

Lara J. Handler. Patron Satisfaction with Departmental Science Libraries at the University of North Carolina, Chapel Hill. A Master's Paper for the M.S. in L.S degree. August, 2007. 55 pages. Advisor: Lisa Norberg

This study focuses on the specialized needs of the graduate students served by departmental science libraries at The University of North Carolina at Chapel Hill. The aims were to learn how libraries can better meet the needs of graduate students served by the specialized science libraries, improve existing services, and determine what changes ought to be made in the future. An electronic survey was distributed to the entire graduate student population that is served by the science libraries. Results reveal the unmet needs of the students, the amount of interdisciplinary work and multi-library use by students, and the instructional services requested by the respondents. Recommendations for improvements and additions to existing library resources and services are given, as well as suggestions for future research on this topic.

Headings:

Surveys/Scientific and technical libraries

Surveys/Information needs

Use studies/College and university libraries

PATRON SATISFACTION WITH
DEPARTMENTAL SCIENCE LIBRARIES
AT THE UNIVERSITY OF NORTH CAROLINA,
CHAPEL HILL

by
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Introduction

While the library needs of graduate students have been widely discussed in the literature, this study focuses specifically on the needs of science graduate students served by departmental or branch libraries at the University of North Carolina at Chapel Hill. Recent events, along with a general recognition of the changing information environment, prompted the University Libraries to look at issues of information access and library services to graduate students in the sciences. The Chemistry and Zoology Libraries have been temporarily relocated while their former buildings are under construction or renovation, the Botany Library is slated to move into a new building, and the chemistry librarian recently retired. During this period of flux, the University Libraries are interested in learning how to best meet the many specialized needs of the graduate students who are served by these and other departmental science libraries including Geological Sciences and Math/Physics.¹ What do the graduate science students want from their libraries that they are not getting? How interdisciplinary are these students' needs, and does it make sense to continue serving them through separated, geographically and subject distinct departmental libraries? This study aims to generally find out how libraries can better meet the needs of the graduate students who are served by departmental science libraries, and specifically how the UNC University Libraries

¹ This study focused on the five science libraries affiliated with UNC's University Library System but it should be noted that many graduate students in the science use the UNC Health Sciences Library which is separately administered.

should improve existing services and determine what changes ought to be made in the future.

There is a significant history of needs assessment studies in academic libraries. One common methodology uses questionnaires to evoke patron responses and to provide statistically valid data of patrons' library usage and information needs. At the University of Arizona's University Library, a Science-Engineering Team used questionnaires to determine science-specific user needs (Bender, Chang, Morris, & Sugnet, 1997). Another science library study, this one at the University of California, Santa Cruz' Science Library, employed surveys of graduate students and faculty members to find out their assessment of library resources and services (Wei, 1995). A seminal study in this field that was conducted at the University of Washington compared library users in different subject fields, with a close look at whether science and engineering graduate students still need a physical library (Hiller, 2002). Investigators at the University of Illinois at Champaign used this study as a model and expanded their view to look for specific answers about departmental libraries, including whether some services are more essential and others are less necessary for science departmental libraries to continue providing (Chrzastowski & Joseph, 2006).

As evidenced by the literature, there is a long precedent of conducting questionnaires and gathering user feedback to evaluate and improve individual and departmental libraries' services and resources. Although this study's research questions vary slightly from the studies above, due to a particular emphasis on the five science libraries at UNC, the methodology reflects what has been successful before, specifically in the Hiller and Chrzastowski & Joseph studies. The research questions are as follows:

1. **What are the unmet needs of graduate students using the Botany and Zoology, Geological Sciences, Chemistry, and Math/Physics libraries?** Are students using the services provided by their departmental library, and are they satisfied with them? Are there specific services and resources that the students want from their departmental libraries and which are not yet being provided?
2. **Should these libraries be consolidated for a more interdisciplinary approach?** Are students using the separate science libraries, or do they prefer to use different, larger libraries such as the Health Sciences library? Would consolidation of the individual departmental libraries better meet the interdisciplinary needs of the students?
3. **What are the instructional needs of the students using these libraries?** How can instructional services be better tailored to students served by the science departmental libraries? Do the students want to receive live or online instruction, in group settings or personalized, and what times and forms of advertisement do they prefer?

There is potential for extraordinary change to be made by learning the needs of the libraries' users. This study aims to understand how libraries can better meet the needs of the graduate students who are served by the specialized science libraries, and specifically how the UNC University Libraries can improve existing services and make wise, informed changes for the future. This research discovers and describes the existing student needs, and hopefully will encourage and contribute to beneficial planning for the future.

Literature Review

The issues of needs assessment, library instruction, and separate departmental science libraries have been researched and explored in numerous studies within the library literature. This review of the literature looks at a sample of recent research that explores these three main topics. This examination will show the significance of this research to the body of literature that already exists, and conclude with a description of the major aspects of research to which this study hopes to further contribute.

Needs Assessment Studies: Overall Issues and Relevant Examples

Needs assessment studies are widespread, but a significant amount of research has focused on overall library needs rather than graduate users of science-specific libraries. Of the diverse needs assessment studies in academic libraries, many employ the methodology of using questionnaires to evoke patron responses and to provide statistically valid data of patrons' library usage and information needs.

One widely-used survey tool is the LibQUAL+™ questionnaire. In 2004, the LibQUAL+™ survey was administered by 202 libraries in the United States, Canada, and Europe. With a combination of open-ended responses and questions asking for rankings on a 1 to 9 Likert scale, the University of Idaho used this survey tool to determine user satisfaction and expectations associated with library services and quality. The University of Idaho surveyed all users of the library, and found that analyzing survey data by focusing on a specific constituent group helped library administration to understand and

increase awareness of the libraries' most valued resources (Jankowska, Hertel & Young, 2006).

While this study was helpful in learning more about the needs of Idaho's graduate students in comparison to those of the undergraduates and faculty, factors such as the desire for institutional-specific design and the high fees associated with participation in LibQUAL+™ may contribute to many university decisions to create and use their own survey tools. During the same year as the University of Idaho survey, the University of Hong Kong Libraries conducted another similar user survey. Although this questionnaire is not the LibQUAL+ survey, the survey shared the methodology of collecting the users' opinions of the importance of services and the performance of various library services and resources (Woo, 2005). The Hong Kong library survey results are useful in their findings of specific user needs in a period of changing preferences for print and electronic materials, but the study's discussion has weaknesses that future research may be wise to address. The Hong Kong libraries sent different surveys to users of the main library and six branch libraries, and although the article mentions that the text was altered for different locations, only a sample of the survey for the main library users is reproduced in the article. Although some specific responses from different library user groups are discussed, the variations in survey questions are not provided, making an overall analysis challenging when trying to compare users' needs in the main and branch libraries.

Much of the survey literature does address this issue of different libraries' users having differing needs. Needs assessment surveys are often created by individual university libraries to determine user satisfaction and unmet needs that are specific to the libraries and populations served. In a study at Washington State University Libraries,

investigators found a discrepancy between users' reports of how important they think a service is, and how often they actually use a service (Bancroft, Croft, Speth & Phillips, 1998). The issue of patrons' perceptions of needs and patrons' actual behavior is an important distinction that is looked at in this Washington State study.

In the Washington State study, the investigators found that many users report "no opinion" where allowed in survey responses. Rather than dismiss these responses as statistically irrelevant, the authors argue that these answers can be used to determine resources and services that should be "re-evaluated, eliminated, or advertised" (Bancroft et al., 1998, p. 218). Literature that discusses the survey tools in detail is often most effective when it shares specific questions and responses received from different constituents. Likewise, studies are most valuable when results are evaluated even when "no opinion" is a common user response.

