



What Do Undergraduate Course Syllabi Say about Information Literacy?

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abstract: Librarians seek opportunities to improve outreach to faculty and promote shared interests in information literacy. A comprehensive review of syllabi for all undergraduate courses offered during one academic term examined course-level learning outcomes and graded assignments to see how well they aligned with the five Association of College and Research Libraries Information Literacy Competency Standards for Higher Education. We observed discrepancies between descriptions of graded assignments and the articulation of student learning outcomes aligned with information literacy skills. The review generated an inventory of courses and instructors that will help subject specialists initiate conversations about collaborations related to information literacy.

Introduction [A head]

Academic reference librarians are committed to promoting information literacy on their campuses, and they advocate student learning through instruction and collaborations with faculty on assignments. As campus outreach initiatives grow, librarians may also become involved in the development of institutional teaching and learning goals related to information literacy (IL). Colleges and universities often adopt information literacy as a learning goal for students in the curriculum and ask faculty to submit evidence of IL teaching and learning activities. This documentation of student learning may be used to create curriculum maps within the majors, to develop continuous improvement plans at the university level, and to strengthen regional or disciplinary accreditation reports. Even without such mandates from department chairs and accrediting agencies, teaching faculty value information literacy as a vital skill in their disciplines and often assume the bulk of responsibility for imparting these skills to students.¹ Librarians regularly seek out faculty who share the goal of teaching informa-

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tion literacy and establish partnerships to foster student learning. Together, librarians and teaching faculty can identify stumbling blocks students encounter in the research process and can then design assignments or instruction to help students develop IL skills.

Librarians have largely relied upon the Association of College and Research Libraries (ACRL) Information Literacy Competency Standards for Higher Education, often called simply the Standards, for their understanding of information literacy skills.² However, the Standards and the associated learning outcomes do not always resonate with discipline faculty.³ Librarians who want to strategically develop collaborations with discipline faculty often face challenges engaging professors and other academics in conversation. Librarians may have limited knowledge about who these faculty are, what they teach, and how information literacy plays a role in their courses. Although discussions with faculty allow librarians a glimpse into the nuances of IL within the disciplines, these conversations most often happen organically as opportunities arise rather than systematically.

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only describe institutionally required elements of course design, the content of a syllabus reflects the pedagogical orientation and values of its author or authors.⁴ In addition to describing class rules and policies, syllabi now include student learning outcomes and frequently provide information about graded course assignments and other materials that reflect a learning-centered approach to teaching and course design. Therefore, librarians can obtain

information about IL goals and assignments from syllabi. In fact, at the University of West Florida (UWF) in Pensacola, many subject-specialist librarians obtain an instructor's syllabus before they begin to design a library instruction session.

Collectively, syllabi reflect the culture of teaching and learning at an institution and may inform decisions about library instruction services.⁵ For example, Amy VanScoy and Megan Oakleaf recommend reviewing syllabi to inform curriculum-integrated and curriculum-tied instruction programs as an alternative to anecdotal information, which may be selective and inadvertently reflect librarians' biases.⁶ In this way, librarians can structure library instruction programs to meet the needs of the General Education curriculum and the courses within academic programs. A review of syllabi also provides subject-specialist librarians with information about specific courses and can direct them to individual faculty members and departments for collaborations.

Librarians have long used the syllabus as a way to integrate library services and resources with faculty goals and student learning. Jeremy Sayles discusses the importance of the syllabus to the library, arguing that the integration of library resources and syllabi would allow students to see the "common purpose" shared by librarians and instructors and to "benefit from [their] symbiotic relationship."⁷ Although librarians have taken different approaches to conducting syllabus reviews, these studies have often shared the goals of identifying potential topics or courses for faculty outreach and collaborations, aligning library instruction and collection development with curricular goals, and improving reference services.

At the University of West Florida, the idea to conduct a syllabus review originated with a conversation among librarians regarding our interpretation of electronic resources usage statistics. We perceived a disproportionately large number of abstract views compared to full-text views of articles. One hypothesis was that instructors now assigned fewer traditional research papers and more annotated bibliographies, a type of assignment that may have allowed students to “get by” on abstracts alone. In our faculty information literacy workshops, we often suggest that faculty scaffold research projects with milestone assignments—that is, instructors create a series of low-stakes assignments that give students practice and feedback on skills they must use when they complete subsequent, higher-stakes projects. We wondered if the recommended scaffolding and milestone assignments had encouraged instructors to put a stronger emphasis on annotated bibliographies and similar research components. Perhaps the research process now ended at this stage, before students could synthesize the information from full-text sources in a larger research project.

