Capstone courses and projects

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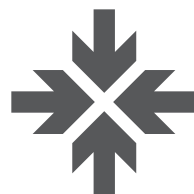
Abstract:

Capstone experiences are required of many students in their final year of undergraduate study in colleges and universities across the United States and the world. A senior capstone is meant to be a culminating project representing the synthesis of a student's cumulative learning—whether it is called a "capstone course," a "senior seminar," an "undergraduate thesis," or by another name. Often, senior capstones consist of lengthy research projects or papers but may also be performances, portfolios, or exhibits.[1] As a high-impact educational practice, a capstone should be a structured experience, designed "using pedagogies such as integration, reflection, and application to deliver on outcomes including team-building, employment skills, communication skills, analytical and critical thinking, and problem-solving competencies."[2] Capstone projects may be required only of students within specific majors or academic programs at some institutions and of all graduating seniors at others.

Keywords: higher education | capstone experiences | case studies | University of North Carolina at Greensboro | academic libraries

Chapter:

***Note: Full text of chapter below

Capstone Courses and Projects

Working with Capstones: Case Studies from the University of North Carolina at Greensboro

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Capstone experiences are required of many students in their final year of undergraduate study in colleges and universities across the United States and the world. A senior capstone is meant to be a culminating project representing the synthesis of a student's cumulative learning—whether it is called a "capstone course," a "senior seminar," an "undergraduate thesis," or by another name. Often, senior capstones consist of lengthy research projects or papers but may also be performances, portfolios, or exhibits.[1] As a high-impact educational practice, a capstone should be a structured experience, designed "using pedagogies such as integration, reflection, and application to deliver on outcomes including team-building, employment skills, communication skills, analytical and critical thinking, and problem-solving competencies."[2] Capstone projects may be required only of students within specific majors or academic programs at some institutions and of all graduating seniors at others.

In their 2013 article on high-impact educational practices, Riehle and Weiner examined the role of information literacy in several course models.[3] Out of the ten models discussed, capstone coursework and projects are of particular interest, being a common culminating experience at many institutions. Information literacy instruction is valuable for students and faculty across disciplinary capstones; this becomes quickly evident upon examining existing studies and reports of the work that librarians have done in a broad range of courses at institutions of various sizes.

Literature Review

As evidenced by a growing body of literature, librarians' involvement in capstone courses at the college and university level varies greatly. Librarian participation ranges from minimal interaction with students (perhaps a handout with contact information) to complete embeddedness (co-instructing courses or participating in complete course design). Choosing to include librarians in their courses is, of course, the decision of the course instructor, and the level of comfort that these instructors have with allowing librarians to come into their class environments varies greatly.

Examples of nominal involvement in capstone courses include cases in which the need for effective location and use of information is cited in syllabi and class assignments, but the instructor does not directly involve library staff. In their 2013 article on using e-portfolios to evaluate the competencies of students working toward a holistic health minor, Perks and Galantino cited the ability to "locate, retrieve, and critically evaluate a variety of information sources" as a program outcome.[4] However, their report mentions nothing of taking advantage of the services of librarians on their campus, a resource that surely would add value and support to such an initiative.

Because of limited time in the semester, librarians are sometimes present virtually, rather than in person, in a course. Clarke and Coyle mentioned such a case in their 2011 study of the use of library wikis in a capstone engineering course.[5] While their university has LibGuides for each department, the wikis were designed to be course-specific and were integrated into the campus' learning management system (Blackboard). Students responded well to usability testing, noting that the ability to easily access these collections of resources from off campus was a major advantage. Another interesting point in this case was the librarians' focus on supporting accreditation standards within the engineering department. Particular attention was given to a specific criterion from the Accreditation Board for Engineering and Technology (ABET), which does not directly mention libraries but refers to the importance of "life-long learning."[6]

In cases where librarians can be more embedded in courses, with class time devoted to instruction and research, the outcomes are impressive. Even if librarians are able to come to the class only for a one-shot session, feedback from students is mostly positive. In their 2015 report on librarian involvement in an information security capstone course, Pollacia, Ding, and Yang noted that many students had experience with library instruction from previous courses, but that even in cases where there was repetition across sessions, having a "refresher" was helpful, especially given the content of the course and the project.[7] Whitesell and Helms were able to provide a one-shot session that also bridged a gap in students' knowledge of technology, namely Google Docs, in addition to library resources and strategies.[8] Even when librarian participation is limited to a one-shot session, a large amount of buy-in from course instructors is essential; Mazella and Grob's 2011 report of a collaboration between special collections staff and a literature course noted the importance of mutual trust and collaborative attitudes between the two parties.[9] In that course, students were tasked with finding readings on which to focus in class, which was a straightforward way of making the librarian's role essential and encouraged students to contact her.