Needs Assessment Studies: Issues and Examples Specific to Graduate Students

While much of the literature does generalize, some authors focus on the specific population of interest to this particular study: graduate students using academic libraries. The authors of the above-mentioned study at the University of Idaho explain that they focused on graduate student responses partially because "graduate students are a less covered user category in the library literature than undergraduate students" (Jankowska et al., 2006, p. 60). Although this reason is only one of several reasons given that are more specific to their university's need to learn more about graduate students, this study illuminates both the reasons why undergraduates are studied more than graduate students, and explains the study's specific discoveries about the graduate students.

In reference to reasons why graduate students are not studied as often as other groups, the article argues that there is a perception of undergraduates needing the most instruction and assistance to navigate the complexities of academic libraries. The authors point out that contrary to this belief, graduate students may not be as proficient as they should be in many information skills. The authors point to studies that have found graduate students unaware of the majority of library services, and the erroneous yet common opinion of librarians that graduate students are being helped by faculty and faculty assumptions that graduates are being assisted by the library (Jankowska et al., 2006). After explaining why graduate students were chosen as their focus, the authors of this study provide valuable findings on the specific information needs of these graduate students, such as the desire for more journals in electronic format, newer books relevant to their particular fields of study, and library web sites that are easier to navigate.

These findings are similar to those discussed in other studies that also focus on graduate students and library needs and satisfaction. A needs assessment study conducted at the University of Iowa attempted to identify the library resource and service needs of graduate and professional students, as well as the uses, perceptions, satisfaction, and unmet needs of this group (Washington-Hoagland & Clougherty, 2002). Rather than conduct a survey of the whole, the researchers at Iowa chose to do a random stratified sample of 10% of the entire graduate and professional student body. Like many of the other user studies discussed here, this questionnaire included both open-ended and forced-choice questions that were ranked on a Likert scale. Findings were similar to many of the other studies discussed, with major themes showing that graduate and professional students are woefully unaware of many library services and resources, and

that they would like more material in their narrow fields of academic interest. This survey found that these students do still come to the library and want to continue having the library as a physical place, but that they come less to study and borrow books and more for research and to use library resources. The authors concluded that the libraries should do a better job of publicizing services, continue providing face-to-face contact, expand journal offerings, and investigate instructional options. The section on instructional needs is particularly useful for the current research, and will be discussed in more depth in the second section of the literature review.

Needs Assessment Studies: Graduate Students in the Sciences

In a departure from the above studies that have examined graduate students' library needs in a general sense, the literature also includes examples of research that focus specifically on graduate students in the sciences. At the University of Arizona's University Library, a Science-Engineering Team used questionnaires to determine science-specific user needs (Bender, Chang, Morris, & Sugnet, 1997). This survey was sent to all faculty and graduate students who were identified in 30 science and engineering departments. Although this study did produce valuable research results, the authors point out that because they used the "census" method of polling, the result was that not everyone who could respond chose to do so. The authors caution that the answers to the demographic questions show a favoring of moderate to heavy users of library services, and that therefore a non-response bias exists and the data collected cannot be representative of the entire science and engineering population (Bender et al., 1997).

However, this study is important in several aspects to both the field of library literature and the current research. The authors offer an extensive list of their most important specific study results and how they would improve a similar study next time. The survey responses suggest that the library emphasize science resources in an orientation for new graduate students, pursue more electronic marketing of library services, increase training and information about electronic resources, and provide other science-specific materials and instruction. More specifically related to the current research, this study provides an example of a needs assessment survey that is done within a large university library system, but which focuses exclusively and in detail on science graduate students. The authors' suggestions for subsequent improvements are thorough and detailed, such as providing more focused and detailed questions for the respondents. In addition to this helpful suggestion, the methodology of using both open-ended questions and choices ranked on a Likert scale served as a model for this research.

A similar library study at the University of California, Santa Cruz also had direct implications for the current research. Like this study, the California research was not conducted at a general university library, but instead targeted users of Santa Cruz' Science Library. The researchers used surveys of graduate students and faculty members to assess library resources and services (Wei, 1995). Focus groups were conducted in addition to the surveys, which stands in contrast to many of the other studies that use solely survey methodology. Wei's study is important in providing a model for needs assessment of graduate science students, and in the way it divides students by major to assess the differing needs of various science majors.

Another important study in this field that also compares library users in different subject fields was conducted at the University of Washington Libraries. In this study, the author found significant variations in information needs and library use between scientists and other academic fields (Hiller, 2002). While the study did include undergraduate students, the article mainly discusses the faculty and graduate students. The study used the common methodology of a survey that included both quantitative questions using a Likert scale and more qualitative, open-ended questions. Much like the libraries that were studied at UNC Chapel Hill, the University of Washington Libraries serve their students through decentralized libraries, including a separate science library. The use patterns found in this study indicate that the science libraries are physically used least on campus, but that scientists were more likely to remotely find and use journal citations than researchers in the humanities and social sciences. This study has similarities with the current research, in both the survey design of focusing on science researchers and Hiller's findings that scientists have unique needs and priorities that are different from library users in other academic areas.

Investigators at the University of Illinois at Urbana-Champaign used Hiller's study as a model. Acknowledging that their study was based on the surveys from the University of Washington, the Illinois researchers expanded their view to look for more specific answers about departmental libraries. This research included questions of whether some services are more essential and others are less necessary for science departmental libraries to continue providing, and whether the science students' answers would again differ from those of students in the other academic areas (Chrzastowski & Joseph, 2006). In both cases, this study found similar results to studies such as Hiller's

and Bender, Chang, Morris, & Sugnet's. Science students looked for books at least weekly in the library at less than half the rate of students in the humanities, and scientists reported the highest use of libraries through computer access. This study provides contrasts and comparisons of the needs of the scientists with the library users of other departments on campus. As a whole, the studies that examined graduate students in the sciences provide an illuminating look at the unique needs of these library users, as well as examples of key issues in which the current study contributes to the ongoing research.

Science students and Instructional Needs

The issue of science graduate students and their instructional needs from libraries is not addressed by survey questions that explore the needs and perceptions of library instruction. Two of the articles that are discussed above provide important discussions that should be included on this topic.

In the University of Iowa survey of graduate and professional students, researchers noted that students identified a need for more instructional sessions. However, the authors also point out that the same overall group of respondents reported that they did not take advantage of instructional sessions that were available (Washington-Hoagland & Clougherty, 2002). The article states that further research is needed to investigate why this paradox exists and how to address it. While this does not answer the question, the issue points to a need to conduct this further research. A section of the current survey asks the science graduate respondents if they use or want more instruction, but also what their past experiences have been like in this area.

In a detailed discussion, researchers at Washington State University's libraries found that patrons were satisfied with instruction when they received it but that they listed instruction as a service of low importance. Results reflected patrons' preference for "on-demand" instruction, or information help when the specific need arises (Bancroft et al., 1998). Taking this into account, the current study asks when and where instruction is most preferred and most helpful to science graduate students taking this survey.

The Issues of Consolidation or Departmentalization of Science Libraries

The final area of this literature review looks at the issues involved in determining whether science students are served more effectively by consolidated science libraries, or with separate and geographically distinct departmental libraries. Some universities have found that as students' scientific studies become increasingly interdisciplinary, consolidated libraries are more helpful. In contrast, other institutions' libraries remain divided by specific scientific topic. Within an article examining this decision at the University of Chicago, the authors discuss what brought the departmental chemistry library into a centralized science library on campus (Twiss-Brooks, 2005). While this article is not a research study and offers no empirical evidence, the discussion of reasons to centralize or remain distinct are important to understanding this issue as a whole.