Many library syllabus studies have analyzed required and optional library use for research projects.⁸ Relatively few, however, have examined the types of information literacy assignments instructors describe in syllabi. In their study of General Education syllabi, Wendy Holliday and Pam Martin documented the number and types of IL assignments present, including evidence of specific ACRL Standards covered in assignments, grading criteria listed for IL skills, and research projects occurring in stages.⁹ Nancy O’Hanlon combined a syllabus study with an instructor survey to document similar information about assignments in lower-level writing classes and senior capstone courses—that is, culminating courses in a student’s major—with mandated information literacy components.¹⁰ In contrast, VanScoy and Oakleaf examined the types of information sources freshmen were required to find to successfully complete assignments.¹¹ Andrea Dinkelman modified the questions in Holliday and Martin’s and O’Hanlon’s studies to analyze required courses for the biology major at her institution.¹² Like Holliday and Martin, O’Hanlon, and Dinkelman, we decided to record the types of IL assignments instructors described in syllabi. While we did not specifically look for evidence of scaffolded IL assignments, we believed this documentation would answer our research question. If the syllabus specified both an annotated bibliography and a research paper, we could be fairly certain that the instructor divided an assignment into components or, at least, taught research skills separately. Conversely, if the syllabus described only an annotated bibliography, we would know that the research process ended there.

To answer our research question, we could have relied upon a sample of syllabi. However, because we also wanted to document the presence of IL assignments so that subject specialists could initiate conversations with individual faculty members, we chose to review the entire population of syllabi. By doing so, we could identify which faculty members were teaching information literacy. Jonathan Lauer, Lawrie Merz, and Susan Craig, who compared all the undergraduate syllabi in a semester at two private institutions, conducted the last published, library-related syllabus review of this scope in 1989.¹³ Most previous researchers who have attempted to complete comprehensive examinations of syllabi have been subject-specialist librarians who studied syllabi at the department or program level.¹⁴ For example, Nancy Dewald obtained all of the syllabi for courses required for the business administration degree, and Linda Lowry

collected syllabi for undergraduate accounting classes.¹⁵ Because these librarians could review the entire population of syllabi for a major or department, they could identify potential faculty with whom to collaborate on curriculum-integrated library services and instruction. For this study, we wanted to provide all our subject-specialist librarians with these data so that each could contact faculty members to offer information literacy instruction support. This syllabus study represents the first complete inventory of syllabi of undergraduate courses in a given semester at a public institution that has been reviewed by librarians.

In addition to documenting IL assignments, we wanted to record the presence of course-level student learning outcomes (SLOs) related to each of the ACRL Standards to analyze information literacy outcomes programmatically. Recently, Clarence Maybee, Jake Carlson, Maribeth Slebodnik, and Bert Chapman used a grounded theory approach, forming a theory based on the collected data as opposed to gathering data after forming the theory, to document how faculty incorporated information literacy-related activities in their syllabi.¹⁶ Their study provides a window into the varying vocabulary and approaches faculty use to teach information literacy within the disciplines. By looking for evidence of the ACRL Standards, we could determine if the ACRL information literacy outcomes promoted by our library resonated with and were articulated by faculty as course-level SLOs. Previous library syllabus studies did not record evidence about which of the five ACRL Standards appeared as course-level SLOs in the syllabi. Holliday and Martin recorded any IL Standards present in SLOs and specified which of the Standards aligned with assignments described on syllabi.¹⁷ Katherine Boss and Emily Drabinski documented evidence of each of the ACRL Standards as well, but they based their conclusions on multiple sources of evidence in the overall syllabus, including course-level outcomes, the course description, and assignments.¹⁸ Therefore, further study into which ACRL Standards are represented as course-level outcomes within syllabi is warranted.

To conduct a large-scale, comprehensive review of all undergraduate syllabi, librarians at UWF collaborated with the university's *Center for University Teaching, Learning, and Assessment (CUTLA)*. In doing so, we benefited from CUTLA's expertise with the reviewer training process, and CUTLA gathered additional information about syllabi to answer institutional assessment questions. Because undergraduates make up slightly over 10,000 of the total student enrollment of approximately 12,500, we decided to focus exclusively on undergraduate courses. CUTLA's assessment goals were to document the level of compliance in including required elements on syllabi; to measure how often instructors described optional "best practices" for learning-centered courses; to determine how frequently syllabi specified SLOs or assignments related to twenty-first century skills, including professional readiness and career development; and to find out how many syllabi described activities identified as high-impact pedagogical practices.¹⁹ Claudia Stanny, Melissa Gonzalez, and Britt McGowan discuss in detail the use of a syllabus review to address questions about institutional effectiveness and to gather evidence to support accreditation efforts.²⁰ The current discussion focuses on the UWF Libraries' goals, which were to identify and create a roster of the UWF courses that documented the presence of course-level SLOs related to each of the five ACRL Standards and to document the types of information literacy assignments in each syllabus. A review of the full population of undergraduate syllabi was feasible at our midsized

institution, which offers 45 undergraduate degrees, because the population of syllabi was large ($N = 1,153$) but manageable.

