DEARBORN
MARDIGIAN LIBRARY

Research Education Committee
Annual Report
2017-2018

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I. Statistical Review

This section refers to the number of courses in each college with librarian research education instruction in Fall and Winter semesters for 2017-2018.

Table 1: Fall 2017 Research Education by College

College/Program	# of Courses	Total # of Students
CASL	33	659
CECS	6	272
CEHHS	4	78
COB	13	439
Graduate Studies	2	3
Other	0	0
Total	**58**	**1,451**

Table 2: Winter 2018 Research Education by College

College/Program	# of Courses	Total # of Students
CASL	27	601
CECS	5	130
CEHHS	5	85
COB	7	200
Graduate Studies	2	40
Other	2	13
Total	**48**	**1,069**

Table 3: Summer 2018 Research Education by College

College/Program	# of Courses	Total # of Students
CASL	4	73
CECS	2	33
COB	2	80
Total	**8**	**186**

Table 3: 2016-2017/2017-2018 Academic Year Comparisons

Year	# of Courses	Total # of Students
2016-2017	108	3021
2017-2018	114	2706
Change from 16-17 to 17-18	+6	-315
% Change	+5.56%	-10.43%

Operational Review

The number of courses and programs incorporating research education slightly increased this year, though the total number of students we reached actually decreased. This decrease is due to two factors. First, our Social Sciences Librarian passed away and has not yet been replaced. He taught many research skills sessions, so his loss impacted the number of sessions held and students reached. The second factor is that the First Year Experience librarian became interim head of the User Services department, and was unable to conduct as many library orientations as before. Since orientations tend to have many students, this could account for the decrease in number of students reached despite the slight increase in the number of courses and programs in which research education was incorporated.

Also of note is that the Research Education program continued incorporating digital education into our research education, reducing the need to conduct in-class instruction sessions. This was accomplished by: 1) being embedded by faculty in their course Canvas sites and 2) collaborating with faculty teaching online courses to develop online research guides tailored to their course research assignment requirements and the specific processes of the discipline. Incorporating digital education has had demonstrated success: students use their course research guides more and are more likely to contact their subject librarians when they need help. Faculty also report a positive impact on the quality of student work in their courses (see *Faculty Surveys* section, pg. 8 for more details).

Table 4: Type of 2017-2018 Research Education Work

Type of Research Education Work	# of Courses/Programs
One Shot Session*	59
Multiple Sessions	2
Embedded In Course**	44
Workshop***	7
Library Orientation****	2

***One-shot instruction sessions** are sessions arranged for particular classes through a librarian and faculty collaboration that focus typically on research for completing assignments in that class.
****Embedded in course** stems from a higher level of collaboration between a librarian and faculty and this session is one of the results of that collaboration. This may take the form of a one-shot but this is typically only one of the activities that the librarian is doing with the particular class (see *Embedded Course Activities* section on page 6 for more information).
*****Workshops** are sessions arranged through a librarian and a school, department, or program focusing on a particular theme like "success in college."
******Orientations** are library overview sessions arranged through a librarian and a school, department, or program.

Table 5: Distribution of 2017-2018 Research Education Work Between Undergraduate and Graduate Courses and Programs

Undergraduate/Graduate	# of Courses/Programs
Undergraduate	72
Graduate	24
Undergraduate and Graduate	18

Table 6: Research Skills Taught

	Finding Sources	Evaluating Sources	Avoiding Plagiarism	Citing sources	Research Strategies & Techniques	Using Sources to Build Arguments
# of Courses or Programs	**99**	**72**	**45**	**73**	**94**	**31**
	Other					
# of Courses or Programs and examples	**25**: Writing (i.e. literature reviews; project/research/ argumentative/ thesis papers; study/thesis proposals; lab reports, annotations)	**14**: Analyzing journal articles	**6**: Developing research questions, topics, study hypotheses	**5**: Identifying methodologies and assessments	**2**: Citation management software (i.e. RefWorks, Mendeley)	**2**: Research data management, (i.e. Deep Blue)

Table 7: Course/Program Resources Developed

	Lesson Plans	LibGuides	PowerPoint Slides	Handouts	Canvas Announcements
# of Courses or Programs	**32**	**64**	**31**	**35**	**23**
	Other				
# of Courses or Programs and Examples	**15:** Assignment Google Docs for each student	**2**: Rubrics			

Table 8: Embedded Course Activities

	Participate in Course Canvas Site (Librarian Role)	**Teach Research Skill Session(s)**	**Design/ Prepare Research Assignments**	**Work With Research Groups**	**Student One-on-One Consultations**
# of Courses or Programs	**43**	**31**	**17**	**6**	**41**
	Other				
# of Courses or Programs and Examples	**1:** Observe final presentations	**1**: Prepare reading list from current Business press			

II. Selecting & Evaluating Appropriate Sources Assessment

This year, the Research Education Committee decided to pilot a *Selecting and Evaluating Appropriate Sources* assessment (see Appendix A). We chose to assess the skills of selecting sources and evaluating them using valid criteria because this is a skill that all of our students need. These are also important lifelong skills.

