Appendix A

Survey of Technology in the SLIS Curriculum

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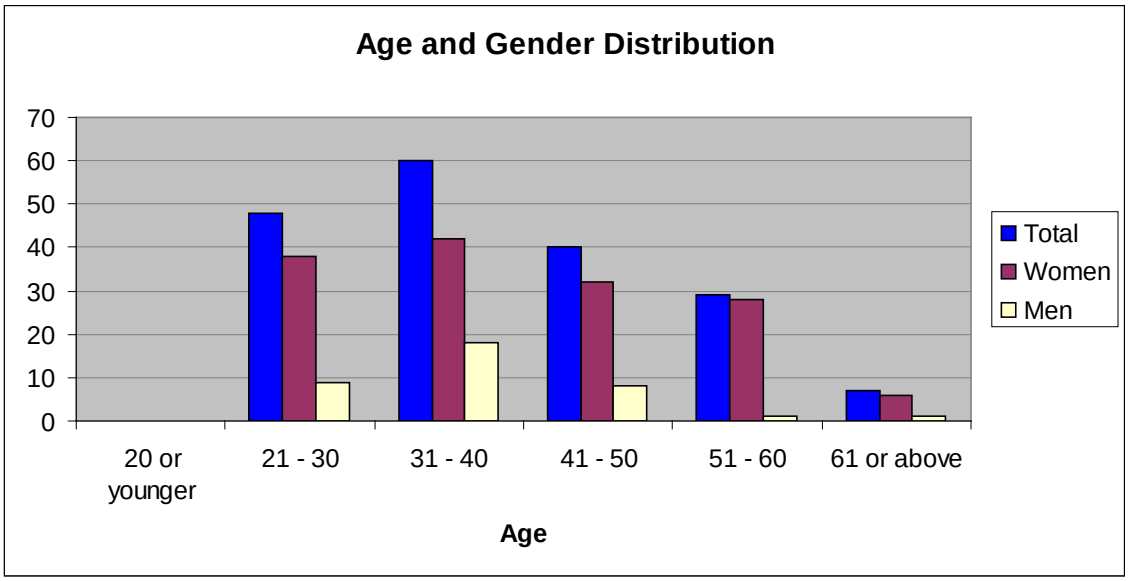
Results

Four types of data were collected:

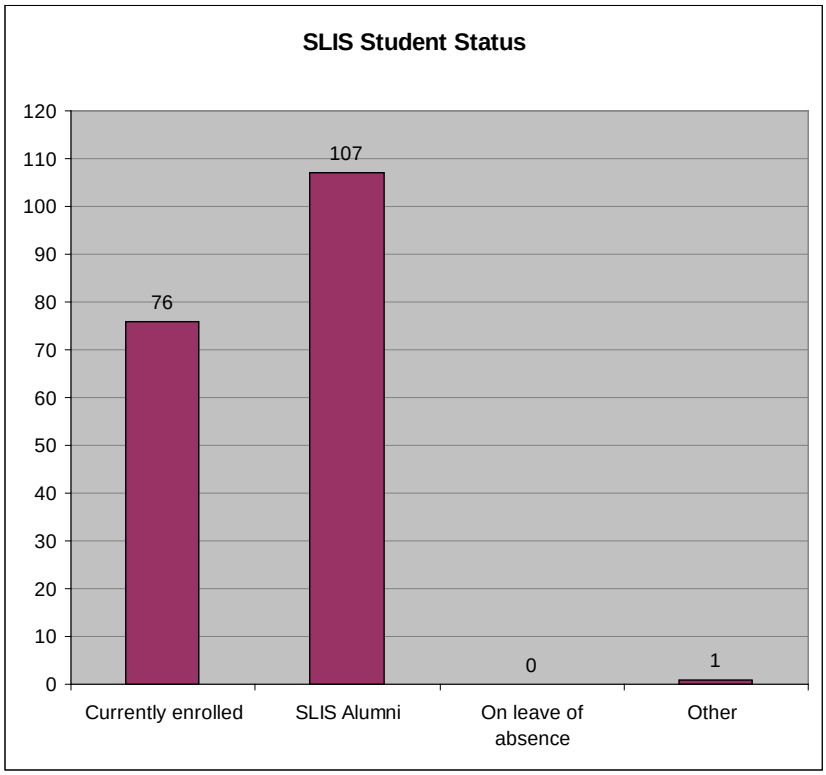
- Demographics
- Information Technology Concepts
- General Information Technology Skills
- LIS-Specific Information Technology Skills