Methodology

Rubric Construction for a Syllabus Review

The rubric used for the syllabus review enabled reviewers to record the presence of specific elements that interested CUTLA and elements related to IL that interested the library. These included required content (for example, name of course, name of instructor, required text, and grading system); “best practices” for learning-centered syllabi (for example, advice for how to succeed in the course or descriptions of rubrics); and SLOs and assignments that aligned with the ACRL Standards, twenty-first century skills, and high-impact pedagogical practices.²¹

The library component would yield an inventory of departments and courses whose faculty articulated information literacy SLOs, described IL assignments, or did both in their syllabi. To achieve this goal, the rubric included elements that would identify syllabi that specified a relevant SLO or described graded assignments that supported the development of IL skills. Five rubric elements gathered information about the presence of one or more SLOs that aligned with each of the five ACRL Standards, and 11 elements evaluated the presence of specific assignments that advanced or assessed IL skills. The types of assignments we identified for inclusion were: bibliography, annotated bibliography, research paper or literature review, research paper with primary empirical data, book report or journal analysis, case study or analysis, poster presentation, reflective paper, class presentation, and digital communication assignments. We also included an “other” category where reviewers could account for unanticipated assignment types.

Training Reviewers and Determining Inter-Rater Agreement

Four graduate students examined the entire population of syllabi for undergraduate courses offered during a single academic term (fall 2013) at UWF, excluding laboratory courses, studio courses, directed studies, service learning, and internships ($N = 1,153$). Ten percent of the total syllabi ($n = 110$) were randomly selected for review as part of a sample used for initial training and weekly reviewer calibration checks. The random process used to select the training and calibration sample was constrained in two ways. First, we selected only one syllabus when a department offered multiple sections of a course—that is, when the same course title was offered for different groups of students during the same term, with either the same or a different instructor for each group. Second, we ensured that the training and calibration sample included syllabi for courses offered by every academic department at the university. These constraints produced a sample that reflected the full range of variation in syllabus content that reviewers would encounter across academic disciplines during the analysis.

During the first training session we explained the rubric, discussed concepts that might be unfamiliar to the reviewers (for example, differences between measurable and nonmeasurable learning outcomes and nuances of the five information literacy Standards), and reviewed procedures for recording scores on data spreadsheets. After

this session, reviewers evaluated a small sample of training syllabi ($n = 6$). All reviewers scored the six syllabi for the training activity. Reviewers were randomly assigned to pairs for this analysis. We computed inter-rater agreement for each pair on scores assigned to individual rubric elements. In the next training session, we discussed the rubric elements that produced high levels of disagreement (defined as less than 75 percent agreement), resolved disagreements through consensus, and refined the rubric guidelines to improve future scoring accuracy. Reviewers then rescored the initial set of six syllabi, and the researchers recomputed the inter-rater agreement for each pair. The second scoring of these syllabi produced acceptable levels of inter-rater agreement (87 percent), which exceeded our target of at least 75 percent, and the reviewers began scoring the full population of syllabi independently.

Reviewers were assigned additional syllabi from the training and calibration sample (6 to 12 new syllabi) for double scoring, and the researchers computed inter-rater agreement for each pair once a week throughout active data collection. The researchers computed agreement for each pair on the sample assigned that week and the cumulative agreement for the pairs on all common syllabi from the calibration sample scored to date. This process enabled the investigators to monitor scoring consistency and maintain training for application of the rubric throughout the project. During calibration meetings, researchers and reviewers discussed the inter-rater agreement data for the calibration sample that week. We amended and expanded the guidelines for any rubric element that fell below 75 percent on inter-rater agreement scores. These revisions sometimes included annotations about confusing judgments reviewers encountered and helped build and maintain consensus for future decisions. Weekly agreement scores improved across the data collection period. Based on the full calibration sample ($n = 110$), average inter-rater agreement for the pairs across all rubric elements was 95 percent. Inter-rater agreement exceeded 75 percent on all individual rubric elements; agreement on individual rubric elements ranged between 88 and 100 percent.²² For IL Standards, the overall average agreement ranged from 84 percent to 97 percent; for IL assignments, the overall average agreement ranged from 90 percent to 100 percent.