For this assessment, after learning about how to use criteria to evaluate and select sources appropriate to university-level research, students found and selected a source for a course assignment, then explained how they evaluated that source to determine if it was appropriate for university-level research. This assessment was used in 36 CASL courses by the Social Sciences and Behavioral Sciences Librarians. 415 students completed the assessment; 173 students completed it within a classroom research skills session while 242 students completed it for a graded course research assignment.

A scoring rubric was developed and used by the Research Education Committee to score student source selection and evaluation (see Appendix B).

390 students provided enough source information to score their assessments. Of those 390 students, 377 students (97%) selected a source appropriate for university-level research. The average student score on the assessment was 5.27 (SD=1.615) out of a possible maximum score of 7.

Multiple regression analysis was used to test if any of the following factors significantly predicted how well students could select sources and apply evaluative criteria:

- Student university level: Freshman, Sophomore, Junior, Senior, Graduate
- Assessment context: Completing the assessment in a research skills session or for a graded course research assignment
- Whether students had ever met with a librarian before, in a research skills session or research guidance, including the following sub-factors:
    - Whether students had met with a librarian in a research skills session, for research guidance, or both
    - How many times students had met with a librarian

The results of the regression indicated that the Assessment Context successfully predicted student performance (β=.638, $p<0.001$). Students who selected and evaluated a source as part of a course research assignment (M=6.14, SD=1.146) had significantly higher scores on the assessment, with an average score of 6.14, than students who selected and evaluated a source in-session (M=3.85, SD=1.220), $t(1)=-18.644$, $p<.001$), who had an average score of 3.85.

Some possible explanations for this difference in student performance:

- Students have more time to apply these evaluative skills and criteria in an assignment context than they do in a research skills session

- Students are more motivated to successfully apply evaluative skills and criteria on an assignment that they know their course professor will see and grade than they are on a form in a research skills session that they don't think their course professor will see or grade

III. Faculty Surveys

This year, the Research Education Committee also chose to pilot *Faculty Surveys* to help us determine the impact of our research education instruction (see Appendix C). We developed the following questions to identify best practices and things to be improved going forward:

The Behavioral Sciences Librarian sent surveys to 14 faculty who had collaborated with her to incorporate research education into their courses; 13 filled out and returned the survey, with the following results:

1. **Type of Course Research Education Work**

Research Education Work	# of Courses
Developed customized online Research Guide (LibGuide)	13
Embedded in course Canvas site	13
Taught Research Skills session(s)	6
Prepared Research Skill Development assignments	4
Assignment and/or Rubric (re)design	4

2. For the question, *On a scale from 1 to 5, 1 being not at all well and 5 being very well, how well did [librarian's] work in your course(s) help prepare your students for the research components of their assignment(s)?* eleven (11) faculty chose 5 (Very Well), while two (2) faculty chose 4 (Quite Well).

3. For the question, *On a scale from 1 to 5, 1 being not at all important and 5 being very important, how important do you consider research skills like finding, evaluating, citing, and using information sources to the success of students in your course?* all 13 (thirteen) faculty chose 5 (Very Important).

4. For the question, *Did you receive any input from your students about [librarian's] work in your course(s)?* we received the following notable comments:

- All [my students] said that [the librarian's] work was a great help to them. They felt more confident about doing research in my course and anticipated that they would use the tools in future courses as well.
- [Students] have indicated that [the librarian] has been very helpful in working with them to identify appropriate sources…as well as citing and summarizing that research.
- Multiple students expressed appreciation for the scaffolded paper assignment, which I would not be using if it were not for [the librarian]. Several students also expressed appreciation for the ease and responsiveness with which they could

access [the librarian], her responsiveness to questions, and her helpfulness when they were struggling to find journal articles.

- All of my [undergraduate] and graduate students felt that the online Research Guide [LibGuide] was productive, exceptional, and contributed to enhancing their research and writing skills. Many students enjoyed having access to an embedded course librarian…who answered all their emails.
- Multiple students expressed very positive feedback in regards to the online research guide [LibGuide]…that it was both informative and helpful and they were very glad it was made available to them

5. For the question, *Have you noticed an improvement in your students' work as a result of [the librarian's] work in your course?* we received the following notable comments:

- Yes, I believe students are selecting more appropriate sources to build their arguments, they are generally using them more appropriately (i.e. integrating the idea from the study into their paper rather than plunking a citation at the end of a sentence), and are following APA style throughout.
- A major improvement has been in the quality of sources students are finding and using. If [the librarian] is involved in a class, I see fewer non-academic references. Students also use their resources more appropriately, in trying to form arguments based on data and less on a preconceived position that they then find references for.
- Because of [the librarian's] intervention, my students used peer-reviewed articles rather than wikipedia or other untested web resources. This led them to produce stronger arguments because they were using articles from the field of anthropology or religious studies rather than random pieces of information. As a result, their final essays were much more professional and synthesized peer-reviewed articles with their own innovative arguments.
- I have noticed a huge improvement. Students are doing a better job of connecting their arguments to research and they are writing papers that are better organized. In addition, they have improved significantly in their correct use of citations (in-text and in the reference section).