Demographics

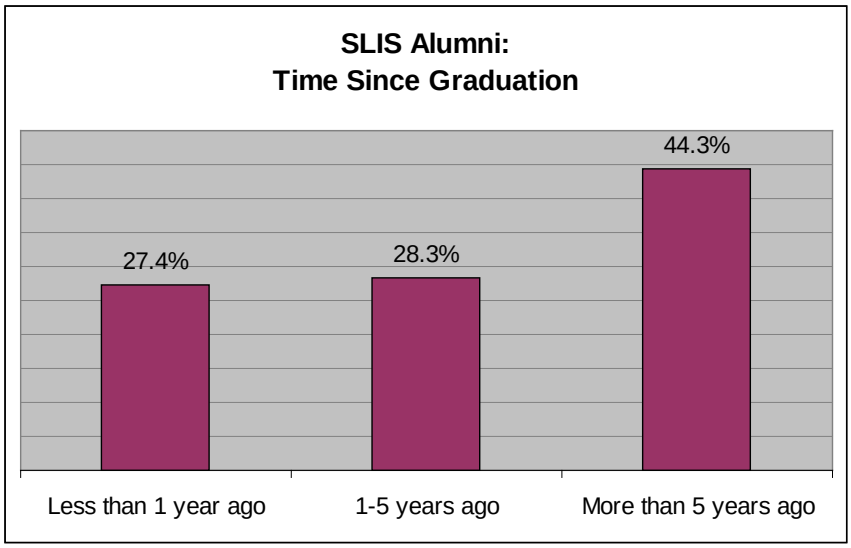
Gender	Percentage	Count
Male	20.1%	37
Female	79.9%	147
	100%	**184**



Out of 184 respondents (with 1 respondent who skipped this question), 107 are alumni, 76 are currently enrolled, no students are on leave of absence, and 1 is a former professor.



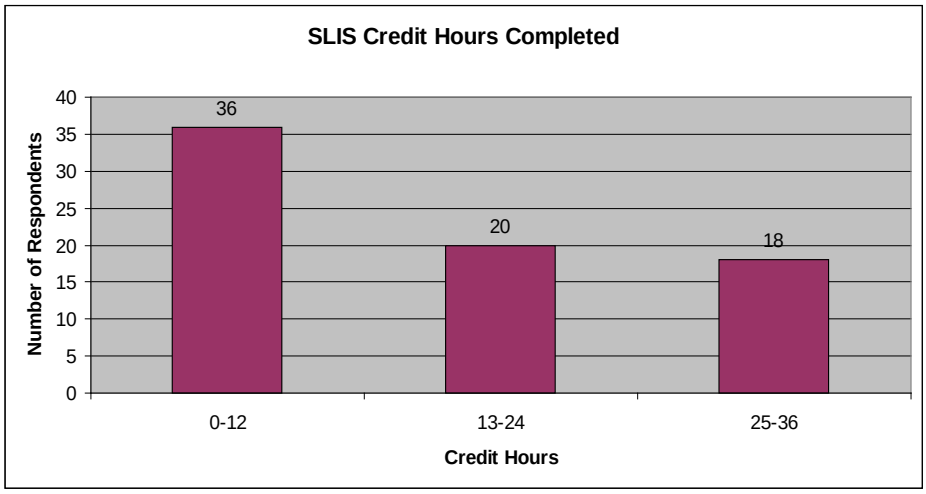
Alumni: The table and chart below how long ago the alumni graduated:



Time since graduation from SLIS	Response Percent	Response Count
Less than 1 year ago	27.4%	29
1-5 years ago	28.3%	30
More than 5 years ago	44.3%	47
	answered question	106
	skipped question	1

How far through the program are student respondents

48 percent of current respondents have completed up to one-third of their program at SLIS. (0-12 credit hours); 27 percent have completed up to two-thirds (13-24 credit hours); and 24 percent are within 12 credit hours of graduation.