The University of Chicago found that consolidating the libraries made sense, due to reasons such as supporting a unified and comprehensive collection, the increased desktop availability of electronic resources, and an increase in interdisciplinary research. Because the current research focuses on the user's needs and opinions, survey questions attempt to discover whether the science students use libraries other than that of their

home department, and if so, how many and which libraries the student tends to regularly use.

One study that did investigate this consolidation-departmentalization question is the University of Illinois survey (Chrzastowski & Joseph, 2006). The researchers wrote that they found it interesting that most of the graduate and professional students did not comment only on one library, but instead reported using numerous libraries and commented on many of them. While this study found this to be true for all of the graduate and professional students, this survey asks questions of science-specific graduate students and analyzes the results in a similar way for comparable findings. The issues involved in consolidation and departmentalization are complex and not widely addressed in the library literature, but the preliminary work that has been done and the findings of the current survey provide opportunities for future research.

Summary of the Literature

The issues of needs assessment, library instruction, and separate departmental science libraries have been discussed in their appearances in the current library literature. This review of the literature looks at a sample of recent research work and the strengths that can be expanded upon, as well as the gaps that have been goals of the current research and can also be improved by work in the future. As many of these studies have shown, finding out what users want and need from library services and resources, library instruction, and the interrelatedness of departmental research is both essential and needs more research in the area of graduate studies in the science field. The current research

draws upon these three important questions and seeks to contribute to the ongoing discussion on these key issues.

Research Methodology

Study Design

The subject population consists of 693 graduate students in the departments served by the following libraries: Biology (Botany and Zoology), Geological Sciences, Chemistry, and Math/Physics. The table below shows the number of students in the departments served by the above listed libraries.

Table 1: Number of students in departments served by the libraries in this study

Department	Total # of Students Enrolled in Department
Applied & Materials Science	28
Biology	89
Chemistry	207
Computer science	125
Geological sciences	28
Marine Sciences	24
Mathematics	51
Physics & Astronomy	74
Statistics & Operations research	67
Total	693

The names and email addresses for the subjects were provided by the registrar's lists of enrolled graduate students, including both master's students and PhD candidates. This study is not a sample study, but surveys the entire population. All of the science graduate students were sent the survey and the subject population consists of volunteers who opted to participate. Gender, ethnicity, race and age were not selected for, but reflect the volunteers who chose to participate.

Participants were contacted through an email that contained a link to an online questionnaire. The questionnaire was estimated to take participants approximately 10-20

minutes to complete. In accordance with the University of North Carolina's Institutional Review Board requirements, a Letter of Implied Consent was sent in the email and had to be viewed before participants began the survey. Appendix I contains the Letter of Implied Consent. Consent was given by clicking on the link that led to the questionnaire.

Participants were asked to fill out a short, web-based questionnaire pertaining to their use of the departmental science libraries and their unmet needs. Appendix II contains a list of questions asked, and a compilation of the responses. Each participant completed the same questionnaire, but some participants skipped questions based on their responses to earlier questions. There are no control groups in this study, nor were there any differential assignments of participants to different study "arms."

When a participant completed the questionnaire, he or she was asked to close their browser or window. They were contacted twice, with the information about the study and the initial invitation to participate, and a second follow-up reminder email. The survey administration and data compilation were provided by a survey vendor called Qualtrics (<http://www.qualtrics.com>).

Data Analysis

Demographics were analyzed for participants by tabulating the results of several questions on the survey, as explained in the next paragraph on coding. This helped to determine if the sample population reflected the overall student body and was approximately representative of the departments served by the libraries.

To answer the central questions of this study as accurately as possible, the questions were coded as they addressed the main research questions. The first overall

study question sought to discover the unmet needs of science graduate students. The survey tool attempts to gather data through responses to the specific survey questions 19-20, 24, and 26-27. The second study question aims to learn more about the degree to which students' work is interdisciplinary and whether consolidation of the libraries would meet their research needs. Survey questions that gather data on this question are numbers 4 and 7. The third research problem concerns the instructional needs of the students, and responses to this question are from numbers 14-18 and 21-23. Demographic questions are numbers 1-3, 5-6, 8-13, and 25.

The survey responses consist mostly of quantitative data, with a smaller amount of qualitative data. Percentages have been calculated for the quantitative data in a similar manner as Hiller did in his 2001 study at the University of Washington. A smaller amount of qualitative data was collected, and was coded and reported as comments and responses to open-ended questions. Again, all questions and response data is attached in Appendix II.

The overall purpose of this analysis is to answer the three core research questions: what are the unmet library needs; are the students using just one library or do they tend to visit many separate or one consolidated library such as Health Sciences; and finally, to learn what missing instructional services the students would like to receive.

Results and Discussion

Overall Results

Out of a total of 693 students who were invited to participate, 100 students elected to fill out the survey. This return rate of 14.4% is a sample, and cannot be generalized to assume characteristics or beliefs that are reflective of the whole science graduate student population. However, a discussion of the results of this sample reveals important information and trends among these sampled students and can help us to learn more about their needs and preferences as related to library usage. Although the highlights of the survey responses are discussed in this section, more details can be obtained by viewing the collection of survey questions and responses, included as Appendix II.

The responses to questions 1-3, 5-6, 8-13, and 25 provide demographic and background information about the respondents of this study. Table 2 shows the total number of students in each department in this study, the total number of responses, the percentage of students in the major who responded, and the percentage of the overall student response rate. The table shows that nearly 40% of the responses come from Chemistry majors, with Computer Science and Biology being the next highest-represented departments. Although all departments had students who responded, it is important to keep in mind that the results may be biased towards departments with higher enrollment. Over half (54%) of the respondents have attended UNC-Chapel Hill for two to four years. Students who have been enrolled for less than one year and for five to seven years made up an additional 19% and 20% respectively. Most of the students (45%) reported physically

Table 2: Department Affiliation of Respondents (Question 3)- all rounded to closest whole numbers

Department	Total # of Students Enrolled in Department	# of Responses	% of students in major who responded	% of overall survey respondents
Applied & Materials Science	28	2	7%	2%
Biology	89	15	17%	15%
Chemistry	207	39	19%	39%
Computer science	125	17	14%	17%
Geological sciences	28	4	14%	4%
Marine Sciences	24	8	33%	8%
Mathematics	51	6	12%	6%
Physics & Astronomy	74	6	8%	6%
Statistics & Operations research	67	3	4%	3%
Total	693	100	n/a	100%

visiting the UNC-Chapel Hill Libraries on a monthly basis, with the next highest group of students (26%) visiting weekly.

About one-third of the students (29%) reported interacting with a librarian about once a semester, closely followed by another third of students who interacted about once a year (27%). Nearly half of the students used library resources daily (47%) and accessed the libraries' webpage on a weekly basis (48%). Overall, the survey responses show a bias towards the three largest majors, but also reflect a sample population that is well-acquainted with the library and uses its services often.

Unmet Needs of Science Graduate Students

Questions 19-20, 24, and 26-27 addressed the unmet needs of the science graduate students who participated in this study. Students listed specific information needs that they have, as well as sharing their preferences for different ways of learning about the libraries' resources and services. 75% of students answered that they prefer email communication from the libraries when announcing new services and resources, with other responses such as library web pages and posters receiving fewer responses.

Students provided a range of answers to the open-ended questions of what additional services or resources they want from their science libraries, although "more e-journals" was mentioned in 42 of the 64 total responses (question 26). Another open-ended question (question 27) garnered suggestions that varied from a request to integrate the Botany and Zoology libraries to after-hours access for graduate students.