6. For the question, *What best practices would you like to continue going forward?* we received the following notable comments:

- I think one of the best practices of the entire process has been to attach a name and face to another person who can help those students who struggle with these skills. Varying background from high school mean that some students are very prepared and others are highly lacking. While students can certainly approach the instructor, I find that having [the librarian] as an extra contact they can contact when they struggle with these basic skills is a great benefit. Many of these students do not want to admit to their instructor that they don't know how to search for research in the

library. They will, however, admit it to [the librarian] and then she is there to assist them.

- Always giving the students the steps/process they need to succeed in an assignment. The scaffolded assignment has been a game-changer for me. The instructions for all my assignments have become more transparent and I'm using rubrics more often because of what I have learned working with [the librarian] on the scaffolded paper assignment.
- We are both working to increase student engagement in their research assignments and continually refining the materials we give them instead of just redeploying the same material every term. I think both of these are best practices that are working well.
- I love that [the librarian] posts announcements in my online [Canvas] course. It shows students that there is another faculty member ready and willing to assist. This sense of support and community in an online class is very important!
- I'd like to work more with [librarian] to see how Library resources can be used and/or embedded into my website [Canvas] for new online courses. [The librarian] has been such a valuable addition to the 4th floor of CASL. I am so grateful she is so accessible to us!

7. For the question, *What next steps or improvements would you like to continue going forward?* We received the following notable comments:

- I would like to incorporate [the librarian] into more of my courses/assignments (if she has the time)
- It might be useful to meet after a particularly research-intensive class to consider the papers themselves and my comments on them in order to further refine the guides, research advising sessions, and assignments. [The librarian] is…already very available and engaged with these materials and…we already discuss them frequently during the course (this is one of the great advantages of an embedded librarian)-it was just an idea for a post-mortem.
- I might collect student feedback in a direct or structured way

8. For the question, *Do you have any further comments or suggestions about [the librarian's] work in your course?* We received the following notable comments:

- I am incredibly grateful for [the librarian] and the assistance she has provided me. She's a valuable resource for me and our students. It has been my pleasure to work with [the librarian]; not only are my students learning from her but I am as well.
- Having [the librarian] on the 4th floor of CASL probably is the best change that has been made for connecting faculty to the library. She has been enormously helpful with developing course-specific content for developing research skills and providing helpful tools for students to complete research projects and papers.

- [The librarian] has put in a tremendous amount of effort in designing a program to work with students in developing fundamental research skills needed in upper-level courses. Moreover, she did so with regular input from faculty to ensure the best fit of the program to the needs of those students. It is imperative that she continue this so that we can make improvements and make a lasting system for instilling these necessary research skills in all of our students.

Appendix A. Selecting & Evaluating Appropriate Sources Google Form

Selecting Appropriate Sources

Please find a source for your research assignment and answer the following questions about yourself and the source which you find. This will help the library to tailor research sessions for students in future classes.

* Required

Background Information

1. Your College *

- CASL
- CECS
- CEHHS
- COB
- Undeclared
- Other:

2. Year in School *

- Freshman
- Sophomore
- Junior
- Senior
- Graduate
- Post-graduate certificate
- Other:

3. How many times have you seen a librarian before today's research skills session? *

0 - 10

4. How would you characterize most of your contacts? *

- Research guidance (one-on-one or group meeting with librarian)
- Research skills session/Librarian presentation
- Both research guidance and research skills session(s)
- No contact with a librarian

5. What research subject did you need assistance with, e.g., psychology, biology, history, etc. * _____

Find a Source for your Research

Tell us your research topic then find a full-text source on that topic.

1. Research Topic *_____

2. Type of Source Used *

- Article
- Audio or Video
- Book or Book Chapter
- Report
- Web Site
- Other:

3. Title of Source * _____

4. Author(s) of Source * _____

5. Source DOI or URL * _____

6. Why do you think this source is appropriate for university level research? *

_____

7. On a scale from 1 to 5, with 1 being Not Difficult and 5 being Very Difficult, how difficult was it to find a source on this topic?