Accessing Syllabi for Review

Campuses vary in their policies regarding syllabi as public documents. At the time of this study, UWF posted all syllabi on its public website and archived them on an internal university site used to store documents needed for institutional accreditation. Only 11 syllabi of the 1,153 were not posted; reviewers marked all rubric elements as absent for those courses. Since this study, the university adopted a new software system that allows faculty, staff, and students to search for syllabi only by a specific course number. As a result, it would now be more difficult to access syllabi for a review of the full population of syllabi for an academic term. Many institutions have public and private searchable collections of syllabi for the current academic term so that students may view a syllabus prior to registration. If an institution does not host a publicly available archive of syllabi, librarians can request access to an internal archive of syllabi with approval from the Institutional Review Board (IRB). The primary concern in granting access to such an archive would be ensuring that data files and summary data do not include personal

identifiers for instructors.²³ Because a Web archive of syllabi was readily available, we achieved our goal of creating a complete inventory of courses that support information literacy SLOs to guide subject-specialist librarians' efforts in reaching out to faculty.

Results and Discussion

Overall, 79 percent of the syllabi showed some evidence that the course incorporated information literacy, either through the presence of IL student learning outcomes or descriptions of relevant IL assignments. These results are higher than those described in Laurel Willingham-McClain's syllabus study, which reported that 56 percent of syllabi showed evidence of an IL component (in either SLOs, topics, or assignments).²⁴ In our review, 83 percent (613 of 740 syllabi) of upper-level (junior and senior) courses had syllabi that provided evidence of information literacy activities, whereas 72 percent (297 of 413 syllabi) of lower-level (freshman and sophomore) courses had syllabi that provided evidence of relevant IL student learning outcomes or assignments. Only 21 percent of syllabi provided no evidence of IL learning activities.

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Of the total syllabi, 58.5 percent contained learning outcomes that could be associated with at least one of the five ACRL Standards. Outcomes related to using information effectively (Standard Four) were present most often (39.5 percent), followed by outcomes related to evaluating information (Standard Three), which occurred in 35.4 percent of syllabi. Accessing the information (10.8 percent), ethical information use (10.1 percent), and determining the information need (1.7 percent) appeared less often.

Slightly more of the syllabi described IL assignments (59.2 percent) than information literacy SLOs. Digital communication assignments, such as creating or contributing to a Web page, wiki, blog, or discussion thread, were the most common assignments (26.9 percent), followed by research papers (23.1 percent). Book or journal analyses (15.9 percent), class presentations (13.8 percent), and reflection papers (11.4 percent) were the next most common tasks. We accurately predicted the majority of assignment types that we would encounter. The "other" category accounted for only 1.4 percent of assignments and included career portfolios, food journals, and journal write-ups of team meetings. Finally, our hypothesis that an annotated bibliography assignment would appear as often or more frequently than a traditional research paper as an assignment was not supported. Only 5.4 percent of syllabi described an annotated bibliography assignment, and 86.4 percent of those syllabi also included a research paper.

The mode of delivery for courses predicted the types of IL assignments we found on syllabi. As discussed in Stanny, Gonzalez, and McGowan, although digital communication assignments were described most frequently, the majority of these requirements appeared on syllabi for online courses (68.8 percent of online courses) rather than on those for face-to-face courses (11.4 percent of face-to-face courses).²⁵ This discrepancy can most

Table 1.

ACRL Information Literacy (IL) Standards by course level

Course level	IL Standard 1	IL Standard 2	IL Standard 3	IL Standard 4	IL Standard 5	Any IL Standard
Freshman (1000)	2.4%*	28.8%	20.2%	46%	26.4%	56.4%
Sophomore (2000)	0.4%	3.2%	32.4%	36%	11.2%	55.6%
Junior (3000)	2.9%	11.4%	40%	33%	7.4%	53.8%
Senior (4000)		1.2%	7.8%	43%	44.5%	53.9%
TOTAL	1.7%	10.8%	35.4%	39.5%	10.1%	58.5%

*Percentages represent presence of a student learning outcome (SLO) within a course level, not the percentage of overall syllabi.

likely be attributed to the instructor's use of threaded discussion—a running commentary of messages among students—in online courses to both establish community among the students and create a mechanism for student participation. Digital communication assignments accounted for 52.5 percent of the total IL assignments recorded for online courses, compared to only 11.9 percent of the IL assignments for face-to-face classes.

As Table 1 indicates, course level did not predict whether the syllabus described at least one IL outcome. The percentage of syllabi that specified an IL outcome ranged

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from 53.8 percent (junior-level courses) to 65 percent (senior-level courses). Presence of learning outcomes related to evaluating information (Standard Three) and using information ethically (Standard Five) varied the most within lower-level and upper-level courses. Lower-level courses were less likely to support Standard Three (27.6 percent) compared to upper-level courses (39.7 percent). Conversely, Standard Five was mentioned more frequently within lower-level courses (17.2 percent) than upper-level courses (6.2 percent), likely because instructors

emphasize avoiding plagiarism in General Education courses. The comparatively high frequency of syllabi in freshman-level courses that described SLOs related to accessing

information (Standard Two; 28.8 percent of syllabi) as opposed to sophomore-level courses (3.2 percent of syllabi) may be attributed to the large number of freshman writing and composition courses that include the following SLO: “Use library databases to locate sources appropriate for an academic research project.”