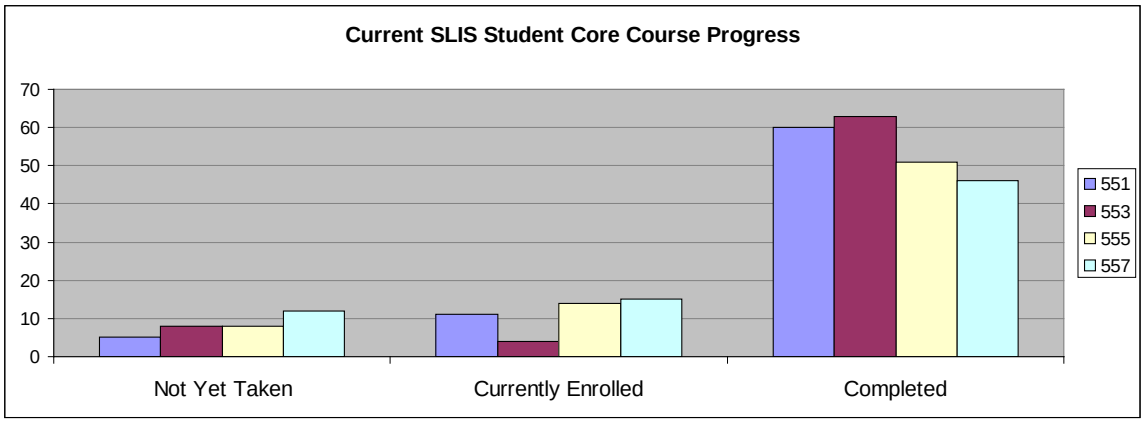


Core Courses Progress: The table and chart below indicate a possible trend in what core classes are taken during the student's SLIS graduate study. The figures below include only current students and those on leave.

	Not Yet Taken	Currently Enrolled	Completed
LSC 551: Organization of Information	5.9% (5)	12.9% (11)	81.2% (69)
LSC 553: Information Sources and Services	10.6% (9)	4.7% (4)	***84.7% (72)***
LSC 555: Information Systems in Libraries and Information Centers	11.0% (9)	17.1% (14)	72.0% (59)
LSC 557: Libraries and Information in Society	***14.8% (12)***	***18.5% (15)***	66.7% (54)

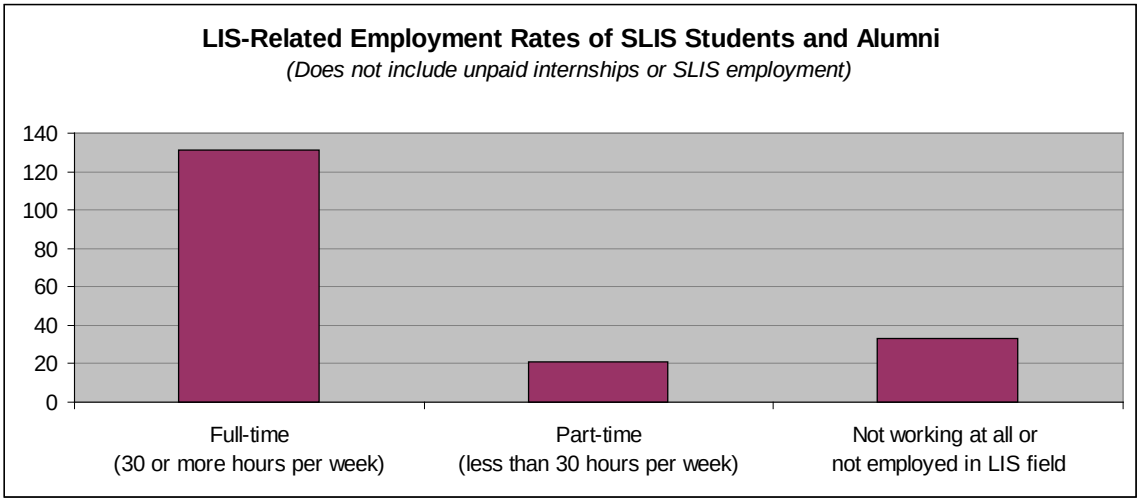
Sample size = 88

The following figure suggests that 557 is taken last, with 555 ranking as the second last course taken, whereas 553 appears to be completed first.