1 - Not Difficult

2 - Slightly Difficult

3 - Somewhat Difficult

4 - Quite Difficult

5 - Very Difficult

Appendix B. Scoring Rubric for Selecting & Evaluating Appropriate Sources Assessment

	4	3	2	1	0	Points Given
Selection Criteria						
Article Selection	Addresses four (4) or more valid evaluative criteria	Addresses three (3) evaluative criteria	Addresses two (2) valid evaluative criteria	Addresses one (1) valid evaluative criterion	Doesn't address any valid evaluative criteria	
Source selected is appropriate for university-level research assignments.		Yes			No	
					TOTAL POINTS (out of 7)	

Appendix C. Faculty Surveys

Faculty Name:

Course(s):

Librarian Evaluating:

1. How did [librarian] work with your course(s) this semester? Highlight all numbers below that apply:

1. Developed customized online Research Guide
2. Embedded in course Canvas site
3. Taught Research Skills session(s)
4. Prepared research skill development assignments
5. Assignment and/or rubric (re)design

2. On a scale from 1 to 5, 1 being not at all well and 5 being very well, how well did [librarian's] work in your course(s) help prepare your students for the research components of their assignment(s)? Highlight the number below:

1	2	3	4	5
Not At All Well	Slightly Well	Somewhat Well	Quite Well	Very Well

3. Did you receive any input from your students about [librarian's] work in your course(s)?

4. Have you noticed an improvement in your students' work as a result of [librarian's] work in your course(s)?

5. What best practices would you would you like to continue going forward?

6. What next steps or improvements would you like to make going forward?

7. On a scale from 1 to 5, 1 being not at all important and 5 being very important, how important do you consider research skills like finding, evaluating, citing, and using information sources to the success of students in your course? Highlight the number below:

1	2	3	4	5
Not At All Important	Slightly Important	Somewhat Important	Quite Important	Very Important

8. Do you have any further comments or suggestions about [librarian's] work in your course?

Appendix D. Research Education Program Plan

I. RESEARCH EDUCATION MISSION STATEMENT & MODELS

The Research Education Program will collaborate with faculty to teach students research, information literacy, and critical thinking skills appropriate to their academic standing and will contribute to their success beyond the classroom.

The research education program will enable students to:

- Use the library more confidently
- Demonstrate increased self-confidence in their research skills
- Perform search strategies that can save them time
- Become independent researcher

Please see Section II and Supplement 1, *Mardigian Library Research Education Learning Outcomes and Suggested Activities and Assessments,* for detailed learning outcomes, suggested activities and assessments

Subject-Specialist Model

Each academic unit at UM-Dearborn is assigned a subject librarian, who partners with faculty in that area on research skill education. A full list of the subject librarians assigned to each school/program is available at: http://library.umd.umich.edu/services/librarians.php

Embedded Librarianship Model

Subject librarians are moving towards an embedded librarianship model, which is the fundamental strengthening of our relationships and mutual commitment to meeting the goals and outcomes of the academic programs in which we are embedded:

- Strong working relationships and mutual understanding with faculty and leadership in our program areas
- Understand and share the goals of our program areas
- Make highly valued, professional contributions to achieving those goals
- Become an integral and indispensable member of our program areas

The teaching role of Embedded Subject Librarians is dominant, with varying levels of embeddedness but **always in collaboration with faculty and/or other stakeholders**:

- Customized Research Education for Courses
    - Develop and teach one-shot research education sessions or create digital education content customized to course needs
    - Create online research guides customized to course needs
- Customized Embedded Research Education for Courses
    - Embedded in Canvas course sites to provide point-of-need research guidance and consulting
    - Embedded in courses to develop and teach multiple research education sessions customized to course needs
    - Develop online learning objects customized to course needs
- Customized Embedded Research Education for Academic Programs
    - Formal research consultant to academic programs, i.e. Honors, Master's, or PhD programs
- Instructional Design
    - Design or redesign course assignments to incorporate the learning and application of Information Literacy learning outcomes and objectives
    - Design or redesign the course syllabus to incorporate the learning and application of Information Literacy learning outcomes and objectives
- Strategic Planning (in collaboration with faculty, stakeholders, and program leadership)
    - Strategic plan for research education customized to needs of program areas
- Program Curriculum (in collaboration with faculty, stakeholders, and program leadership)
    - Curriculum mapping of Information Literacy skills, learning outcomes, and learning objectives for program areas
    - Develop or redesign curriculum for program areas(s)

Please see Supplement 2, *Embedded Librarianship at Mardigian Library*, for more information about the Embedded Librarianship Model.

II. LEARNING OUTCOMES FOR RESEARCH EDUCATION

To carry out the Mission, the Research Education Committee has identified learning outcomes at beginner, intermediate, and advanced levels. These outcomes will be achieved by the promotion and implementation of Research Education activities by teaching librarians.