Two Marine Sciences students mentioned the difficulties they have in obtaining documents since the Marine Science program is not based on the main Chapel Hill campus. One of these students wrote that some journals are not available electronically and they would love to have a librarian email a PDF when it is needed. Again, students in many departments mentioned expanded access to e-journals as their concern or suggestion for the future.

Interdisciplinary Research and Library Consolidation

The question about the degree to which students' research is interdisciplinary and whether the libraries might benefit their students by considering full or partial consolidation is also addressed in the survey. Students were almost equally divided as to

whether they consider their research to be interdisciplinary, or in the language of the question, whether it “crosses two or more traditional disciplines.” 49% of students surveyed answered affirmatively, while 51% said they do not think so (question 4). Only one student declined to answer this question.

Table 3: Libraries that respondents have used (Question 7)

#	Answer	Response	%
1	Geological Sciences Library	19	19%
2	Math/Physics Library	49	50%
3	Botany Library	18	18%
4	Zoology Library	31	32%
5	Chemistry Library	51	52%
6	Health Sciences Library	47	48%
7	Undergraduate Library	45	46%
8	Davis Library	67	68%
9	I have never used any of the UNC Chapel Hill libraries	0	0%
10	Other libraries:	7	7%
	Total	334	341%

Another question related to interdisciplinary research asked students about their cross-library use (question 7). Eight of the UNC Chapel Hill campus libraries were listed as options, along with “other libraries.” Of the 100 students who chose to respond to the overall survey, there were 332 responses to this question that asked which libraries the respondent uses or has used (see Table 3 above). This seems to indicate that many students are using more than one library, and going outside of their specific departmental library. While students were divided in their own classification of their studies as interdisciplinary, the responses show that they are commonly using several libraries outside of their own departmental library for research that draws upon more than the one traditional discipline.

Instructional Needs of Science Graduate Students

Other questions in the survey seek to broaden the understanding of instructional needs of science graduate students. Goals of the survey were to learn how many students have already received instruction and what further help they need, as well as what services are missing or can be improved.

Questions 14-18 surveyed students about training that they have already received. More than half of survey respondents answered that they have not received any training or help from a librarian or anyone else at UNC Chapel Hill (56%). Of the 43 students who have received training or help, 81% received training with a librarian at one of the UNC Chapel Hill libraries. Topics of training ranged, in order of most to least common: finding journal articles in print or electronic format; finding information specific to his or her topic or discipline; how to find books; how to use a library database; and other library and research topics. Overall, 40 of the 41 respondents to question 17 answered that the instruction received from a librarian was worth the students' time invested.

Most of the respondents (80%) indicated that they prefer to learn about online databases or other library resources through online, self-paced tutorials (question 21). One-on-one help was preferred by 11% of respondents and 9% want in-class sessions. These students' responses show that there is a need for online, self-paced tutorials as an instructional method of teaching students about the library resources.

The most preferred locations for library-hosted instruction sessions are online, in the building where the individual students' office or lab is located, and in a building near the students' office or lab (question 23). The best times for students to attend a library-hosted instruction session varied widely. For morning sessions, Wednesday and

Thursdays are preferred. For afternoons, Mondays, Wednesdays, and Thursdays were selected the most often. For evening sessions after 5 PM, Monday was the most common choice.

Question 18 asked for reasons from students who answered in a previous question that the instruction they received from a librarian was not worth their time invested. Of the three responses to this question (see Table 3, below), two of the answers were that the student had never received any training or instruction from a librarian. In a previous survey question (number 14), more than half of survey respondents answered that they had not ever received training or help from a librarian or anyone else at UNC Chapel Hill (56%). The responses to these two questions indicate a gap or a need in the amount or frequency of instructional services offered to these students by the science libraries at UNC Chapel Hill.

Table 4: Why was the instruction from a librarian not worth your time invested? (Question 18)

I learned what I needed to know much faster from colleagues.
Not instructed by the librarian
Did not receive training from a librarian.

Conclusions

This aim of this study was to learn how the University of North Carolina at Chapel Hill can better meet the needs of the graduate students who are served by the specialized, departmental science libraries. While the library needs of graduate students have been widely discussed in the literature, this is the first study of the specific needs of science graduate students at UNC-Chapel Hill. This survey focused on determining the unmet needs of the students, the amount of interdisciplinary work and multi-library use by students, and the instructional services requested by the respondents.

Surveys, such as the one used for this study, are often used to learn more about a subject population, but sampling faults are important to keep in mind (Bookstein, 1985). The small return rate of 14.4% limits the applicability of this study because we do not know the opinions of those who did not respond. Respondents of this survey tended to use the libraries on a frequent basis, with 45% being monthly users, 29% interacting with a librarian once a semester, 47% using library resources daily, and many of them using multiple locations in addition to their departmental library. In this study, there is probably reason to suspect that the characteristics of respondents may differ from the non-respondents in that students who use the library more often and feel that they have a larger stake in improvement may have tended to return the survey in larger numbers. The researcher speculates that non-respondents may not use the library as often as those who chose to respond, and their reasons for not doing so might be significant to the conclusions of this study. A larger response rate would be beneficial to overall external validity, and future studies may address this by finding alternate, more effective ways of survey distribution or incentives for responders.

In addition to the reasonable assumption of a bias towards more frequent library users, there is also an imbalance of departmental responses to the survey. Overall, the survey responses show a bias towards the three largest majors, but also reflect a sample population that is well-acquainted with the library and uses its services often.

Response faults may also limit this study. Questions can be interpreted differently or respondents may have different ideas of what a question means. Question 4 asks whether a respondent's research is interdisciplinary and supplies a short definition, but two students may have two different interpretations. Although the wording was carefully constructed to minimize confusion and questions also provide examples to help in understanding, where applicable, the issue of response faults should be recognized as a potential limitation of this study. Similarly, this study may not always provide category choices that apply, although the questions have included an "other" or fill-in-the-blank choice wherever it was determined that this was likely to occur.

Another response fault that can limit the study is the tendency of respondents in any study to sometimes give the response they think the survey investigators want to hear. A limitation of this study is that it is not from an anonymous or neutral source. Due to University regulations, the initial email invitation disclosed the principle investigator's status as a student in the School of Information and Library Science. While this does not negate the chances for honest responses, it may have had a limiting effect on some respondents.

One final limitation of this study is that it did not attempt to survey all of the professors, instructors, and undergraduates who also use the libraries in question. While this study focused on learning the needs of graduate students, any decisions that will be

made or changes to the science libraries would likely also benefit from the input of these missing groups. A complete survey of the user groups is an area in which this study is limited, but a rich topic for future research.

Despite the limitations, this study gathered valuable information in all three of its target areas and adds to the understanding of the unmet needs of the students, the amount of interdisciplinary work and multi-library use, and the instructional services requested by the sample of respondents. Overall, the respondents were frequent users of the libraries and services, and they shared their needs and user preferences on the above topics.

Like much of the previous work discussed in the Literature Review section of this paper, this study revealed a great deal of demand by students for additional electronic resources. The majority of requests for additional services or resources consist of increased access to e-journals and electronic resources. Three-quarters of respondents prefer electronic, or email, communication from the library to alert them of new or important resources and services. The unique needs of Marine Sciences students who are based off-campus is an area in which further attention should be paid, as some specialized services and access may be needed.

The results of questions about interdisciplinary research raise interesting questions with no easy answers. It was expected, judging from the literature and the trends of library consolidation, that a greater number of students would report their own work as interdisciplinary. While 49% is significant, and there was a large amount of inter-library usage, this area is rich with future research possibilities. A study that more

directly asks students if they would like to see library services consolidated or unified might be valuable to future library scholarship and design.