Similarly, as demonstrated in Table 2, IL assignments occurred fairly consistently across all course levels and ranged from 50.4 percent in sophomore-level courses to 67.8 percent in senior-level courses. Freshman-level syllabi described annotated bibliography assignments significantly more often than syllabi at other levels; most of these syllabi were for English composition classes that used an annotated bibliography as a scaffolding assignment to prepare students for their final research papers. Evidence of traditional research or term paper assignments appeared least often on syllabi for junior-level courses. This was a surprise because many research methods courses required for majors are offered at the junior level. Reviewers

found descriptions of case study assignments more often as course levels advanced from freshman to senior. This shift might represent an increased emphasis on practical applications of knowledge that will prepare students for the workforce.

Although the overall discrepancy between the percentage of syllabi containing IL student learning outcomes and IL assignments was not large, the contrast was striking in some departments. As illustrated in Table 3, many syllabi from one department described IL assignments but did not delineate an IL student learning outcome—for example, 74 percent of syllabi in art specified IL assignments, but only 37 percent of these syllabi described an IL student learning outcome. In contrast, we observed the reverse pattern in other departments. For example, 69 percent of syllabi for the Accounting and Finance Department described IL student learning outcomes, but only 17 percent of these syllabi specified an IL assignment. Science or math disciplines offered most of the syllabi that described IL student learning outcomes more frequently than IL assignments. Those disciplines value critical analysis of data but measure these skills in examinations or laboratory assignments not usually described in the same level of detail as written work on syllabi. Out of 32 total departments, 59 percent were more likely to specify IL assignments on the syllabus than to describe an IL student learning outcome; 37.5 percent were more likely to describe an IL student learning outcome on the syllabus than to delineate an assignment; and only one department had the same number of syllabi that identified both an IL student learning outcome and an IL assignment. The types of courses that did not describe an IL student learning outcome or assignment on the syllabus were not surprising: 57 of the 244 syllabi with no IL learning activities were courses in mathematics and statistics; 23 were practical application courses (such as tennis or yoga fitness); and 20 were performance courses in fine arts (for example, art, music, or theater). While we only examined the course SLOs for evidence of each of the ACRL Standards, previous syllabus studies have analyzed the entire syllabus for such evidence and have found a

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Table 2.

Information literacy assignments by course level

Assignment	Freshman	Sophomore	Junior	Senior	All course levels
Bibliography	2.5%	0%	0.1%	1%	0.9%
Annotated bibliography	17.2%	2.8%	4.4%	3%	5.4%
Research paper or literature review (no empirical data)	33.1%	19.6%	17.8%	25.6%	23.1%
Empirical research paper (raw data created)	1.8%	1.6%	3.8%	3%	2.8%
Book report or review	17.8%	16.8%	12.3%	17.6%	15.9%
Case study or analysis	1.8%	2%	7.9%	10.6%	6.7%
Poster presentation	1.2%	1.2%	1%	1.3%	1.1%
Reflective paper	21.5%	9.2%	9%	10.8%	11.4%
Class presentation	16%	13.6%	10.5%	15.8%	13.8%
Digital communication	20.9%	24.4%	23.1%	34.2%	26.9%
Other	0%	1.2%	2.9%	1%	1.4%

higher frequency of IL Standards occurring in the syllabus as a whole.²⁶ These findings reveal an opportunity for librarians to discuss the inclusion of IL student learning outcomes on syllabi with discipline faculty to improve the alignment of course SLOs with their implicit teaching goals and activities.

Recommendations

The rich volume of information that can be gathered through a syllabus study offers a number of opportunities for library initiatives. An instruction coordinator or library instruction services team may want to look programmatically at the number of instruction sessions and collaborations offered to the courses that describe IL activities in their syllabi. They may also want to analyze the types of IL assignments they are asked to support. More broadly, librarians may provide a summary of IL activities at the university level to create a snapshot of efforts to promote outcomes related to information literacy, which will assist university accreditation reporting. This documentation of institutional efforts to improve student learning provides evidence of compliance with

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Table 3.