Subject librarians may develop additional discipline-specific and program-specific learning outcomes in collaboration with faculty.

Please see Supplement 1, *Mardigian Library Research Education Learning Outcomes and Suggested Activities and Assessments,* for suggested activities and assessments for each of the following learning outcomes.

At an introductory level students will be able to:

- Use the library web site
- Access library resources on and off campus
- Generate Search words from research questions or topics
- Conduct basic searches in library research tools
- Recognize that there is a difference between library resources and the resources available on the free Internet
- Recognize differences between formats of information

At an intermediate level students will be able to additionally:

- Identify and apply the steps of the research cycle
- Determine what type and how much information is needed
- Identify and describe different sources of reliable information
- Differentiate between scholarly and non-scholarly sources
- Describe the Peer-Review process
- Identify key concepts of research questions and use those to generate search words in order to create a search statement
- Conduct and focus Summon searches using a variety of filtering strategies like peer-review, disciplines, or subjects
- Students will be able to revise their search statement according to the words and phrases found in their searches with their assignments
- Describe why and how to identify subject specific databases
- Locate materials appropriate for university level research

- Use evaluative criteria to select materials appropriate for university level research
    - CRAAP criteria (Currency, Relevance, Authority, Accuracy, Purpose) to evaluate and select sources
    - RADAR Framework (Rationale, Authority, Date, Accuracy, Relevance)
- Cite sources using appropriate citation style

At an advanced level students will be able to additionally:

- Describe the characteristics of focused research questions
- Develop broad topics into focused research questions
- Refine original search statement based on information found in list of database search results
- Identify the sections of research articles and the information found in each section
- Analyze research articles using questions to increase comprehension
- Use sources in research assignments to answer research questions and build arguments

III. MODES OF INSTRUCTION

The Research Education Program will endeavor to achieve the learning outcomes by conducting a variety of efforts:

- Synchronous or asynchronous embedded activities in courses collaboratively arranged with the faculty
- Synchronous classroom lectures collaboratively arranged with the faculty (One-shot)
- Asynchronous classroom support in the form of Subject Guides or online tutorials

Digital Education

The Program will endeavor to achieve our learning outcomes using digital education through a two-pronged approach:

• Collaborating with the teaching faculty of online courses to develop online research guides that are tailored to course research assignment requirements and the specific research processes of the discipline

• Being embedded by teaching faculty in their course Canvas sites in the Librarian role in order to:

  - Introduce themselves and the course research guide as resources and supports for students
  - Schedule point-of-need announcements drawing student attention to their course research guide and course librarian

This two-pronged approach has demonstrated success. Students use their course research guides more and are more likely to contact their subject librarians when they need help. Faculty also report a positive impact on the quality of student work in their online courses. This two-pronged approach has proven to be a high-impact strategy valued by faculty. We plan to further explore applying this approach to classroom courses to see if it will have the same impact.

Capstone Courses

Subject librarians collaborate with faculty who are teaching Capstone courses to determine effective ways to support student research and research-based course products, including (but not limited to):

- white papers

- research project papers
- research project poster presentations
- research project presentations

Subject librarians will work with their programs to identify Capstone courses and then contact the faculty who are teaching those courses, where possible.

IV. INSTRUCTIONAL DESIGN

Librarians at the Mardigian Library who have achieved Instructional Design certification will combine their librarian and academic subject specialist competencies and skill-sets with the instructional designer's ability to develop, construct, implement, and assess pedagogically sound tools and experiences. A three-pronged approach will be used to apply these skills:

- Instructional Design Projects Within Program Areas
- Mardigian Library Instructional Design Projects
- Mardigian Library/HUB Instructional Design Projects

Please see Supplement 3, *Instructional Design at the Mardigian Library*, for more details.

V. ASSESSMENT & EVALUATION

In order to determine if the Program's learning outcomes are achieved the Program will conduct systematic assessment of activities in the courses from the four colleges that participate in the Program on an annual basis.

Ongoing Assessment Activities

Program Participation

The Research Education Program has consistently tracked the research education work librarians have conducted for the various colleges of the university. This is the 2017-2018 form for tracking librarian research education work in courses, and the statistics since 2012 can be found on the Research Education LibGuide (which houses the statistical information for the Program as well as other resources for the Program).

Achievement of Outcomes

For the 2017-2018 academic year, the Research Education Committee has piloted two assessments of research education:

- Selecting Appropriate Sources form: students find a source of information and indicate why they think it's appropriate for university-level research
    - Assesses student ability to evaluate sources
- Faculty Evaluation of Librarian Research Skill Development Work in Course(s) form: faculty evaluate librarian work in course as well as identify best practices and suggestions for improvement. Currently being piloted in the Behavioral Sciences, Criminology & Criminal Justice, and Women's & Gender Studies programs.