One of the best examples of the successful embedding of a librarian into a capstone course comes from Hicks and Howkins's 2015 article, which focused on their collaboration in

redesigning a standard capstone research paper assignment in an Antarctic history course.[10] They identified four key problems with traditional papers: the fact that such assignments assume the research perspectives of professors, rather than students; the problematically "procedural" nature of such papers; a failure to "adapt to new information realities"; and the fact that librarians are not fully integrated into the process. The reconfigured assignment was specifically designed to "slow down" the research process and to make more visible the thinking behind students' choice and analysis of resources. Hicks and Howkins made the key point that the capstone research paper is quite possibly the first time in their academic careers that many students will encounter the advanced expectations that accompany such an upper-level writing assignment; at the very least, it is likely the longest paper that students have ever been asked to write. Hicks and Howkins focused on personal learning environments and critical information literacy and made sure that the librarian was fully embedded into the course at all stages, resulting in growth and positive change in the abilities of students to do historical analysis and in seeking and using information responsibly.

Institutional prioritization of information literacy skills is the ambition of many libraries, and opportunities to integrate library resources and instruction into the capstone curriculum specifically are highly valuable. In 2011, Campbell wrote about one such change at Rider University's business school after the university instituted a requirement stating that information literacy must be incorporated into each school, department, and library learning outcome.[11] The librarian was invited to a capstone course for seniors majoring in entrepreneurial studies three times throughout the semester and distributed post-visit surveys to students. Campbell indicated that more consultation and planning with campus stakeholders would improve the experience of students and emphasized the importance of university-wide acceptance of the importance of information literacy skills.

Miller wrote about capstone students and the wide variety of experiences and ability levels that can be found among such groups. Many students have had some prior library instruction experience, but this may have taken place only during the first year of their college careers.[12] Those at the capstone stage are mostly familiar with research strategies and are demonstrating some confidence in their abilities, but students who have not undergone library instruction are much more likely to turn to internet search engines before thinking of the library as a useful resource. Miller's 2013 article observed that capstone students are often "patrons who are at once sophisticated and still growing as researchers."[13] This statement can certainly be applied to the experiences of librarians in capstone courses at all institutions and levels of involvement.

Case Studies at the University of North Carolina at Greensboro

The University of North Carolina at Greensboro (UNCG) is a public, doctoral-granting research university within the University of North Carolina System. In fall 2017, the university's enrollment of full-time-equivalent students was 15,788.[14] The four-year graduation rate for first-time degree-seeking students in 2015 was 39.2 percent, compared to an average of 24.7 percent for peer institutions nationally.[15] The university is located in the Piedmont Triad region of central North Carolina.

The students and faculty of UNCG are served by the University Libraries, which consist of Walter Clinton Jackson Library and Harold Schiffman Music Library. Within the University Libraries, there are thirteen subject liaison librarians that serve fifty-four departments and academic programs. Most of the liaison librarians have positions within the Research, Outreach, and Instruction (ROI) department, with additional liaisons working in primary assignments with Technical Services and the Music Library. Liaison librarians at UNCG have developed a range of strategies for engaging with their departments and programs in addition to providing instruction, collection development, and research support, such as attending departmental meetings and events, teaching or coteaching disciplinary courses, and maintaining a physical presence in departmental administrative and instructional spaces.

As with many peer institutions, most capstone experiences at UNCG are required courses for disciplinary majors to be taken in the final year of undergraduate study. In fact, 99.2 percent of public institutions participating in the 2016 National Survey of Senior Capstone Experiences reported offering (or requiring) curricular discipline-based course capstones.[16] The following case studies present a survey of approaches to subject liaison librarians' work with these capstone courses at the University of North Carolina at Greensboro.