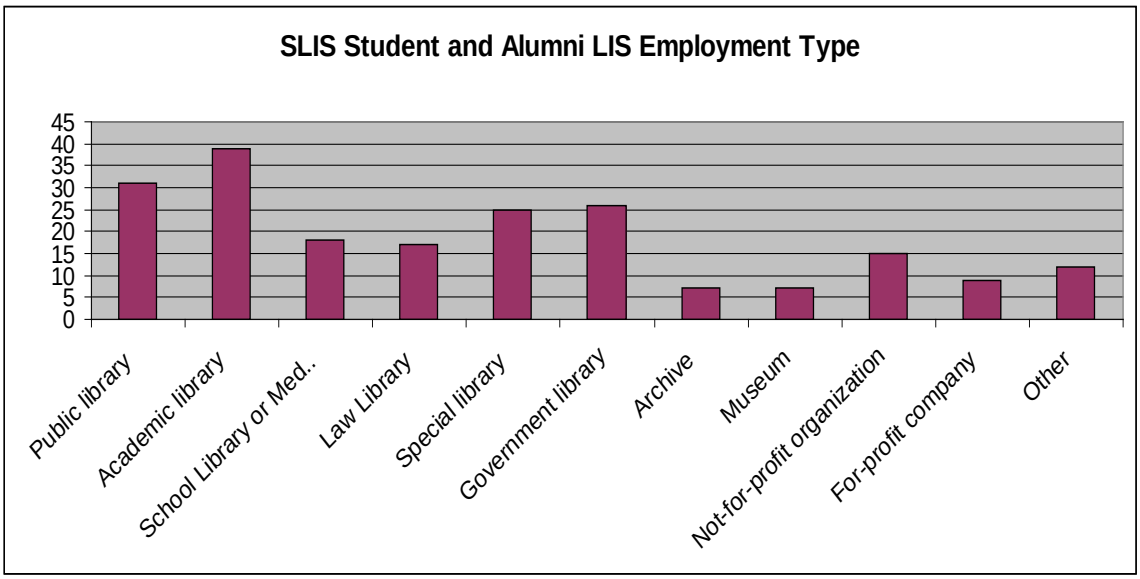
This table indicates the percentages of students and alumni respondents who work in the library and information field. The figures do not include unpaid internships or employment within the SLIS department.

Currently employed in LIS (or related) field?	**Response Percent**	**Response Count**
Yes, full-time (30 or more hours per week)	70.8%	131
Yes, part-time (less than 30 hours per week)	11.4%	21
No	17.8%	33
	answered question	**185**
	skipped question	**0**



Of the 152 respondents who work in an LIS-related field, 149 responded to the question asking what type of organization to which they belong. Below, the table and chart indicate who works where:

If working in LIS field, organization that respondent is employed by:	**Response Percent**	**Response Count**
Public library	20.8%	31
Academic library	26.2%	39
School Library or Media Center	12.1%	18
Law Library	11.4%	17
Special library	16.8%	25
Government library	17.4%	26
Archive	4.7%	7
Museum	4.7%	7
Not-for-profit organization	10.1%	15
For-profit company	6.0%	9
Other	8.1%	12
		149
	answered question	
		2
	skipped question	



Information Technology Concepts

Table 1: Average ratings for Question #9, ranked in order from highest to lowest rating average:

(Question 9: "Please indicate your level of agreement with the following statement: The SLIS program helped me to understand the following information technology concepts")