Percentage of syllabi containing an IL student learning outcome (SLO) or an IL assignment by academic department

Department or program	Percentage of IL SLOs per department	Percentage of IL assignments per department
Academic Foundations (Student Life Skills)	13%	93%
Accounting and Finance	69%	17%
Air Force / Military Science	71%	86%
Anthropology	52%	76%
Applied Science, Technology, and Administration; Legal Studies; Sports Management	56%	65%
Art	37%	74%
Biology	50%	40%
Chemistry	61%	17%
Communication Arts	68%	71%
Computer Science	56%	17%
Criminal Justice	60%	84%
Electrical and Computer Engineering	69%	13%
English and World Languages	75%	91%
Earth and Environmental Sciences	59%	89%
Exercise Science and Community Health	53%	59%
Government	63%	79%
History	54%	96%
Honors	67%	100%
Hospitality, Recreation, and Resort Management	28%	72%
International Education and Programs	100%	0%
Management and MIS (Management Information Systems)	46%	53%
Marketing and Economics	56%	56%
Mathematics and Statistics	27%	1%
Music	24%	53%
Nursing	100%	91%
Philosophy	69%	90%
Physics	27%	7%
Psychology	66%	63%
Public Health, Clinical and Health Sciences	55%	80%
Social Work	76%	91%
Teacher Education and Educational Leadership	80%	76%
Theater	42%	8%
Total number of course sections	58%	61%

accreditation standards associated with institutional effectiveness and the assessment of student learning outcomes. Subject-specialist librarians may take a more focused and direct role, reaching out to specific faculty members who included IL on their syllabus and offering support.

In our syllabus study, the number of information literacy activities described on syllabi seemed high considering that the instructors of only 9.1 percent of all under-

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graduate classes offered in the fall 2013 term requested a “one-shot” library instruction session (representing only 11.7 percent of classes with syllabi that described IL student learning outcomes or assignments). Although the methodology and sample we used differed, our findings are consistent with those reported by Cheri Smith, Linda Doversberger, Sherri Jones, Parker Ladwig, Jennifer Parker, and Barbara Pietraszewski, who found that only 9.7 percent of classes that showed evidence of library use also utilized formal library

instruction.²⁷ The majority of our one-time library IL instruction classes or workshops focus on search techniques using library databases, which aligns with IL Standard Two (accessing the information). As VanScoy and Oakleaf point out, assignments that require students to find information sources usually also require them to use skills and meet outcomes related to other IL Standards as well—that is, students must choose a topic (Standard One), evaluate the information source (Standard Three), and use the source effectively (Standard Four) and ethically (Standard Five).²⁸ Because Standard Two is seldom mentioned as an outcome on syllabi but is implicitly required to complete assignments successfully, librarians may support the teaching and assessment role for this SLO when they use in-class exercises in an instruction session. Similarly, librarians could identify other IL outcomes that instructors do not articulate as course-level SLOs (for example, Standard One was specified on syllabi for only 1.7 percent of the courses, but most students must define a need for information to complete assignments) and follow up with faculty about learning activities to foster that skill. Librarians can offer help with the design of appropriate learning activities where needed. While success in one outcome may affect success in another, faculty may only assess the culmination of all these skills. Working together, librarians and faculty can help one another identify trouble areas for students.

Of course, one-time library instruction sessions are not the only way librarians aid classroom IL learning. Librarians also support IL outcomes by providing paper-based and online tutorials and research guides, face-to-face reference services, and consultations with faculty on the development of information literacy assignments. For example, librarians sometimes collaborate with faculty to assess the bibliographies students produce. Even so, we have not incorporated instructional services into many courses that contain IL activities. Librarians should be cautious about marketing their services and expertise too heavily to avoid creating an unsustainable workload. Linda Rambler points out that the library is “underused” even as library staff report “over work.”²⁹ Therefore, true curriculum-integrated IL programs require a commitment and investment in resources.



At UWF, each academic department must submit SLOs, a curriculum map, and an assessment plan for their majors as part of their academic learning compacts. The academic learning compacts must articulate program-level SLOs in each of five domains: discipline knowledge and skills (content), communication, critical thinking, integrity and values, and project management. Because the ACRL Standards describe learning outcomes that align with four of these domains, librarians are positioned to assist faculty with the development of relevant teaching strategies and assessment of student learning outcomes that support the overall curriculum and associated accreditation mandates. For example, some departments assign the library's tutorial on avoiding plagiarism and maintaining academic integrity, and they use the tutorial quizzes to assess learning outcomes in the integrity and values domain. The library and CUTLA have also collaborated on workshops to improve faculty skill in developing assignments and assessments of student learning in each of these domains of learning outcomes.

Librarians are positioned to assist faculty with the development of relevant teaching strategies and assessment of student learning outcomes that support the overall curriculum and associated accreditation mandates.

