How the Library Can Support Student and Faculty Success in Scientific Disciplines

Success in the Sciences

About Us

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Student Success Librarian

Liaison to:

- Nutrition & Food Studies
- Exercise Science & Physical Education
- Writing Studies

Liaison to:

- Writing Studies
- School of Communications and Media

Siobhan McCarthy

Research & Reference Librarian

Liaison to:

• Biology

- Chemistry
- Earth & Environmental Studies
- Physics & Astronomy

About Our Community

1000

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Business



Number of STEM Majors per College/School



Breakdown of Stem Majors By College



Agenda



02

Spaces, Programs, and Collections

03

Open Access and Education

01Information Literacy in the Sciences



Information Literacy Instruction and Science Classrooms: The Problem(s)





Evidence-Based Practice



Assumptions



Scaffolding

Information Literacy Instruction and Science Classrooms: The Solution(s)



Backwards Design



Foundational Knowledge

Identifying Different Types of Evidence



Learning Outcome: Students will be able to identify different types of scientific evidence and evaluate them for usefulness and appropriateness

Activity:

- of evidence
- 'Best' to 'Worst'

• Students presented with different types

Students then organize evidence from

Presentation: Science portrayal in the

media



- - forms
- Objective: Compare headlines as they appear in popular media to the original research studies
 - Emphasize the former's tendency to sensationalize and use clickbait
 - Compare source types, e.g. how a news article is constructed from a press release, which is based on the original research paper
- Slides: Science vs. the Headlines (EAES 101)
- Activity: Locate primary source based on information in the press release or news article.

• Learning outcomes: Students will recognize that... - Scientific information can be published in many

- Authority can be contextual to source type - How results of research are disseminated

When you don't "need" the databases...

APPENDIX C

Reference sources mentioned by two or more survey respondents:

TABLE 4

Reference sources listed by at least two respondents as being critical to their disciplines. Each respondent had the option of listing up to five such resources. Each reference source listed is followed by a bracketed number indicating how many times it was provided in answer to this guestion. Some of the resources/resource types in this table might arguably not be considered reference sources, but the authors did not deem such judgments sufficient to exclude them from the table.

Biology

Bergey's Manual of Systematic Bacteriology (2) Textbooks (2) Field guides/manuals (4) Google Scholar (2) Science journals/databases (6) Taxonomic keys (2)

Chemistry

CRC Handbook (17) Chemistry websites (2) Internet (2) Merck Index (2) NIST Chemistry WebBook (2) Perry's Chemical Engineers Handbook (2) SciFinder (6) Spectral databases (2) Science journals/databases (10) Textbooks (5)

Physics

ArXiv (2) CRC Handbook (9) Instrument manuals (2) Integral tables (4) NIST (2) Particle Data Group Handbook (6) Science journals/databases (13)

Sources identified as "critical" to their disciplines by faculty surveyed in Witherspoon, et al. (2022).

Not all refer to peer-reviewed/scholarly sources.

- Library reserves
- Syllabi available online

Identify resources important to disciplines by:

• Informal suggested readings

Science-Specific Information Literacy Assignments and Lesson Plans



02 ACRL Framework for Information Literacy Sandbox





An Exploration of Two Information Literacy Open Learning Object Repositories: Value, Content, and Engagement

Tiffanie Lynn Ford-Baxter, California State University, Los Angeles

Abstract

Information literacy (IL) open learning object repositories (LORs) provide a space for librarians to find and exchange instruction resources and lessons. Given many librarians enter the workforce with little or no formal training or educational opportunities to learn about pedagogy, these repositories are indispensable resources to the Library and Information Science field. This study explored the contents of two popular IL LORs, Project Cora and the Association of College and Research Libraries Framework for Information Literacy Sandbox, to uncover how users engage with the resources and how the repositories differ. This study's findings suggest that while resources within the LORs are being used, yearly submissions have stagnated. Intentional assessment of disciplinary and information literacy concept gaps, followed by targeted calls for resources, may improve and increase engagement with the repositories as communities of practice.

Keywords: information literacy, learning object repository, open educational resources

Ford-Baxter, T. L. (2023). An exploration of two information literacy open learning object repositories: Value, content, and engagement. *Communications in Information Literacy*, 17(2), 424–450.

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Ford-Baxter, T. L. (2023). An Exploration of Two Information Literacy Open Learning Object Repositories: Value, Content, and Engagement. Communications in Information Literacy, 17 (2), 424–450. <u>https://doi.org/10.15760/comminfolit.2023.17.2.6</u>

02 Spaces, Programs, Collections



Course Reserves

Models

Lab Manuals





Test Banks













Games









Citation Management Software

Programs & Services

Repository & Data Management Support

Geographic Information Systems

Specialized Workshops



• Rolling Whiteboards • Collaborative Spaces • Audiovisual equipment and listening rooms





Spaces

03 Open Access and Education

Open Educational Resources

Benefits for Faculty

- Give them the option to choose which rights to retain when licensing their materials
- Make their work more accessible and adaptable
- Make clear how users can read, share, copy, revise, and modify their work

Benefits for Students

- Allow for more pedagogical goals)
- course materials

• Can replace costly course materials • Are just as (if not more) effective than traditional course materials flexibility (can be adapted or modified to fit specific learning

More easily updated than traditional

Open Access Scholarship

Benefits for Faculty

- Dissemination of their own research
- Customize to course needs
- Avoid copyright concerns

Benefits for Students

- Free to access for students
- Fewer barriers to access
- Perpetual access after graduation
- Faster access to scholarship through preprints
- Can be used to illustrate the
 - research to publication lifecycle

Suggested Reading & References

Suggested reading:

- The missing link: information literacy and evidence-based practice as a new challenge for nurse educators (Courey et al., 2006)
- Measuring the disparities between biology undergraduates' perceptions and their actual knowledge of scientific literature with clickers (Aditi, 2013)
- Using course syllabi to assess research expectations of biology majors (Dinkelman, 2010)
- Introducing scientific literature to honors general chemistry students: Teaching information literacy and the nature of research to first-year chemistry students (Ferrer-Vinent et al., 2015)
- The ACRL framework for information literacy in higher education: Implications for health sciences librarianship (Knapp and Brower, 2014)
- Companion Document to the Framework for Information Literacy for Higher Education: Science, Technology, Engineering, and Mathematics (ACRL, 2022)
- Science students' information literacy needs: A survey of science faculty on what and when each skill is needed (Witherspoon, et al. 2022)
- Information literacy in the sciences: Faculty perception of undergraduate student skill (Perry, 2017)

Sample assignments & guides:

- How to read and understand a scientific paper: a guide for non-scientists (Raff, 2016)
- Ten simple rules for reading a scientific paper (PLOS Computational Biology)
- Scientific research in popular sources classroom activity (Project CORA)
- Parts of an Academic Article and Source Ranking activities (Montclair State University, 2022 Summer Bridge Program)

Research Guide:

Popular Science News - Locating Scientific Literature (Montclair State University, Research Guide)

Questions?

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CREDITS

Slides Carnival

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Happy designing