The plan for assessment is to create more assessment instruments that can be used on a wide scale. Surveys and questionnaires with Likert scale questions as well as open ended questions will be created as well as exercises that call for students to demonstrate learned skills.

Please see Supplement 1, *Mardigian Library Research Education Learning Outcomes and Suggested Activities and Assessments,* for alignment of outcomes with activities and assessments.

VI. ALIGNMENT TO THE ACRL FRAMEWORK

The Association of College & Research Libraries (ACRL) *Framework for Information Literacy for Higher Education* (2016) is the document that underpins the effort of professional research librarians to create a new cohesive curriculum for information literacy, and to collaborate more extensively with faculty. The Framework is organized into six frames, each consisting of a concept central to information literacy, a set of knowledge practices, and a set of dispositions. The six concepts that anchor the frames are:

1. Authority Is Constructed and Contextual
2. Information Creation as a Process
3. Information Has Value
4. Research as Inquiry
5. Scholarship as Conversation
6. Searching as Strategic Exploration

The Research Education Mission of the Mardigian Library is aligned to this framework, and reflects the idea that the teaching and learning information literacy skills is a dynamic process, and that instruction "that foster[s] enhanced engagement with the core ideas about information and scholarship within… [specific] disciplines" is most effective.

For more details, see the ACRL Framework:

ACRL Board. (2016). Framework for information literacy for higher education. Retrieved from http://www.ala.org/acrl/standards/ilframework

SUPPLEMENT 1: LEARNING OUTCOMES/ACTIVITIES

Mardigian Library Research Education Learning Outcomes and Suggested Activities and Assessments

Introductory Outcomes	Suggested Activities	Assessments/Evaluations
Use the library web site	Web site demonstration Video tour of the web site Web site scavenger hunt or bingo	Open ended surveys Multiple choice surveys Completion of scavenger hunt
Access library resources on and off campus	Handout Create account Utilize resources off campus	Verified usage of student accoun
Generate Search words from research questions or topics	Topic discussion about keywords, synonyms, and operators. Create a bubble map of words or a table of words. How are words connected?	Successful completion of bubble map, table of words, or some sort of graphic organizer
Conduct basic searches in library research tools	Hands-on activity	Short reflection detailing whether relevant results were located. Can the results be used? What is criteria for success? Highlight terms that worked from your graphic organizer
Recognize that there is a difference between library resources and the resources available on the free Internet	Discuss Search in Google and compare and contrast between what was located in the library tools	Brief reflection

Recognize differences between formats of information	Discuss Recognize in hands-on activity	Matching exercise Brief reflection defining or identifying various format types
Intermediate Outcomes	**Suggested Activities**	**Assessments/Evaluations**
Identify and apply the steps of the research cycle	Multiple choice or matching exercises	Brief reflection
Determine what type and how much information is needed	Review your assignment sheet	Short answer exercise
Identify and describe different sources of reliable information	Matching exercise	Closed quizzes/fill in the blanks with selections from a word bank
Differentiate between scholarly and non-scholarly sources	Review sources in small groups. Include CRAAP as a resource	Students report findings to the larger group
Describe the Peer-Review process	Put the steps in order activity	Brief reflection or bubble map
Identify key concepts of research questions and use those to generate search words in order to create a search statement	From three research questions identify key terms and create the search string	Apply this process with a question students have
Conduct and focus Summon searches using a variety of filtering strategies like peer-review, disciplines, or subjects	Hands-on activity searching their topic or an assigned topic using filters	Ask students to share results

Students will be able to revise their search statement according to the words and phrases found in their searches with their assignments	Compare and contrast exercise where students analyze differences between the searches	Collect results with a form
Describe why and how to identify subject specific databases	Identify subjects of research question, go to databases section and identify subject area, then identify a database for that topic, and then report back why chosen	Matching exercise
Locate materials appropriate for university level research	In a group use one CRAAP criterion to evaluate a paper and then report back	Students find and select a source for their own research and explain why they selected it for university level research
Use evaluative criteria to select materials appropriate for university level research		
Cite sources using appropriate citation style	Jumble or scramble activity to put together a correct citation	Find citation information and create a citation in a specified style
Advanced Outcomes	**Suggested Activities**	**Assessments/Evaluations**
Describe the characteristics of focused research questions	Review examples of focused questions in a group	Report back on the characteristics of focused questions
Develop broad topics into focused research questions	Develop a broad topic into focused research questions in a group/worksheet/hands-on activity	Peer review of focused research question
Refine original search statement based on information found in list of database search results	Find a relevant article and identify the subjects/keywords found in the article	Compare subjects/keywords found in the article to the words/phrases/terms used in the search and indicate how to then revise search statement