The large number of students who reported that they have not had any training or help from a librarian or anyone else at UNC Chapel Hill reveals an instructional gap that the libraries might look towards addressing in the future. Although the majority of students who did receive training from a librarian reported that it was worth their time invested, the finding that more than half of students received no training indicates that this is a problem area. One way in which this could be addressed or further researched is indicated by students' responses that they prefer to learn about library resources or databases through online, self-paced tutorials. These responses point to a solution that is worth further exploration and research.

Overall, this study found a strong trend of recognizing the importance of library services, but also the need to investigate and increase library resources and services in the key areas discussed above. The outcome of this research brings a new level of understanding about the library needs of UNC's science graduate students, and a set of findings and recommendations that may help the libraries to better serve the graduate student library patrons. While this study is limited in several ways as discussed, it is hoped that this research will open up further exploration and study of the specialized needs of science graduate students.

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Appendix I: Letter Inviting Students to Participate in Survey

UNC's Departmental Science Libraries: A Patron's View

Dear Student:

I am a graduate student in the School of Information and Library Sciences, and I am conducting a research study to determine how the UNC libraries can better meet your needs as a science graduate student. The study aims to understand the library and information needs of graduate students who are served by the departmental science libraries: Botany and Zoology, Geological Sciences, Chemistry, Math/Physics, and Health Sciences. More specifically it attempts to determine what students' unmet needs are, and how the science graduate students can be more effectively served by these departmental libraries.

Your email address was selected from a mailing list provided by your departmental library as a possible participant in this study. Approximately 300 students have been chosen to participate in this study. Your participation in this study is completely voluntary.

To participate in the study you will complete the electronic questionnaire that is linked to this email. Completing the questionnaire connotes your consent to be a participant in this study. This questionnaire is composed of questions addressing your satisfaction with the UNC libraries, questions about what your unmet needs are, and some questions (demographic) used to describe the respondents in this study. Completion of the questionnaire should take no longer than 20 minutes. You are free to answer or not answer any particular question and have no obligation to complete answering the questions once you begin.

Your participation is confidential. You are asked not to put any identifying information on the questionnaire. All data obtained in this study will be reported as group data. No individual can be or will be identified. Although I, as the Principal Investigator, am not employed by the UNC libraries, I plan on sharing the results of this research with some library staff members as well as making the results available on online research paper archives. The only person who will have access to the data is myself, as the Principal Investigator.

There are neither risks anticipated should you participate in this study nor any anticipated benefits from being involved with it. However, there will be educational or professional benefit from this study, as the information we obtain may be communicated to the library staff through publication in the literature, presentation at professional meetings and direct dissemination to the professional associations. There is no cost to you or financial benefit for your participation.

You may contact me with any questions by email (lhandler@email.unc.edu). Additionally, if you are interested in viewing the results of this study or the resulting master's paper that will come from this research, please email me and I will send you this information by July, 2007. I will not share your email address or use your email for any reason other than to send you the completed questionnaire data and report this summer.

All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have questions or concerns about your rights as a research subject you may contact, anonymously if you wish, the Institutional Review Board at 919-966-3113 or by email to IRB_subjects@unc.edu.

Thank you for considering participation in this study. I hope that we can share your views to improve the services and resources that the libraries make available to UNC staff, students, and faculty.

Sincerely,

Lara Handler
School of Information and Library Science
MSLS candidate, August '07

Appendix II: Survey with Compilation of Responses

1. Please check all that apply to you:

#	Answer	Response	%
1	Faculty	0	0%
2	Staff	0	0%
3	Graduate student	100	100%
4	Undergraduate student	0	0%
5	Other:	0	0%
	Total	100	100%

Other:

2. Which best describes your broad area of academic interest?

#	Answer	Response	%
1	Astronomy	1	1%
2	Biological sciences	14	14%
3	Chemistry	37	37%
4	Computer science	17	17%
5	Ecology	3	3%
6	Environmental science	0	0%
7	Genetics	0	0%
8	Geological science	5	5%
9	Marine science	7	7%
10	Materials science	2	2%
11	Mathematics	6	6%
12	Operations research	0	0%
13	Physics	5	5%
14	Statistics	3	3%
15	Other:	0	0%
	Total	100	100%

3. With which department are you officially affiliated?

#	Answer	Response	%
1	Biology	15	15%
2	Chemistry	39	39%
3	Computer science	17	17%
4	Geological sciences	4	4%
5	Mathematics	6	6%
6	Physics & Astronomy	6	6%
7	Statistics & Operations research	3	3%
8	Other:	10	10%
	Total	100	100%


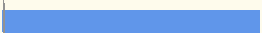


Other:
Marine Sciences
Curriculum in Applied and Materials Sciences
Marine Sciences
Marine Science
Marine Sciences
Marine Sciences
Curriculum of Applied & Materials Sciences
Marine Sciences
Marine Sciences
Marine Science

4. Would you characterize your research as interdisciplinary, i.e. crosses two or more traditional disciplines?



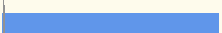



#	Answer	Response	%
1	Yes	49	49%
2	No	50	51%
	Total	99	100%

5. How many academic years have you been at UNC Chapel Hill, either as a student, researcher, or instructor?





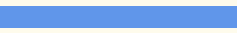
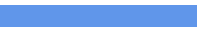
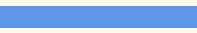



#	Answer	Response	%
1	Less than 1 year	19	19%

2	1 year		3	3%
3	2-4 years		54	54%
4	5-7 years		20	20%
5	8 or more years		4	4%
	Total		100	100%

6. How often do you physically visit any of the libraries on the UNC Chapel Hill campus?

#	Answer		Response	%
1	Daily		1	1%
2	Weekly		26	26%
3	Monthly		45	45%
4	About once a semester		24	24%
5	About once a year		2	2%
6	Never		1	1%
	Total		99	100%

7. Please mark all of the UNC Chapel Hill libraries that you use or have used [please select all that apply]:

#	Answer		Response	%
1	Geological Sciences Library		19	19%
2	Math/Physics Library		49	50%
3	Botany Library		18	18%
4	Zoology Library		31	32%
5	Chemistry Library		51	52%
6	Health Sciences Library		47	48%
7	Undergraduate Library		45	46%
8	Davis Library		67	68%
9	I have never used any of the UNC Chapel Hill libraries		0	0%
10	Other libraries:		7	7%
	Total		334	341%

Other libraries:
Institute of Marine Sciences
Arts
Wilson Library
Planning
Marine Sciences Library
Institute of Marine Sciences Library
Marine Sciences Library



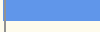
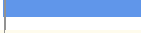
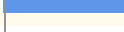
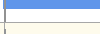
8. Which library in the list below do you consider most closely aligned with your subject discipline?

#	Answer	Response	%
1	Geological Sciences Library	8	8%
2	Math/Physics Library	31	32%
3	Botany Library	7	7%
4	Zoology Library	5	5%
5	Chemistry Library	34	35%
6	Health Sciences Library	10	10%
7	Undergraduate Library	0	0%
8	Davis Library	1	1%
9	None of the UNC Chapel Hill Libraries	0	0%
10	Other library:	2	2%
	Total	98	100%







Other library:
Institute of Marine Sciences
Institute of Marine Sciences Library

9. How often do you interact with a librarian, such as asking a librarian for help (either in person or via the Web), attending a class taught by a librarian, consulting with a librarian on your research, etc.?