Women's and Gender Studies

A humanities librarian recently began working with the required capstone course for the women's and gender studies (WGS) major, in which students must design and present a culminating project in the form of a research paper. She was contacted by the course instructor two years ago about providing a one-shot instruction session that would specifically address her students' discomfort with finding and evaluating scholarly journals and books using the library's databases and catalog. After the first year, the instructor for the capstone course changed and the librarian revised her one-shot lesson plan to focus less on the general mechanics of finding scholarly sources in response to the second instructor's approach to the capstone. While their initial correspondence was through email, they hashed out many details in person at WGS events that the librarian attended in the fall leading up to the spring capstone course. Although the humanities librarian is not extensively embedded with WGS students through instruction or research consultations prior to the capstone course, she regularly attends department meetings and works closely with faculty on their own research.

In the current iteration of the one-shot instruction session for the WGS capstone, the librarian does not do point-and-click demonstrations of library resources for the entire class. Instead, she opens with a brainstorming exercise in which students submit their tentative research topic via Padlet so that the librarian can reference specific topics as examples throughout the session. The class, together, briefly evaluates the pros and cons of various source formats in the context of writing a research paper. Then, the librarian asks the students to think critically about the information creation cycle by comparing *posted* and *published* sources, using two sample articles as examples. The rest of the class time is spent with students working on their research, while the librarian briefly consults with each of them to recommend specific information sources and search strategies. Because women's and gender studies is an interdisciplinary program and many students are double majors, the students' research topics can fall into many different subject areas and require different approaches.

The librarian notes that in the instruction session, she tries to treat the class itself as a culminating experience for students with regard to research, in the sense that she asks them to make connections with other research experiences they have had before: "Although I may have never worked with the student in the context of library instruction before this class, they have done research before. I try to activate that prior knowledge and let them review their previous experiences with research in order to connect what they already know with what they are trying to do now."[17] However, one challenging aspect of this capstone course that sets it apart from those previous research experiences is that students need to sustain a large research project while still choosing a topic that is appropriate for the scope of a senior capstone paper. According to the librarian, many students attempt to pick a narrow topic that might be better suited for a shorter writing assignment, while others want to open the scope of their investigation to a topic that would be better suited for a graduate-level thesis or dissertation.

In the future, the librarian hopes that more students will opt for individual research consultations with her following the instruction session. She would like to adopt a model for consultations she used in a previous capstone collaboration with the teacher education department. With that department, she met for an instruction session with the language arts capstone course, in which students were still considering broad topics instead of specific research questions. Following the instruction session, each student was asked to complete a worksheet the librarian had created that asked them to engage more with their topic and attempt to narrow their focus by performing different tasks, such as background research, exploration of subject-specific databases, and keyword brainstorming (see figure 10.1). They then brought the worksheet to a required consultation with the librarian, where they focused on sources and strategies to use for their project, after which they wrote a reflection on their experience with moving from a broad topic to a more specific research question. The librarian noted

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4. Find out everything you can about your authors/primary texts in **Literature Resource Center.** Look at both the literary criticism and biographies tabs to see if you can find any relevant background sources. Make notes below about what you learn.

5. Do a search in **MLA International Bibliography.** You may have to try a few different combinations.
    a. Select 2 articles that seem relevant to your topic and read the abstracts. You may need to go into the full text of the article to find the abstract.
    b. Make notes on the back of this sheet about any relevant concepts and/or possible keywords. See the example below for ideas.

    Over the last five years, the Twilight *franchise has said one hundred million books, generated nearly $1.8 billion in ticket sales, and engrossed millions of readers. Amongst these readers: adult feminist women. Yet these texts promote regressive understandings of* romance, sexuality, *and the place of* patriarchy, *forming what Elena Levine has termed a "postfeminist fantasy." Indeed, the stunning success of the texts form one of the most striking manifestations of* postfeminist *culture in recent years. This article thus questions: exactly what sort of pleasures are feminist women deriving from Twilight? Instead of simply theorizing feminists' relation to* Twilight, *I sought out two dozen self-identified adult feminists for their own thoughts on their attraction to, submersion within, and problems with the text. Organizing responses around Elizabeth Cowie's theorization of* fantasy, *the pleasures of "girl reading," ambivalence, and affirmation of the feminist project, the article elucidates the distinct pleasures proffered by a postfeminist text. At the same time, it argues that the range of feminist responses to* Twilight—*from those who decry the text to those who enjoy it—underscores the difficulties and divisions confronting feminism today.*

Figure 10.1
Excerpt from worksheet for teacher education capstone course. The example article abstract is from "That Teenage Feeling: Twilight, Fantasy, and Feminist Readers" by Anne Helen Petersen.

the success of these consultations rested on the required worksheet because by the time the students met with her, they had been forced to think beyond a broad topic that would be difficult to research in a short consultation. The worksheet and reflections also provided artifacts for the librarian to use in assessment of formative learning and metacognition in the research process.