Information Technology Concepts	*Rating Mean (Average)*	*Standard Deviation*
Information Organization; eg. classification and indexing, taxonomies, ontologies, assessing information quality, establishing provenance, searching	3.86	1.20309
Societal impact of information technology; eg. privacy, intellectual property, encryption, copyright, standards	3.84	1.110984
Information Architecture; eg. information organization, searchability	3.57	1.132954
Information Systems; eg. technical interfaces, human-computer interfaces, databases, integrated library systems	3.49	1.077946
Human-computer interaction; eg. usability, accessibility, social computing, design	3.44	1.235069
Limitations of information technology; eg. information retrieval, choosing appropriate technology for the task, choosing appropriate technology for the organization	3.36	1.106149
Natural language processing; eg. using everyday language to interact with an information system (instead of defined commands or formal syntax like Boolean logic)	3.32	1.137507
Knowledge Management; eg. collection, organization and re-use of corporate or specialized knowledge	3.25	1.236809
Computers; eg. computer programs, hardware components, data communications	3.22	1.086739
Networking; eg. networks, packets, messages, protocols, standards, services, client/server	3.18	1.106015
Digital representation of information; eg. file types, images, data compression, interoperability, standards, metadata	3.18	1.045387
Modeling and Abstraction; eg. visually diagramming or otherwise describing systems, files, databases, web sites, etc.	2.86	1.163152
User-created content; eg. blogs, wikis, social tagging, folksonomies, social networks/communities like YouTube, MySpace, FaceBook, etc.	2.77	1.298087
Computer-supported collaborative work (CSCW); eg. file-sharing, document management, virtual meeting spaces	2.64	1.180925

answered question	184
skipped question	1

1=strongly disagree; 3=neither agree or disagree; 5=strongly agree

How important are Information Technology concepts to information professionals within the SLIS community?

Table 2: Average ratings for Question #10, ranked in order from highest to lowest rating average:

(Question 10: How important is it for you as a professional to understand the following concepts?)

Information Technology Concepts	*Importance Rating Mean (Average)*	*Standard Deviation*
Information Organization	4.68	0.652771
Computers	4.62	0.681463
Information Systems	4.47	0.791623
Societal impact of information technology	4.46	0.864933
Limitations of information technology	4.44	0.826962
Digital representation of information	4.32	0.947782
User-created content	4.11	0.993944
Computer-supported collaborative work	4.11	0.976752
Knowledge Management	4.09	1.009276
Networking	4.04	1.009876
Information Architecture	3.98	1.034679
Natural language processing	3.98	1.111078
Modeling and Abstraction	3.54	1.160785
answered question	185	
skipped question	0	

1=not at all important; 3=moderately important; 5=very important

General Information Technology Skills

Table 3: Average ratings for Question #11, ranked in order from highest to lowest rating average:

(Question 11: Please indicate your level of agreement with the following statements. The SLIS program helped me to:)

General Information Technology Skills	*Rating Mean (Average)*	*Standard Deviation*
Navigate information structures	4.08	1.015578
Communicate with others about information technology	3.40	1.120792
Anticipate and plan for changing technologies	3.32	1.139498
Collaborate with others on information technology projects or problems	3.29	1.211701
Develop general information technology skills to reason about, work with and manage information technology (IT)	3.11	1.233205
answered question	184	
skipped question	1	

1=strongly disagree; 3=neither agree or disagree; 5=strongly agree

How important are General Technology Skills to information professionals within the SLIS community?

Table 4: Average ratings for Question #12, ranked in order from highest to lowest rating average:

(Question 12: How important are these general technology skills for you as a professional?)

General Information Technology Skills	*Importance Rating Mean (Average)*	*Standard Deviation*
Anticipate and plan for changing technologies	4.49	0.820904
Navigate information structures	4.47	0.751318
Communicate with others about information technology	4.45	0.851979
Develop general information technology skills to reason about, work with and manage information technology (IT)	4.41	0.867372
Collaborate with others on information technology projects or problems	4.37	0.862471

answered question	184
skipped question	1

1=not at all important; 3=moderately important; 5=very important

LIS-Specific Information Technology Skills

Table 5: Average ratings for Question #13, ranked in order from highest to lowest rating average:

(Question 13: Please indicate your level of agreement with the following statements. The SLIS program helped me learn to effectively:)