Identify the sections of research articles and the information found in each section	Matching exercise	Worksheet where students analyze the structure of an assigned research article
Analyze research articles using questions to increase comprehension	In a group each student summarizes part of an article and report back to the group	Worksheet where students analyze the information contained in an assigned research article
Use sources in research assignments to answer research questions and build arguments	Hands-on time	Class assignments

SUPPLEMENT 2: EMBEDDED LIBRARIANSHIP

Embedded Librarianship at the Mardigian Library

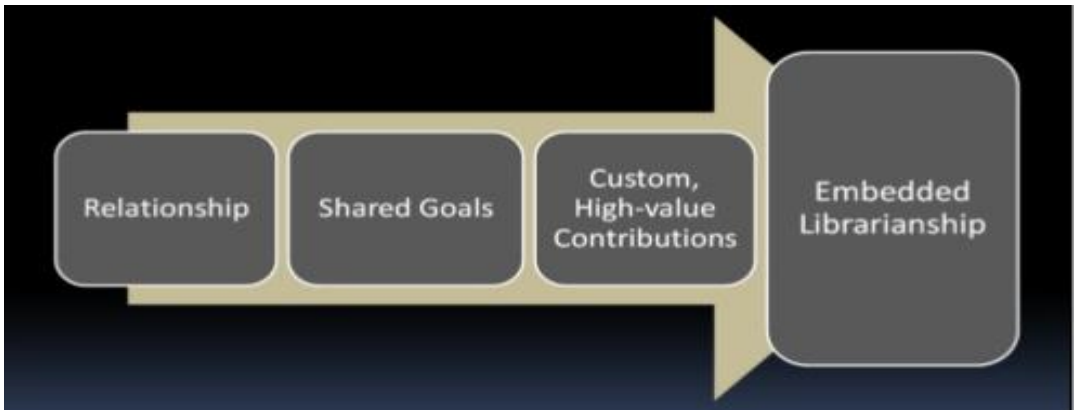
By Elaine Logan and Nadine Anderson (most content adapted from *Embedded Librarian: Innovative Strategies for Taking Knowledge Where It's Needed*, by David Shumaker, and *The Atlas of New Librarianship*, by R. David Lankes)

Why Embedded Librarianship?

"When people have an information need they'll always ask people they know before they ask a librarian. The trick is making sure that librarians are some of the people they know." – Jessamyn West (pg. 83, *Atlas of New Librarianship*)

We are in the midst of the greatest information revolution since Gutenberg, a revolution which is disrupting traditional modes of library service. To prosper, academic libraries need to rethink our relationship with our campus communities. Embedded librarianship is the outcome of rethinking and repositioning our roles so that we remain relevant to the mission and goals of our university and campus programs so that we are valued by our campus communities.

What is Embedded Librarianship?



Embedded librarianship is the fundamental strengthening of our relationships and mutual commitment to meeting the goals and outcomes of the academic programs in which we are embedded:

- Strong working relationships and mutual understanding with faculty and leadership in our program areas
- Understand and share the goals of our program areas
- Make highly valued, professional contributions to achieving those goals
- Become an integral and indispensable member of our program areas

Moving from Traditional Librarianship to Embedded Librarianship

Library moves from areas of librarianship owned by one person to shared collaboration, vision, responsibility, and accountability. This changes your working relationships with your peers in the library and with your customers.

Embedded librarians leave the library to engage with and develop strong working relationships with our program areas.

Embedded librarians transcend service and become partners with our program areas and mutually responsible for achieving their goals and outcomes.

Embedded librarians build on standards to use our strong working relationships to understand the specific needs and goals of our program areas and address them in a customized way.

Embedded librarians go a step further than responsiveness – we anticipate and don't wait to be asked. Embedded librarians use our close working relationships to identify needs and find solutions to the needs and goals of our programs.

Embedded librarians go beyond promoting library resources – we focus on identifying what we can do that will have the biggest impact on the goals and mission statements of our programs. Embedded librarians

demonstrate our value through our impact on our programs and how it fits in to their goals and mission statements

Levels of Embedded Librarianship: Research Education

In higher education, the teaching role of embedded librarians is dominant, with varying levels of embeddedness but **always in collaboration with faculty and/or other stakeholders**:

- Customized Research Education for Courses
    - Develop and teach one-shot research education sessions or create digital education content customized to course needs
    - Create online research guides customized to course needs
- Customized Embedded Research Education for Courses
    - Embedded in Canvas course sites to provide point-of-need research guidance and research consulting
    - Embedded in courses to develop and teach multiple research education sessions customized to course needs
    - Develop online learning objects customized to course needs
- Customized Embedded Research Education for Academic Programs
    - Formal research consultant to specific academic programs, i.e. Honors, Master's, or PhD programs
- Instructional Design
    - Design or redesign course assignments to incorporate the learning and application of Information Literacy learning outcomes and objectives
    - Design or redesign the course syllabus to incorporate the learning and application of Information Literacy learning outcomes and objectives
- Strategic Planning (in collaboration with faculty, stakeholders, and program leadership)
    - Strategic plan for research education customized to needs of program areas
- Program Curriculum (in collaboration with faculty, stakeholders, and program leadership)
    - Curriculum mapping of Information Literacy skills, learning outcomes, and learning objectives for program areas
    - Develop or redesign curriculum for program area(s)