Environmental and Sustainability Studies

In many disciplines, research-based capstone projects are an obvious place for subject librarians to become involved with newly assigned liaison departments. When the science librarian took over the subject liaison relationship with the environmental and sustainability studies (ENV) department at UNCG, she requested a meeting with the department head to discuss opportunities for research instruction within the program curriculum. While students in the ENV major did not, at the time, receive any information literacy instruction from librarians, the department head was very receptive to the idea of integrating discipline-specific research instruction into the curriculum generally and the capstone in particular. As a result, the librarian now reaches ENV students through instruction, consultations, and embedded course assignments at the 100, 300, and 400 levels, including a 300-level course she teaches as a disciplinary instructor as well as the senior capstone project required of all ENV majors.

The model the science liaison uses for her work with the environmental and sustainability studies capstone course has varied over the years, usually depending on the instructor's syllabus schedule as well as her own teaching schedule. While the capstone students are always required by the course instructor to meet individually with the science librarian at least once, she provides group library instruction to the entire class only some semesters. Other semesters, the students review the resources on the course LibGuide and complete a librarian-designed assignment for class credit in the learning management system, then attend their required individual consultations with the librarian. During the individual meetings, the librarian focuses on helping students find sources for the capstone project that they may not have encountered during research in other disciplines, such as gray literature and extension research. She notes, however, that it can be difficult to schedule so many individual student meetings over a relatively brief period of time, particularly when the time period in which the course instructor wants students to meet with the librarian falls during a particularly busy part of her schedule. Ideally, the librarian would like to meet with students for group instruction two to three times a semester so she could "chunk" the content more before the individual consultations.

To assess her work with the capstone students, the science librarian regularly evaluates the in-class assignments the capstone students complete on search strategies. In a recent semester, she was also able to obtain anonymized final student projects from the course instructor so that she could assess information literacy competencies with a rubric she developed. The librarian wants to continue to do final product assessment of the students' capstone projects in order to have a summative understanding of her impact on student information literacy in the department.

Anthropology

Librarian involvement in the capstone course for anthropology also features research consultations but adds two information literacy sessions in the early part of the semester. The anthropology capstone class is typically taken in the fall semester of the senior year. It brings together students from three separate concentrations within the department. The class typically has a theme, and all final projects must fit into this theme. The class is normally taught by the same professor each semester and has between thirty and thirty-five students. A social sciences librarian meets with the professor before each fall semester to discuss the timing of the sessions, student learning outcomes, and the activities.

The librarian teaches two scaffolded workshops early in the semester. The first one is centered around topic formation. Because students are searching for topics that fit both the theme of the course and their concentration, topic formation can be difficult. The librarian focuses in this session largely on how to learn more about a topic, using sources such as specialized anthropology dictionaries and encyclopedias, multidisciplinary electronic encyclopedia packages, and review articles. The librarian typically meets with a few students for research consultations after students turn in their topics to the professor for approval. Students receive extra credit for meeting at any point in the semester with the librarian for a research consultation. A few weeks later, the librarian meets with the class again to help them find primary research on their topic. After this session, more students meet with the librarian for research assistance on their topics.

While all graduating students in anthropology are required to take this course, their previous interactions with the librarian vary. Students in each of the three concentrations take a research methods course in that concentration, but the social sciences librarian works with the methods course in only one of the three concentrations. She also teaches information literacy sessions for other anthropology classes upon professor request. As discussed by Miller, cited in earlier in the literature review, this can cause issues in the capstone course because students have had varying levels of exposure to library research and the librarian, and she cannot assume a consistent level of background knowledge.[18] Anecdotally, the librarian has noticed that students who have met with her for a library session in a previous semester are more likely to schedule a research consultation for their capstone research.