Because many accreditation agencies value information literacy as a vital student skill,³⁰ librarians are uniquely positioned to assist in reporting data about IL skills at their institutions. Therefore, they should provide ongoing documentation of learning activities, assessment results, and examples of student work that result from their collaborations with discipline faculty. Our regional accreditation agency, the Southern Association of Colleges and Schools Commission on Colleges, requires colleges to submit a Quality Enhancement Plan (QEP) as part of the accreditation process. This plan focuses on student learning outcomes that may be improved based on needs identified in institutional assessments. With existing IL data on learning activities and assessments of learning, librarians can inform development of the QEP and may make the case for an institutional focus on information literacy. In fact, a study by Benjamin Harris reviewing QEPs accepted by the accrediting agency from 2007 to 2011 found that 106 of 391 QEPs incorporated information literacy as a targeted learning outcome.³¹

To begin sharing and utilizing the data from our syllabus review, CUTLA distributed to the provost and college deans a summary of findings about the frequency of descriptions of IL learning outcomes and twenty-first century skills along with evidence for the use of high-impact pedagogical practices. The library shared individual departmental data (IL student learning outcomes and assignments) with each subject-specialist librarian because each academic department and its faculty have varying needs regarding information literacy support. At a glance, librarians can see which syllabi contain IL assignments and determine which IL Standards instructors articulate as SLOs. Although we did not collect faculty names for our inventory in adherence to IRB regulations, subject-specialist librarians generally know which faculty teach which courses and have access to instructor information. To avoid becoming overwhelmed by data, we plan to initially contact departments that show evidence of teaching IL skills but have had little engagement with the library. In addition, subject specialists may consider the needs of

their liaison departments and faculty. The teacher education librarian, for example, will assist the department with its curriculum-mapping project and is now prepared to do so in a more meaningful way, equipped not only with the information literacy data but also with data related to twenty-first century skills and high-impact pedagogical practices.

Going forward, the library plans to conduct smaller-scale follow-up syllabus reviews on departments and programs that have been targeted for outreach. The instruction coordinator may review General Education syllabi, while subject-specialists may review their own departments. In this way, we can measure how our efforts have impacted information literacy at the university. In addition, CUTLA periodically undertakes syllabus reviews, and we will again be ready partners in incorporating information literacy into the studies if given the opportunity.

Lessons Learned and Implications for Further Research

A record of the types of information literacy assignments and student learning outcomes found in syllabi is useful, but quantitative data alone cannot capture all the nuances of the ways in which instructors support IL skills in courses. We predicted 98.6 percent of assignment types that reviewers would encounter, but some assignments might include aspects of more than one type of assignment. For example, a digital communication assignment might consist of a discussion board post that requires students to find a source and respond to it (so it might have been coded as an informal annotated bibliography). O'Hanlon addresses this ambiguity by gathering data through an instructor survey as well as a syllabus review.³² Multiple sources of information would have created a fuller picture of how instructors teach information literacy skills in the classroom but were not feasible to gather given the scope of our review. Therefore, we encouraged subject-specialists to engage with faculty directly about their courses to learn more about the nature of their assignments. If we plan such a large-scale syllabus review in the future, we will design a survey that subject-specialists may use as a simplified tool for initiating conversations with their faculty.

We also found that a syllabus might identify an ACRL Information Literacy Standard as a course SLO but might not necessarily benefit from library involvement. For

Information from syllabi about assignment types often revealed opportunities for librarian-faculty collaboration and could be used in combination with data about course SLOs to inform the discussion

example, SLOs that describe the evaluation and use of information (aligned with ACRL Standards Three and Four) often refer to students analyzing and using content within the discipline (for example, computing financial ratios). Disciplinary faculty can better teach these skills. Although data on the presence of these IL student learning outcomes on syllabi gave us important information about the status of IL instruction at the university, our data on the types of IL assignments proved more helpful for outreach. Information from syllabi

about assignment types often revealed opportunities for librarian-faculty collaboration and could be used in combination with data about course SLOs to inform the discussion.

Future research might include rubric elements that will identify the types of sources instructors expect students to evaluate and use. For instance, if an assignment requires students to find and use external sources, a librarian could help students learn how to evaluate those sources. In fact, some syllabus studies have included finding external sources of information as a rubric element when reviewing assignments in syllabi.³³

In addition, we discovered during data analysis that some reviewers used a variety of naming strategies when they recorded names of departments and colleges. We added a descriptive data element to the file that assigned a numeric code to each department. This additional descriptor in the data file allowed us to correct data entry errors. The numeric codes are also easier to use in the statistical package when creating reports that aggregate data from multiple courses within a department or college, or when recording departments to colleges, as we had to do following a campus reorganization. Because programs and departments frequently change their names, a numeric code that aligns courses with departments saves researchers time and prevents confusion.

