passion for submitting an article for publication consideration. As a first-generation student, it seems a lot more attainable now that I know more about it." Another

student stated: "One of my goals is to publish my work, so the assignment where we searched for appropriate journals was very useful in getting me to start thinking about journal selection" (S17).

These findings directly reflect what has been found in the literature: guidance and transparency alleviate graduate student hesitation to engage with the scholarly publishing process, and librarians are in a good position to address the issues at hand.⁸ Some students referred to their first-generation status in the context of publishing as an additional barrier the course curriculum helped them overcome.

Hidden curriculum

The hidden curriculum theme appeared in multiple instances (ten) of the final project statements. A reading in week one explored this topic, as did a discussion that prompted students to share their own experiences with hidden curriculum. Many students referred back to the week one prompt in their final project statements ten weeks later, indicating the significance of this initial discussion. Students commented on their own experiences of the hidden curriculum. S6 said "Needless to say, I still struggle with imposter syndrome, and I appreciate that this course helped make sense of the hidden curriculum and the various norms and expectations within academia." Another student expressed: "Starting with my formal introduction to the concept of 'hidden curriculum,' an idea I was only aware of during my experience as a student. I didn't know it had a name! Now I have a framework for the phenomenon and can put my former and future experiences into perspective" (S24). Finally, S20 reported their desire to help others navigate the hidden curriculum: "Also, I am not sure if this is too idealistic, but I would love to help my future students with understanding the hidden curriculum...and normalizing not knowing an answer to something. Being a graduate student has not been easy, and I would love to make it easier for my future students because it can be isolating and imposter syndrome is real."

The hidden curriculum theme in students' final project statements echoes research about assumptions of graduate students' existing knowledge or skills, the ambiguous and sometimes contradictory guidance they receive, and the hidden norms and conventions of academia.^{6,15} While it may seem problematic to introduce the topic of hidden curriculum early in the course and ask students to participate in potentially vulnerable conversations before trusted relationships have formed, it has proven to be an effective starting point. It resonates with students; they appreciate being able to connect their own feelings and experiences as graduate students to the idea of a hidden curriculum.

Limitations

This is a retrospective case study of existing data gathered to evaluate the course and student experiences; therefore, the data collection method and resulting data were not designed specifically for research purposes. This study also represents the experience of a discrete group of graduate students at one institution and may not be generalizable.

Reflections on Teaching a Credit-Bearing Course

Along with the study findings, the authors would like to share their experiences as instructors of record on a credit-bearing course. At Portland State University, librarians are tenure-line faculty, which enables them to teach credit-bearing courses. While Portland State librarians had previously taught an undergraduate course, it had been ten years since they had been in this role. The course

has raised the profile of the instructional role of librarians at Portland State University and has led to new conversations and collaborations outside of the Library. Examples include Pendell sharing course information at a meeting of STEM department chairs discussing re-visioning the doctoral curriculum and library administration citing the course in annual reports as evidence of the library's impact on student learning.

In most library instruction models, there are few opportunities for librarians to interact with students more than once, and interactions are often mediated by disciplinary faculty. Teaching this course enables the authors to build relationships with students over time and become part of their academic experience, even after the course ends, which is highly professionally rewarding. Both authors have been contacted by former students of the course to share their successes, including publishing a journal article.

The authors prioritize student engagement and learning over correctness. Consequently, grading is kept very simple, which also helps to keep teaching the course sustainable for the authors. Challenges associated with teaching a credit-bearing course are largely related to navigating situations with individual students. The authors rely heavily on university documentation, policies, and conversations with faculty outside of the library regarding grading, withdrawals, and other student-related issues.

The authors update or revise content annually. They review students' comments from previous course evaluations to inform improvements. They incorporate new tools or changes in the research landscape, such as artificial intelligence and its impact on literature searching, authorship, and research integrity. An increase in humanities and history students taking the course has informed updates to the data management curriculum so that students can better connect their research with the idea of "data," which often is presumed to be only quantitative, not qualitative or inclusive of existing texts, images, and video. Going forward, the authors hope to strengthen the professional development curriculum for graduate students who are pursuing roles outside of academia.

Conclusion

A common theme in existing literature is that graduate students need support with skills not taught in their courses. Librarians work to address these gaps by providing workshops, course-integrated instruction, short courses, and credit-bearing courses tailored to specific disciplines or topics, such as scholarly publishing. Similar to the experience of Anders¹⁹ and others, the authors observed graduate students' recognition of their own need for information literacy support via high registration numbers for workshops, but these ultimately had low attendance. In contrast to non-credit-bearing workshops, providing a credit-bearing course has enabled students to build skills for their graduate program while also tangibly progressing toward their degree. As this case study demonstrates, students have responded positively to the course. In addition to the study data, the authors have received messages months or even years later from students expressing how the course helped them achieve goals such as publishing scholarly articles and presenting at national conferences. The authors' labor to provide the course has been outweighed by their positive professional experiences doing so. The authors hope this case study will act as encouragement for other librarians wishing to explore the credit-bearing course model for graduate student information literacy instruction.

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