In an ideal world, the librarian would work with the professor to develop a more scaffolded final project, which could result in students scheduling more research consultations based on feedback from the professor. She would also like to meet either with the research methods courses for all three concentrations within the department or just with the classes that require more extensive research and writing so that all students would reach the capstone course with some knowledge of library resources and academic research in anthropology.

Music

The librarian's involvement throughout the department can impact his or her degree of involvement in the capstone class. A performing arts librarian has developed a close relationship with the students and faculty of the School of Music because her office is located in the School of Music building. The physical proximity between the performing

arts librarian and the School of Music has resulted in many collaborations, one of which is the capstone in the bachelor of arts in music program. Like the anthropology capstone course, this capstone course involves two information literacy sessions and consultations (though the music consultations are required, not optional), but the students already have foundational research skills due to earlier exposure to the performing arts librarian.

One of the reasons this capstone collaboration works so well as a culminating experience is that the performing arts librarian's involvement with the capstone students begins much earlier in their undergraduate educations. The performing arts librarian first meets music majors in Musicology Research, a required 100-level class for majors in all of UNCG's music programs (including music education, performance, and the BA in music). This class is typically taken in the freshman year. In Musicology Research, the librarian attends every class meeting, teaches several class sessions, and creates and grades multiple library assignments, including searching for library resources and using the Turabian method of formatting and citation. Additionally, music majors sometimes receive library instruction sessions during their history of music course sequence, typically taken in the sophomore and junior years.

The performing arts librarian's involvement in the capstone course is characterized by two scaffolded class sessions followed by one-on-one meetings with each student. The first course-integrated library instruction session is largely a review of the library content she covered during the research courses they previously took. For the second session, the students bring in three potential topics for their capstone project. They search for resources on these three topics during the class period, with the librarian available to help them do background research, test out different ideas, and investigate the breadth of available research. After these two sessions, each student is required to meet with the librarian for a research consultation, where they receive one-on-one research assistance with the topic they chose. The librarian says this consultation is vital because students can ask questions they do not feel comfortable asking in a large group environment. She has also at times referred students to a different subject librarian for further assistance if the topic is cross-disciplinary in nature.

In an ideal world, with unlimited time and resources, the librarian would always be able to attend the end-of-semester presentations that accompany the capstone papers. This would be useful for assessment purposes by allowing the librarian to examine more closely the resources students ultimately use and how they cite them. She finds spending more time with students in research consultations mutually beneficial because she is inspired by their energy and feels these one-on-one sessions are more productive for students than whole-class workshops. The librarian would also teach students in the history of music sequence how to use Zotero so they would be comfortable using it for the capstone project.

Computer Science

The science librarian's involvement in the senior capstone course in the computer science department represents another model of capstone collaboration between a subject librarian and disciplinary faculty at UNCG. While the science librarian

has no previous contact with the students in the computer science major before her work with the capstone course, she is involved in the computer science department's assessment of the students' final group presentations for their finished projects. Thus, while she is not extensively embedded in the program, the department values her expertise enough to ask for her perspective in determining the students' project grades.

The senior project capstone course is required of all computer science majors. At the beginning of the semester, the science librarian meets with the senior project students in their own workspace. Her instruction session focuses on walking the students through the resources they will need to guide the research for their final project and presentation. Because the senior project largely consists of hands-on software development work in groups, some of what she covers is very practical, such as guiding students to electronic reference resources on different program languages and coding methodologies. However, the students must also engage with scholarly research in their discipline to demonstrate knowledge of recent developments in the computer science field. To address this, the librarian also engages the students in interactive exercises about search strategies and citation. This session represents the first and only information literacy instruction the students receive in the computer science major, so many of the students are not familiar with finding or evaluating scholarly journal articles, conference proceedings, technical reports, or white papers in their discipline.

The science librarian's involvement with the senior project course is a product of her initial outreach to the computer science department when she began her position at the University Libraries. At first, the coordinator for the senior project invited her to provide library instruction for the course. However, by her second semester, she was asked to assess the final presentations for the project as a grader. While she currently meets with the students for library instruction at the beginning of the semester and attends their presentations at the end of the term, the science librarian hopes to have required consultations with each capstone group on their research project somewhere in the middle in future semesters.