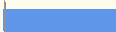





#	Answer	Response	%
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1	Daily		0	0%
2	Weekly		2	2%
3	Monthly		21	21%
4	About once a semester		28	29%
5	About once a year		26	27%
6	Never		21	21%
	Total		98	100%

10. How often do you use the library's resources, such as articles from print or online journals, books, the library's databases, etc.?

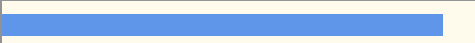



#	Answer		Response	%
1	Daily		46	47%
2	Weekly		33	34%
3	Monthly		13	13%
4	About once a semester		4	4%
5	About once a year		0	0%
6	Never		2	2%
	Total		98	100%

11. How often do you access the libraries' webpage?

#	Answer		Response	%
1	Daily		29	30%
2	Weekly		47	48%
3	Monthly		13	13%
4	About once a semester		5	5%
5	About once a year		1	1%
6	Never		3	3%
	Total		98	100%

12. Which do you use more frequently: online journals or print journals?

#	Answer		Response	%
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1	Online journals		91	93%
2	Print journals (hard copy, as in not from a computer screen)		2	2%
3	I use both about the same		3	3%
4	I don't use journals online or in print		2	2%
	Total		98	100%

13. Which online databases do you use the most?

Text Response
Web of Science
Pubmed
PUBMED
PubMed, BIOSIS, Highwire
ACM Digital Library, IEEE Xplore
online resources are essential
ISI Web of Knowledge (Web of Science) pubs.acs.org
Web of Science, Biosis
pubmed; ISI
Pubmed
pubs.acs.org, ISI Web of Science
I use the ACS Publications database most frequently.
scifinder scholar and isi web of science
ACM
web of knowledge (cited reference site)
SciFinder, Web of Science
Google scholar, pubmed, ISI
Web of Science; e journal finder
Pubmed
PubMed, Scifinder, Science Direct
Scifinder Web of Science
SciFinder Beilstein
Scifinder, Belstein
Google
Most of the chemistry journals, such as all of the ACS journals

Web of Science, ACS Journals
Scifinder, ISISWeb
American Mathematical Society MathSciNet
GeoRef, GEOBASE
Depends.
Scifinder Scholar and ISI Web of Science
ACM Portal, IEEEExplore
IEEEExplore ACM Digital Library
SciFinder Scholar
pubmed, scifinder
arxiv.org
NASA ADS
PubMed
SciFinder Scholar
Sciadirect
KEGG BRENDA NCBI
ACM Portal, IEEE Xplore
Search
ejournal locator
The libraries web of knowledge for chemistry papers
e-journal finder/ e-journal database
Jstor, MathSciNet
Web of Science
pub med
SciFinder, PubMed and Google Scholar
ISI Web of Science Biosis
scifinder or i go directly to publisher through library
Google Scholar, Pubmed, ISI
ACM
Web of Science
ISI Web of Science
NCBI Pubmed
IEEE Explore, ACM
Science Direct, Elsevier, Springer Link
ISI Web of Science Google Scholar

ISI Web of Science and UNC libraries catalog
I use Web of Science almost exclusively.
Science Direct Web of Science
Academic Search Premier
web of science
Science, Science Direct, JSTOR, ebrary
Web of Science

14. Have you ever received training or help from a librarian or someone else at UNC Chapel Hill?

#	Answer	Response	%
1	Yes	43	44%
2	No	55	56%
	Total	98	100%

15. Where did you receive this training or with whom? (check as many as apply)

#	Answer	Response	%
1	With a librarian at one of the UNC Chapel Hill libraries	35	81%
4	With a librarian, but In class and not at the library	0	0%
2	Company or vendor, at the library or elsewhere	0	0%
6	Instructor or professor	10	23%
3	Colleague	6	14%
5	Other:	4	9%
	Total	55	128%

Other:

no official training, just help

Seminar by Library Science graduate students

what kind of training does this refer to? As a grad student, I get lots of training!

SILS student / my partner

16. On what topic have you received training or help from a librarian at UNC Chapel Hill? (check as many as apply)

#	Answer	Response	%
1	How to find journal articles in print or electronic format	25	60%
2	How to find books	16	38%
3	How to find information specifically relevant to my topic or discipline	18	43%
4	How to use a library database	14	33%
5	Another topic:	9	21%
	Total	82	195%

Another topic:

GIS

using citation tool (Refworks)

accessing printed maps in wilson; using topographical software in davis

general library orientation

interlibrary loan

How to dig out old theses

general library orientation

how to print an article, how to use reference software

Interlibrary requests

17. Was the instruction you received from a librarian worth your time invested?

#	Answer	Response	%
1	Yes	40	98%
2	No	1	2%
	Total	41	100%

18. Why was the instruction from a librarian not worth your time invested?

Text Response

I learned what I needed to know much faster from colleagues.
 Not instructed by the librarian
 Did not receive training from a librarian.

19. Do you need training in any specific types of information searching? (check as many as apply)

#	Answer	Response	%
1	How to search chemical formulas	4	15%
2	Chemical searching by structure	5	19%
3	Gene sequencing searching	10	37%
4	Data in my area of study	15	56%
5	Patent and trademark information	7	26%
6	Anything else:	2	7%
	Total	43	159%





Anything else:

Nope

medical statistics

20. From the list below, what information resources would you like to learn more about? (check as many as apply)





#	Answer	Response	%
1	PubMed	19	31%
2	BIOSIS Previews	4	6%
3	Web of Science (Science Citation Index)	23	37%
4	Zoological Record	2	3%
5	GeoRef	7	11%
6	GEOBASE	10	16%
7	SciFinder Scholar/CAS	26	42%
8	INSPEC	2	3%
9	MathSci	11	18%

10	Current Index to Statistics		5	8%
11	EndNote		37	60%
12	RefWorks		11	18%
13	Other ones:		1	2%
	Total		158	255%

Other ones:

GIS data and resources

21. What is your preferred way of learning how to use online databases or other library resources?

#	Answer	Response	%
1	In-class sessions		8 9%
2	Online, self-paced tutorials		74 80%
3	One-on-one help		10 11%
4	Webcasts or Webinars		0 0%
	Total	92	100%

22. What days of the week and times are best for you to attend a library-hosted instruction session? Please mark the best times by making an "X" through the boxes below of all good times for you:

Morning: between 9 am and 12 pm				
Monday	Tuesday	Wednesday	Thursday	Friday
25	26	31	30	26
Afternoon: between 12 pm and 5 pm				
Monday	Tuesday	Wednesday	Thursday	Friday
26	22	25	26	19
Evening: after 5 pm				
Monday	Tuesday	Wednesday	Thursday	Friday
27	19	19	23	13

23. Where are the top 3 locations that you would most prefer to attend a library-hosted instruction session? Please rank the

locations below, with 1 being the class location you would be most likely to attend, and 3 being...