LIS-Specific Information Technology Skills	*Rating Mean (Average)*	*Standard Deviation*
Maintain awareness of and responses to new challenges to privacy.	3.80	1.10863
Protect the information privacy of clients or patrons.	3.71	1.237401
Maintain awareness of emerging technologies that may become relevant tools of future information resources, services, or applications.	3.65	1.097772
Evaluate current and emerging information tools or systems.	3.51	1.093172
Apply expertise in information analysis.	3.39	1.122454
Acquire IT knowledge and skills in the future.	3.39	1.24016
Improve information retrieval and use in my organization or for its clients through the judicious and proper use of indexing and metadata.	3.26	1.194086
Create information access and delivery solutions; eg. web sites, portals, digital finding aids.	3.22	1.250791
Manipulate databases, e.g. add, update or extract data, create reports.	2.84	1.345501
Design and implement databases.	2.67	1.230891
answered question	185	
skipped question	0	

1=strongly disagree; 3=neither agree or disagree; 5=strongly agree

How important are LIS-specific information technology skills to information professionals within the SLIS community?

Table 6: Average ratings for Question #14, ranked in order from highest to lowest rating averages:

(Question 14: How important are these LIS-specific information technology skills for you as a professional?)

LIS-Specific Information Technology Skills	*Rating Mean (Average)*	*Standard Deviation*
Maintain awareness of emerging technologies that may become relevant tools of future information resources, services, or applications.	4.52	0.77403
Acquire IT knowledge and skills in the future.	4.48	0.835154
Apply expertise in information analysis.	4.32	0.931551
Maintain awareness of and responses to new challenges to privacy.	4.31	0.987262
Protect the information privacy of clients or patrons.	4.29	0.977279
Evaluate current and emerging information tools or systems.	4.28	0.984704
Create information access and delivery solutions.	4.19	1.109109
Improve information retrieval and use in my organization or for its clients through the judicious and proper use of indexing and metadata.	4.16	1.044028
Design, implement and manipulate databases.	3.74	1.257574
answered question	185	
skipped question	0	

1=not at all important; 3=moderately important; 5=very important

Limitations

The survey assessed student perceptions of the SLIS program, rather than using more objective measures. It used a limited sample of respondents reachable by the Web. The survey did not collect information about the actual courses taken by the respondents (other than the four core courses).

Findings

For the purposes of this discussion, we consider those questions with average ratings in one of 3 ranges:

- Greater then 3.5 – considered satisfactory
- Between 3.0 and 3.5 – considered at risk
- Below 3.0 – considered unsatisfactory

Although the ranges are somewhat arbitrary, they help to identify the areas where students perceive the program as helping them achieve competencies and areas where the program may be lacking.

What technology skills, knowledge and abilities do SLIS students and alumni perceive they develop from the program?

Information Technology Concepts: Three of the general IT concepts received an average rating of at least 3.5 (for more information, please refer to Table 1):

General Information Technology Concepts Rated > 3.5

1. Information Organization (3.86)
2. Societal impact of information technology (3.84)
3. Information Architecture (3.57)

General Information Technology Skills:
One of the general IT skills received an average rating of at least 3.5 (for more information, please refer to Table 3):

General Information Technology Skills Rated > 3.5

1. Navigate information structures (4.08)

LIS-Specific Information Technology Skills:
Four of the LIS-specific IT skills received and average rating of at least 3.5 (for more information, please refer to Table 5):

LIS-Specific Technology Skills Rated > 3.5

1. Maintain awareness of and responses to new challenges to privacy. (3.80)
2. Protect the information privacy of clients or patrons. (3.71)
3. Maintain awareness of emerging technologies that may become relevant tools of future information resources, services, or applications. (3.65)
4. Evaluate current and emerging information tools or systems. (3.51)

Overall, respondents rated most technology skills, knowledge and abilities between 3 and 4. This suggests that they do not perceive the program as technologically strong, although essential concepts and skills are well-rated.

What technology-related parts of the program do SLIS students and alumni think need to be improved?