In a well-designed curriculum, we would expect information literacy outcomes and related assignments to reflect higher levels of sophistication as students advance toward junior- and senior-level courses. However, we made no judgments about the complexity of IL skills described in syllabi or the demands of specific types of assignments. Some published studies report formal evaluations of the sophistication of library use,³⁴ and a similar scale could be applied to demands for information literacy skills associated with different types of assignments. For example, the skills required for a freshmen research paper will not be as complex and nuanced as those required for a senior capstone research paper. Our review did not categorize assignments for level of difficulty. As a result, subject-specialist librarians must collaborate with faculty to review requirements for specific assignments to create instruction strategies and develop learning tools that meet the needs for the level of instruction intended. Future syllabus reviews might create a measure for the sophistication of information literacy represented by course SLOs and the skills manifested in associated assignments.

Finally, at the time of this study, the ACRL Framework for Information Literacy in Higher Education had not yet been adopted.³⁵ In the summer of 2015, our library adopted the new Framework, which meant creating or revising IL student learning outcomes for our institution. In some cases, we retained SLOs important to our institution but mapped them to the new Framework. A similar crosswalk may be created to help interpret our syllabus data in light of the new Framework. Since the Framework is less prescriptive in terms of specific learning outcomes, it will be interesting to see how faculty in disciplines write future IL outcomes and which ACRL frames they address.

Implementing a Syllabus Review

To implement a syllabus review at your institution, we recommend the following action steps:

1. Define your research question(s)—what do you want to know?
2. Determine where syllabi are archived and how you can access them.
3. Identify potential campus partners, such as the teaching center, advising office, or an academic department. These stakeholders may have interests beyond information

literacy or library use, but you may share resources to gather multiple data sets at the same time.

4. Plan the size and scope of the review—for example, a single department, General Education courses, freshman-level courses, a representative sample, or a full-population review.
5. Obtain IRB approval (request “exempt” status for the research).
6. Develop a rubric for assessing syllabi and recording data. Ensure that rubric elements gather the information needed to answer your research question or questions.
7. Collect syllabi and recruit reviewers.
8. Develop procedures for reliable data collection and training and for monitoring inter-rater reliability, including the following:
9. Create a data entry sheet for consistent and accurate data entry that can easily be imported into the statistical software you intend to use for analysis.
10. Train reviewers to apply the rubric to score syllabi and enter data on the score sheet.
11. Establish an acceptable level of inter-rater reliability on a small set of syllabi before beginning independent review of the full sample.
12. Monitor rater agreement periodically throughout the data collection period and make adjustments as needed to maintain inter-rater reliability.
13. Review the syllabi.
14. Analyze, summarize, and distribute the data.

Conclusion

Although a syllabus does not specify all the educational activities that take place in a course, it can provide useful information about learning outcomes that instructors and

Librarians can use the presence of information literacy outcomes and assignments on syllabi to identify instructors who want to promote IL. They can then develop collaborations with these instructors and initiate discussions with their departments.

academic departments value. Furthermore, syllabi often describe the types of tasks that instructors require students to complete. Librarians can use the presence of information literacy outcomes and assignments on syllabi to identify instructors who want to promote IL. They can then develop collaborations with these instructors and initiate discussions with their departments. For example, an instructor might be encouraged to add an IL learning outcome to the syllabus for a course if that syllabus currently describes an information literacy assignment.

Faculty may also want to review the types of IL outcomes and assignments students encounter when they complete requirements for a major and identify strengths and gaps in the instructional support the department provides for IL goals. Working together, departmental faculty, librarians, and curriculum planners may create a more cohesive curriculum for academic programs that promote information literacy learning outcomes.

Undertaking a comprehensive syllabus review of all undergraduate courses is a daunting task; however, it may be accomplished with the help of student assistants. This study required a combined total of 480 hours of reviewer time, not counting the time researchers spent compiling and analyzing the data. Researchers should take care that reviewers are properly trained and maintain inter-rater reliability throughout data collection. Even with high levels of reliability, a content analysis of syllabi will still be an imperfect window on instruction and content. The most common mistake will likely be an error of omission: an instructor might devote instructional time and create assignments intended to develop information literacy skills yet not document this aspect of the course in the syllabus. Similarly, even well-trained reviewers sometimes make mistakes and miss syllabus content that indicates work related to information literacy. Nevertheless, library instruction coordinators can use the data from a syllabus review to identify particular programs or instructors who are promising candidates for IL collaborations with subject specialists. If such a large-scale syllabus review is not possible, instruction coordinators might choose to review syllabi in a specific program, such as the General Education curriculum, and concentrate on developing an inventory of relevant courses and instructors for potential collaborations.

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