#	Answer	1	2	3	4	5	6	Responses
1	In the building where my office/lab is located	29	29	7	0	0	0	65
2	In a building near my office/lab	2	25	37	0	0	0	64
3	Anywhere on the UNC Chapel Hill campus	0	8	14	0	0	0	22
4	Online	43	13	10	0	0	0	66
5	I'm not interested in attending a library-hosted instruction session	15	3	7	0	0	0	25
6	Another location:	0	1	1	0	0	0	2
	Total	89	79	76	0	0	0	

Another location:

HSL

resteraunt or bar

24. How would you like to hear about UNC Chapel Hill's library resources and services, such as new databases, books, journals, or instruction sessions? (check as many as apply)

#	Answer	Response	%
1	Email	70	75%
2	Posters around my building	24	26%
3	Library web pages	38	41%
4	Library blog	5	5%
5	Class announcements	2	2%
6	Campus mail	11	12%
7	I prefer not to hear about library services at this time	9	10%
	Total	159	171%

25. How do you use the library and its resources and staff most often?

Text Response

Online

find a book with the online search, and then go to the library to check it out.
Downloading e- journal papers, online databases, checking out books. Asking for interlibrary loans.
To get access to published work that is not publicly accessible online.
checking out books
It is OK to me.
online resources
Mostly when it comes to finding, getting from storage, and copying from print journals.
GIS library and GIS librarian have been essential to my research. Amanda Henley has been an amazing resource. I also use the on-line tutorials from the GIS library frequently. Finally, I access journal articles on-line daily, and request interlibrary loans every semester.
online - little contact with staff
reserve study rooms in HSL
I use the chemistry library for books and print journals that are not available online. I also use the chemistry library as a location to tutor undergraduates.
I use the library to access journals that are not available online. Occasionally I will check out books from the library. I don't think I have ever met the chemistry librarian.
I most frequently look up the desired subject in my office and then after finding applicable books or articles I go to the library to check them out. I don't use the staff in the library at this time.
the only time that i go to the library is to obtain something that i can't obtain online, e.g. a book or older journal articles (this means either the chemistry library or the physics library); i also use davis library occasionally for personal interest materials
Online journals
online journals
find books online go to library and pick them up find journals online and read them from computer
I use the online services extensively; that is all.
I typically use the online journals to find information that pertains to my research. I also use hard copies of books and online journals to prepare for my cumulative exams that occur about once a month.
as a chemist, everyday I need to look at journal articles
Online subscriptions to journal articles Help in finding journal articles that are not online
Online Databases
I use the access to online journals multiple times a day.
To find journal articles related to my research
Help with GIS topics. Working with maps, plotting data points.

I ask about problems with obtaining theses from other universities or journals that UNC does not subscribe to.
Use the online website unless we don't have the rights to a journal online, and then I will go to the library to get the journal
Online and print journals
Physically: to read and make copies of journals not available online through UNC. Electronically: to access online journals
Browsing (hard-copy) journals.
Study area, journals and books.
Interlibrary Loan and retrieving journal articles mostly from the internet, but sometimes from print sources.
I use the online search for journal articles.
Checking out reference books.
I check out the books and make copies of journals.
Finding articles and books
online searching for journal articles relevant to my research
Downloading online journal articles; Genealogical Research
Online
Searching for specific references from scholarly journals in the field of chemistry. Also, occasionally for finding books, etc.
use ejournal link to download paper
study area, reference
ACM Portal, IEEE Xplore through the proxy server.
Just to read Scientific American, Transactions on Graphics, and occasionally to get a book.
Study space
Access to online journals, searching web of science and importing to endnote, same thing with Scifinder.
I basically use the e-journal finder. If I need to find an old journal that is not online, I go to the library. I will go to the library to read occasionally too.
on-line journals, books
on line use
downloading journal articles
Checking out books and finding journal articles through online databases
Online journals. If not online I ask staff where to locate call numbers
Almost exclusively to find information. I almost never use the libraries as a place to work, and I generally prefer electronic resources over physical resources.

I usually use the libraries for printed journals and theses lookup. Staff help with searching for theses or teaching me software.

If i go to the library, it is mainly to access the archived medical journals for my field. I find that area in the HSL to be incredibly useful and easy to access

Web search

Online searches for articles

I do not use it often, but when I do it is to find a textbook to supplement the one I'm using for a class.

looking up articles found using scifinder scholar

Online journals

Collecting literature for research insight and drafting manuscripts

library webpage to access e-journals

Searching for online articles

Use the e-journal option in the advanced search on the library webpage

Online

I am completely dependent on e-journals. I also use interlibrary loan as well and check out texts related to my study.

I live and conduct my research about 3 hours away from main campus at UNC's Institute of Marine Sciences, so I mainly use the online databases and the Marine Sciences library (located at IMS). About once a month, however, I come to main campus to conduct research mainly in the Botany and Zoology libraries, because my research subject demands a wider range of sources than can be found in the Marine Sciences library. I very rarely need to interact with the staff itself, especially since I took the library orientation course when I first came to UNC, and can still rely on my notes from that to answer most of the questions that I have.

To help me find an article that does not exist at UNC-CH (online or in print), Duke, or NOAA.

Online journals, Reference manuals/books, Novels/Leisure Reading

Access scientific journals

To find journals or books stored electronically, and to find hardprint books.

Access to online journals --- when not available in electronic format, I use print versions on campus. I also rely on interlibrary loans.

26. What additional services or resources would you like the UNC Chapel Hill libraries to provide? (eg: document delivery, a specific kind of training, more e-journals, more quiet places to study or do groupwork, etc.)

Text Response
after hours access for graduate students
More e-journals
It seems there are some books especially engineering type of books are not available on this campus and I have to borrow them with inter library loan program
scanned copies of papers not available in hardcopy at UNC
Most of my pertinent research articles are old so more ejournals are always a plus!
more e-journals would be great!
MORE E-JOURNALS
More e-journals
More e-journals would be very useful. Particular, back issues of Angewandte Chemie International Edition and Tetrahedron/Tetrahedron Letters. Also a library instruction class for credit would be useful for first year graduate students.
I feel that the current services fulfill my needs as a student. There's always going to be that one article that is in a journal that the college doesn't subscribe to...but that's what interlibrary loan is for!
More journals
more e-journals
More e-journals. The more literature I have access to online, the better.
I would like to see more electronic journals. I find these to be most useful for me because I can access them from my desk at my leisure. I can also print the articles that I decide are important to me.
free printing, more e journals, quiet places to study, places where tutoring can be done or discussions on a blackboard
More e-journals with full text. Our libraries have poor selection of journals to choose from
I would like to see document delivery for journal articles which are not available online as well as training on how to effectively use endnote and scifinder.
24 hour access for graduate students OR online access to all of the archives for all of the journals.
more e-journals
I'm not sure.
More e-journals would be great. Comfortable couches for the math physics library in the stacks would be nice.
Definitely more e-journals, the internet is becoming the way of life now
more online access to journals, extend the years during which certain journals are available online
MORE E-JOURNALS (and more online archiving of older journals)

More quite areas.

Increase e-journal availability.

More e-journals, specifically, Journal of the Optical Society of America

More e-journals.

I wish it was cheaper to make copies. It's simply too difficult to copy anything.

access to more journals

lexus nexus

Delivery of copies of print journal articles would be great

more e-journals

Access to all journals' back issues on line would probably be used most frequently, though I have noticed that some journals now seem to have online access to more of these older issues than was the case before (which is good). Either that or I've been searching less older references lately...

more e-journal

more e-journals

A better proxy and more PDF subscriptions

None

More group work space

there are some journals i believe we don't have access to, some of the el-sevier journals i think

more e-journals, and I would like them to e-mail students when a video or book is overdue...not wait until they owe a million dollars, and then put a hold on their account and make a poor grad student choose between food or registering for classes when it is their first offense.

they could open longer than they do during holidays

No

more online journals

More e-journals and more study locations.

More e-journals generally related to optics and physics. Our selection of online journals compared to NC State is almost pathetic.

More e-journals, though I realize they can be prohibitively expensive.