Information Technology Concepts: Eleven IT concepts were rated less than 3.5. Three, shown in bold, were rated less than 3.0 (for more information, please refer to Table 1):

General Technology Concepts Rated < 3.5

1. Limitations of information technology (3.36)
2. Natural language processing (3.32)
3. Knowledge Management (3.25)
4. Computers (3.22)
5. Networking (3.18)
6. **Modeling and abstraction (2.86)**
7. **User-created content (2.77)**
8. **Computer-supported cooperative work (CSCW) (2.64)**

General Information Technology Skills:
Four IT skills were rated below 3.5. None were rated below 3.0 (for more information, please refer to Table 3):

General Technology Skills Rated < 3.5

1. Communicate with others about IT (3.40)
2. Anticipate and plan for changing technologies (3.32)
3. Collaborate with others on information technology projects or problems (3.29)
4. Develop general information technology skills to reason about, work with and manage information technology (IT) (3.11)

LIS-Specific Information Technology Skills:
Six LIS-specific skills were rated less than 3.5. Two, shown in bold, were rated less than 3.0 (for more information, please refer to Table 5):

Lowest Three Rankings for LIS-Specific Technology Skills in SLIS Curriculum

1. Apply expertise in information analysis (3.39)
2. Acquire IT knowledge and skills in the future (3.39)
3. Improve information retrieval and use in my organization... (3.26)
4. Create information access and delivery solutions (3.22)
5. **Manipulate databases, e.g. add, update or extract data, create reports. (2.84)**
6. **Design and implement databases. (2.67)**

What technology skills, knowledge and abilities do SLIS students and alumni perceive as being important for their careers?

All three categories (IT Concepts, General Skills, LIS-Related IT Skills) scored relatively high in ranking among the respondents, with the averages ranking higher than the questions that ranked these categories within the SLIS curriculum. (Please refer to tables 2, 4, and 6 for more information)

Broken down by category, below are the top skills perceived, by the respondents, to be important for LIS professionals.

Information Technology Concepts: (please refer to Table 2 for more information)

Top Five Rankings of IT Concepts Perceived Important for Profession

1. Information Organization (4.68)
2. Computers (4.62)
3. Information Systems (4.47)
4. Societal impact of information technology (4.46)
5. Limitations of information technology (4.44)

General Information Technology Skills: (please refer to Table 4 for more information)

Top three Rankings of General IT Skills Perceived Important for Profession

1. Anticipate and plan for changing technologies (4.49)
2. Navigate information structures (4.47)
3. Communicate with others about information technology (4.45)

LIS-Specific Information Technology Skills: (please refer to Table 6 for more information)

Top Five Rankings of LIS-Specific IT Skills Perceived as Important for Profession

1. Maintain awareness of emerging technologies that may become relevant tools of future information resources, services, or applications. (4.52)
2. Acquire IT knowledge and skills in the future. (4.48)
3. Apply expertise in information analysis. (4.32)
4. Maintain awareness of and responses to new challenges to privacy. (4.31)
5. Protect the information privacy of clients or patrons. (4.29)

Respondents rated almost all of the IT concepts and skills as being important for them as professionals (averaged at least 3.98 on a 1-5 scale). A few exceptions are:

- Modeling and abstraction (3.54)
- Design, implement and manipulate databases (3.74)

This suggests that the program needs to better articulate the importance and relevance of these two topics to the LIS professional.

Other findings

Students appear to take 551 and 553 earlier in their course of study; 555 and 557 later – this is consistent with anecdotal reports from students and faculty. This suggests an advising need: to more strongly encourage that students take the core courses earlier, because these courses provide the theoretical framework embedded in the rest of the curriculum. These courses also develop practical skills that support upper level courses.

Along with asking whether the program as a whole is teaching these concepts adequately, another question that arises is whether students are taking the courses needed to learn these skills. This information may suggest possibilities such as: more technological classes should be emphasized in advising sessions; that some of these concepts should be introduced or emphasized more in the core courses (especially 555); and technology course surveys be analyzed for possible course improvements.

Furthermore, the range of answers in the survey, although not extremely diverse, also suggests that there is variability in classes (in both what is covered and the technology available to adequately teach these concepts and skills), especially among the core courses, which is also evident in the comments section. Why are some students selecting "1" (Strongly disagree)? It would be preferable, of course, to have little to none selecting that answer.

The qualitative data provide a large set of suggestions for improvements. That data should be reviewed as SLIS revises its curriculum to identify topics and skills for inclusion in courses. This should not be limited to only "technology" courses, because these concepts and skills are relevant to all aspects of the LIS field.