Going forward, the science librarian would like to find a way to work with computer science majors earlier in the program so that their capstone course is not their first opportunity to develop research skills useful in the field as well as familiarity with subject-specific resources. She reports that, in her experience, senior computer science students are more focused on degree completion and future employment opportunities than they are on developing what they see as purely academic research skills. Embedding in the program earlier on, even if specific research projects are not required in introductory courses within the major, may help these students see research and publication as integral parts of their major and chosen field. Additionally, she recommends that liaison librarians should be proactive about contacting capstone coordinators about instruction and final presentation dates. The department's capstone coordination responsibilities have changed hands more than once during the librarian's tenure, and staying in regular communication with faculty and departmental administrative staff helps her keep up her involvement with the capstone, even when someone new is in charge of the program.

International and Global Studies

One of UNCG's social science subject liaisons works extensively with the international and global studies (IGS) department. While she provides a one-shot instruction session for the senior capstone seminar, she also plays a more embedded role in the IGS department, which allows her to work with IGS students outside of the library instruction classroom before they reach the senior capstone level. The librarian currently serves in an advisory role in the IGS department, which requires her to attend to various departmental functions as well as get to know the department's students at curricular and cocurricular events. She also teaches a 200-level introductory lecture in the IGS department as a disciplinary instructor in the spring semester. Additionally, she serves as a formal mentor for IGS majors undertaking the required senior capstone course whose research interests align with her content knowledge as a subject specialist in the social sciences.

For the IGS capstone course, the social sciences librarian teaches one seventy-five-minute class session in the second week of the semester. The capstone is both "writing-intensive" (WI) and "speaking-intensive" (SI), which are markers within the UNCG general education program. *WI* designates a course that integrates "substantial and continuous" writing as a means of learning within a particular discipline, while *SI* designates the same, but with speaking in lieu of writing, in the form of small-group projects, presentations, interviews, and debates. In the context of the capstone, the markers mean that students must individually choose a topic of personal interest and engage with multiple drafts, considerable revisions, and oral presentations throughout the semester before turning in a twenty to twenty-five-page final paper.

The social sciences librarian's approach to her instruction work with this course is shaped by a specific requirement the disciplinary professor sets for the capstone assignment: instead of limiting themselves to scholarly journal articles and monographs, students must integrate six distinct types or formats of sources into their final paper. To address this requirement, the librarian introduces the students to Bizup's BEAM (Background, Exhibit, Argument, Method) method of source analysis,[19] which prompts writers to think about sources in terms of the rhetorical purposes they will play in their written argument (see figure 10.2). She guides students through a critical thinking exercise about the information they will need to introduce, support, and sustain an argument in a lengthy research paper on their chosen topics; the formats in which that information would be published or shared; and the best ways to find and evaluate relevant information in those particular formats. (see figure 10.2).

Additionally, while a formal literature review is not a required component of the capstone project, the librarian provides students with tools to organize, compare, and synthesize their sources so that they can think about their research questions within the context of the existing literature on the topic. A specific approach she recommends to students is using a synthesis matrix, which prompts students to trace major ideas across sources instead of summarizing each of them individually. On the LibGuide she has created for the capstone course, the social sciences librarian links to a free online template for a synthesis matrix created by the writing center at Florida International University.[20]

BEAM Method		
Research question: What are the impacts of Israeli settlements on possible solutions to the Israeli-Palestinian conflict?		
Background sources can help you get basic information to understand and contextualize your topic.	BBC's Palestinian Territories Profile	This source gives great background information to contextualize the Palestinian conflict, but it doesn't provide much data or analysis of the issue. **Question: What sources will give you context and background info?**
Exhibit sources provide evidence or examples that you can analyze to make your argument.	World Bank Data on the West Bank and Palestine UN Resolution 2334 on settlements	Exhibit sources give you information that you can analyze. In this example, you might use data to examine the West Bank's GDP or you are analyzing the impact of the UN Resolution on settlements from December. These sources give you data or primary information, but little to no analysis. **Question: What sources will help you interpret or analyze a situation?**
Argument sources allow you to engage with an existing argument about your topic.	What's new and what's not in the U.N. resolution on Israeli settlements	This post from the Brookings Institute (a think tank) analyzes the impact of the UN Resolution and provides a particular perspective on this issue. The article clearly intends to give a perspective using the exhibit sources available. To find out the writer's perspective, you should also examine the think tank's purpose. **Question: What sources will help you affirm, dispute, or refine your arguments about a topic?**
Method sources can give you ideas about what methods you might take to approach your topic.	The Relational Context of Radicalization: The Case of Jewish Settler Contention before and after the Gaza Pullout.	This is a scholarly article from the *Political Studies*. In the abstract, the author describes his methodology (content analysis and in-depth interviews). You can use this article to decide what methods would be most appropriate for your research. **Question: What sources will provide a critical framework for thinking about your topic in general? What sources provide broader theories or perspectives?**
Bizup, Joseph. "BEAM: A Rhetorical Vocabulary for Teaching Research-Based Writing." Rhetoric Review 27.1 (2008): 72–86. Web.		