More e-journals.

document delivery would be awesome. While I know it is customary to go to the library, if I could have someone go to the articles on archive and photocopy them and charge my copy card or something similar, that would not only save ME time but MANY PEOPLE in my lab

more e-journals

it would be nice to have access to more journals online

more e-journals, especially the Elsevier journals...it is really frustrating not to have online access to a large number of current journals

more e-journals

More e-journals

More trade specific e-journals with subscriptions that go back further in the past (through ~1950's), more places to do group work and quiet places to use a laptop.

more e-journals (especially back issues of journals for which the current edition is online) Also: current edition of Limnology and Oceanography

Hands down, more e-journals. There are a few American Geophysical Union journals that are not on-line, such as G cubed, Geochemistry Geophysics Geosystems. There aren't many that are missing, in general I've been pleased.

The inter-library loan system is something that I personally haven't used, but I have been told by others at IMS that it can be lacking, sometimes taking weeks to receive the document needed. Since I am back and forth to Chapel Hill fairly often, I can avoid this system, but if improvements were made, I may rely on it more.

I know this is just a fantasy, but I would love to be able to email a librarian on campus and have an article from the Health Sciences library sent to me in pdf form through email by the end of the day (I'm physically located in Morehead City at the Institute of Marine Sciences-which is a part of the UNC-CH campus- 4 hours away from Chapel Hill). About once a semester I need a journal paper that only exists in the Health Sciences Library.

Definitely more e-journals. (for instance, I use a lot of references from the Proceedings of SPIE and this is not available, neither online nor in print).

more e-journals. UNC does not have an online subscription to Geology.

More e-journals and maybe more help pages with resource listings (maybe I just haven't looked well enough, though). Quiet places to study are nice, as well, especially if they are in a clean area (the Davis Library can be kind of stinky).

More e-journals, and electronic access further back in time. The ability to check out and return books through campus mail would be wonderful.

27. Do you have any additional suggestions or concerns about the UNC Chapel Hill libraries and their services?

Text Response

The zoology library has ceased to have any function. Its collections effectively overlap with the Health Sciences library. Previously the zoology library was useful because of its location in Wilson Hall within the Biology Department and the ability to access the library after hours for Biology faculty and graduate students. Both of those benefits are now gone, and with them the only reasons I and all the grad students in the Biology Department ever had to use the Zoology library. They should integrate the Zoology library and Botany libraries in one space, get rid of all journals/journal issues that can be

accessed online to accomplish this, move the combined library back with the rest of the Biology department, and have OneCard access for Department Faculty and Staff for when the Health Sciences Library is closed. If that can't happen, the Botany library should switch locations with the Zoology library, since the journals contained within the Zoology library are of a more general use to the department, i.e. useful to both plant and animal researchers, while Botany materials are only useful to plant researchers.

No

No - the UNC libraries are great.

No

It is mind boggling how expensive it is to make copies at the libraries. This makes me shudder anytime I have to make copies. Also it is very difficult to know one's schedule early enough to book a study room. More flexibility would be nice in reserving rooms at HSL

The chemistry librarian should make himself known to graduate students at orientation. Also, a class for credit would be a good way for student to learn about the databases offered by the university. In my interactions with other graduate students I have found that most people only use SciFinder for all the searches and don't take advantage of databases such as Web of Science and therefore use up all the site licenses for SciFinder. I learned a good deal about databases in a class I took as an undergraduate that was one hour a week.

I've had problems in the past with Interlibrary Loan requests taking close to a month to be processed...I think that this process of requests might need to be reviewed for efficiency.

No

have grad students have keys so they can get in and use resources at night. this is how it's been in the chemistry department in the past, and b/c we are now associated with the zoology library, apparently zoologists don't work on weekends or past 8 pm, so we have to use the same hours. GIVE US KEYS!!!!

(1.) The E-Journal Search Engine Sucks-should be able to put in journal abbreviations to find journals. (2.) 'Find Journals at UNC' icon hardly ever works. We have the Journals but the link says 'unable to find journal'. This feature is a great idea but needs improvement. (3.) Need more scientific journals. Many times I go to NCSU libraries online to get journal articles from journals we do not carry.

None

I have found the libraries to be most helpful and available. I really have no issues with the system as it is now.

the furniture in the chemistry library is not comfortable and there is no inviting place to read and study

more journals

No

I think the GIS folks do well, but that's all I know about.

the chemistry library should be open on Saturdays as well. With the large percentage of graduate students working on weekends, it is especially hard to access information when one of our primary resources is unavailable.

Sometimes the books that I was looking for were "missing" (stolen? or taken out of the libraries without proper procedure?) although they are classified as "Available" on the library web page. I hope that the libraries conduct inventory checks more often.

Please do something about the mold in the chemistry lib. It makes me too sick to be in there over an hour.

I wish we could also print things out at the Chemistry library.

It is an excellent library system. One suggestion: keep at least Davis open on holidays.

Selection of general computing literature seems lacking, and they could always do with more fiction.

No.

nah they've been pretty good.

I think the library system is great. There are a few people in the health science library that need to relax a little bit though... I am concerned that the library system is ripping students off. I owed \$100 for two videos because they were forty-two days late. I checked them out for a professor that I was TAing for under my account, and he forgot to return them. I had no idea that they were late until I got an email telling me they were forty-two days overdue. I returned them that very day. These were ancient videos from the 70s--that weren't even worth \$100 (I checked). In addition, my fine should have been 50 cents per day (=42 dollars), but because they were more than 30 days overdue, I had to pay the maximum fine (\$50 each = \$100). I had NEVER checked anything out from the library, and I never will again. The staff was rude, and they treated me like a criminal, and they threatened me and told me that if I didn't return the videos, they would charge me \$1000 a piece...give me a break. (Thanks for giving me the opportunity to tell my story).

No.

No. You all are doing a fine job.

I cannot stress how many times I have gone to look for a journal online to find we either don't carry it or the range of dates is pretty short. If I look on NC State's website they usually have what I'm looking for and broader date range. I bring up this comparison in case you want to make a comparison. I wish I could provide you with a list of journals, but this would take some time to compile and I'm not sure how much attention this point is going to be given. Much of my work involves journals related to optics and physics, perhaps that information can be useful for a broad comparison.

No.

I think that in this more internet-based research, the behind-the-scenes work done on getting online journals is very appreciative. I WOULD NOT be able to do my research w/o it. I think that the use for studies is great. I think that having more study carrels like in the HSL in Davis would really benefit undergraduate research groups. Not that you have to have projectors in every room, but a whiteboard or some other teaching device.

would have helped me greatly in undergrad.

Nope!

I think that having journal articles available online is very important, especially to students who must work remotely, and I would encourage the library to expand its collection of online resources as much as possible.

Push for online access to all journals-even the older versions of journals. It's extremely frustrating to see that UNC-CH has online access to a journal but only from 1997-present or 1990-present when I usually need an article from right before the cut-off dates. Often these articles will be in paper form on UNC-CH campus, but like I said before, I'm located 4 hours drive from main campus at the Institute of Marine Sciences campus (UNC-CH campus).

No

I did not know until recently, after being an undergraduate here for 4 years and a graduate student or employee for 3 years, that I could have a librarian help me find journal articles related to my field of study. I intend to use this resource soon, but I wish I had known earlier. I also like the idea of a library blog with news/information. I do not leave my building unless necessary, so posters in a library announcing new services (library news, etc.) would not be as helpful for me (I go to a library once I have already found my book in the online catalog - if I don't find what I'm looking for, I don't go to the library unless I need a place to study).

This survey is confidential, meaning that no identifying information was collected and the IP address of the computer you are using will not be affiliated with your answers or recorded. However, if you would like to receive the results of this survey, please send me an email at lhandler@email.unc.edu. By sending your email address separately from this survey, this information will not be associated with your personal answers. In addition, your email address will not be revealed to anyone other than myself, the principal investigator, who will send you an email with the results before July, 2007.