Embedded Librarianship: Beyond Research Education

- Connect programs with library services and facilities
- Collaboration on research projects
- Embedded in research teams
- Manage program research archival collections and/or data in Deep Blue and/or Deep Blue Data
- Data management planning
- Serving on committees and groups in program areas
- Grant writing and fund raising
- Embedded in program community engagement initiatives

How does Embedded Librarianship contribute to the UM-Dearborn Mission?

- Supports excellence in teaching, learning, research and scholarship.
- Supports opportunities for independent and collaborative research
- Supports mission outcomes:
    - Applying innovative pedagogies to advanced teaching and learning
    - Building the knowledge and skills essential for personal transformation, professional success, and advancing the common good
    - Fostering a dynamic environment where innovation, openness, and creativity flourish
    - Preparing our graduates to become engaged citizens and creative leaders, ready to offer inventive solutions to regional, national and global challenges

How does Embedded Librarianship contribute to the Mardigian Library Mission?

- Collaborating to provide research, writing, and academic support services;
- Partnering with instructional faculty in teaching, research, and scholarly publication

Evaluating Embedded Librarianship

1. Embedded librarians need to demonstrate value and impact not just to the library, but also to the programs in which we're embedded, or else our working relationships and program buy-in will suffer.

2. When librarians are embedded in programs, we are using the time, resources, and space (sometimes) of those programs. If embedded librarians can't show our value and impact, those could be taken away.

SUPPLEMENT 3: INSTRUCTIONAL DESIGN

Instructional Design at the Mardigian Library

Librarians at the Mardigian Library who have achieved Instructional Design certification will combine their librarian and academic subject specialist competencies and skill-sets with the instructional designer's ability to develop, construct, implement and assess pedagogically sound tools and experiences. A three-pronged approach will be used to apply these skills:

Instructional Design Projects within Program Areas

- Engage with the development of courses and programs within program areas with a focus on online and blended courses
- Actively pursues opportunities to integrate research skills instruction when possible
- Collaborate with faculty to identify program-specific higher-level research competencies and skills as well as on projects to support the development of these skills
- Projects will address and incorporate the specific competencies, research processes, research needs, and resources of each program area

Example Ongoing Projects:

- History and Political Science YouTube video project
- Natural Sciences video project and learning objects project
- Behavioral Sciences scaffolded assignments project
- Embedded librarians and research guides (customized to teach discipline-specific and course-specific research skills) in Canvas
- Course redesign, assignment redesign, rubric design, and online course support projects which include the development of course and program specific learning objects

Mardigian Library Instructional Design Projects

- Incorporate the best practices in classroom and digital education and instructional design into the library's Research Education Plan so that all subject librarians can benefit and use the expertise and lessons learned in the UW-Stout Instructional Design Certificate program
- Develop and maintain online instruction materials and tutorials designed for today's learners, promoting general research competencies
- Collaborate with other subject specialist librarians in the development and delivery of online learning specific to library research skills
- Collaborate with library Systems Team and other librarians and staff to improve online user interfaces and learning experiences
- Participate in assessment of the Library's instructional services, including effectiveness and usability of online-learning objects and other library instructional materials in enhancing student-learning outcomes

Example Ongoing Projects:

- Development of a strategic Research Education Plan which incorporates best practices in classroom/digital education and instructional design
- Assessment project for research education instruction

- Open Educational Resources (OER) project

Mardigian Library/Hub Instructional Design Projects

- Identify, construct, implement, and promote learning tools and instructional services in collaboration with the Hub and Digital Learning teams

SURFs Project: SURFs: a collaborative undergraduate research skill development initiative between the Mardigian Library and the HUB

- **First Year Research Skills Canvas Modules** project developing cross-campus Canvas modules, in coordination with Faculty Senate and CASL First Year Experience committees, to support to support student learning of foundational research education learning objectives in 100-level courses at the University of Michigan-Dearborn (UM-Dearborn)
    - Will use learning objectives from COMP 106 research skills sessions as a starting point for developing learning objectives and modules for this project
- **CASL Student Original Undergraduate Research**: collaborating with Caleb Siefert, the new CASL Undergraduate Research Coordinator to provide a portal of resources for students doing original research in CASL disciplines
- Canvas Modules developed and added to the Canvas Commons:
    - Develop Strong Research Questions
    - Writing Literature Reviews