Figure 10.2
Screenshot from a UNCG LibGuide for the IGS capstone course

Following the instruction session, the librarian offers optional consultations with capstone students for follow-up help with their research. She estimates that she sees about a quarter of the students for research consultations at least once over the course of the semester. She also has additional meetings with the capstone students for whom she serves as a content mentor. Like the science librarian who assesses final student projects for the computer science capstone course, the social sciences librarian attends the IGS students' final presentations at the end of the semester and evaluates the students' work with the course instructor's project criteria. Additionally, she uses the American Association of Colleges and University's Information Literacy VALUE Rubric for her own assessment of the final research projects.[21]

One challenge the librarian faces in working with this capstone course is that the students have various levels of prior training in different social sciences research methods. For example, the students need to find and incorporate data sources in their capstone research, but many lack the skills to analyze raw data sets, especially in light of their own research questions. In response to this, the librarian discusses the possibility of using sources like World Values Survey, newspaper articles, or even videos as sites of primary data analysis, rather than secondary sources that might support their arguments. Ideally, the librarian would like to see IGS students receive more practice with intensive research skills before the senior capstone project, such as in a 300-level class. In the future, she would also like to have a second library instruction workshop later in the semester, around the time students are composing their first paper drafts, to better address what they see as their research gaps as well as source integration.

Future Directions

Through examining our own practices, the authors propose two potential models (see table 10.1), both of which have advantages and disadvantages. Both models should include librarian assessment of final projects, as this is necessary for ongoing improvement in the librarian's impact on the class. This assessment would not have to be tied to course grades but could instead be a separate assessment of the information literacy learning outcomes of the course. The first model would involve having a librarian embedded in each capstone course. The second is using a scaffolded model for capstone involvement. Like the approach taken with the music and anthropology capstones, this approach calls for two instruction sessions plus a required consultation with the librarian, in addition to information literacy instruction in any required research methods courses within the major leading up to the capstone.

Table 10.1

Proposed capstone models.

	Embedded Model	**Scaffolded Model**
Model Features	Librarian is embedded in the capstone course as a coinstructor who attends every class meeting. Librarian works with course instructor to integrate information literacy instruction throughout the course curriculum and contributes to syllabus, assignment, and lesson plan design. Librarian can do more extensive formative and summative assessment of student learning by evaluating informal class activities as well as final products.	Librarian teaches two scaffolded instruction sessions during the capstone course. Students are required by instructor to schedule individual research consultations with the librarian. Students have received prior information literacy instruction from the librarian in any research methods courses required for their majors before the capstone. Formative assessment is more limited due to less contact time, but librarian still evaluates final projects.
Advantages	Librarian gets to know students individually. Librarians can be more responsive to student needs.	Students have the opportunity to build IL skills over time and have those skills reinforced.
Disadvantages	This model involves so much librarian time, it would not be feasible for librarians with multiple liaison areas. Students may not be introduced to basic IL competencies until their last semester of college.	Librarians must stay current on curriculum changes within departments to ensure they are working with the most appropriate classes. More outreach will also be involved since multiple classes will likely involve more faculty.

At our own institution, this survey of librarian involvement in capstone classes has revealed a variety of approaches. As a next step, the authors propose conducting a systematic inventory of all capstones classes at UNCG, as not all departments have them. After this inventory, we will look at the last three years of instruction stats and see which of these classes have had information literacy workshops with librarians. Then we will look at these capstones and do brief interviews with the librarians on their other involvement in those departments. Based on these discussions, the ROI department can work together as liaisons to devise some targeted outreach strategies to fill in the gaps and find the most appropriate places to use our resources. Whichever direction we take, being open to developing and cultivating connections around undergraduate capstone projects in support of student success will remain an important part of liaison work at our institution.

Notes

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