

Michael C. Lenard

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EDUCATION

- M.S.I. Information, University of Michigan, 2020
- M.S. Physical Chemistry, University of Michigan, 2017
- B.A. Political Science, Michigan State University, 2011
- B.S. Physics, Michigan State University, 2011

PROFESSIONAL POSITIONS

- 2024– Senior Scientific Specialist, Geoscience Data Preservation, Illinois State Geological Survey
 - Assist with managing, organizing, and storing data for CarbonSAFE projects
 - Help maintain and improve databases for the Subsurface Energy Resources section
 - Assemble data catalogs for ISGS, both as project deliverables and for internal use
 - Lend information science knowledge to the effort to better integrate data and associated metadata across the survey
 - Curate datasets for and participate in working groups of the Data Curation Network
- 2023–24 Research Data Management Librarian, University of Virginia Library
 - Consult with faculty and research staff on incorporating and implementing data management practices
 - Review and provide suggestions for data management plans submitted through DMPTool
 - Update, revise, and maintain UVA Library's data management materials
 - Develop and lead workshops on data management-related technical skills
 - Promote and advocate for open science-aligned and reproducible research practices
- 2020–22 Project Manager, Thomer Lab, University of Michigan School of Information

PROFESSIONAL AND ACADEMIC INTERESTS

Research data: data curation, preservation, and management, making research data FAIR, data cleaning and processing, devising best practices for data management during the research process

The role of LIS in science: facilitating better information & data practices to improve handling of data from the field or lab to the repository in order to increase efficiency and reduce time to science, developing and documenting transparent data workflows for reproducible and open scientific analysis

Technical instruction: improving pedagogy and elevating the quality of materials for technical skills instruction and data/scientific/information literacy instruction to create better, more effective guides, tutorials and workshops

Semantics-based knowledge organization: linked data, taxonomies, ontologies, thesauri, classification schemes, controlled vocabularies, and how they can be used to help structure and organize complex born-digital research outputs especially in the sciences

PRE-PROFESSIONAL RESEARCH & PROJECT EXPERIENCE

- 2022 Data Repository Assistant, University of Michigan Library
- 2019–22 Research Assistant, Thomer Lab, University of Michigan School of Information
- Analyzed the structure and content of Throughput, an Earth Science graph database
 - Analyzed and summarized qualitative interview data for the Migrating Research Data Collections project
 - Cleaned and helped design processing workflows for natural history datasets from La Brea and the Michigan Institute for Fisheries Research
- 2018–20 Resident & Program Assistant, Shapiro Design Lab, University of Michigan Library
- 2020 Summer Librarian, University of Michigan Biological Station
- 2019 Technical Services Project Assistant, University of Michigan Library
- 2015–17 Research Assistant, Geva Group, University of Michigan Dept. of Chemistry
- 2013–14 Research Assistant, Hoogstraten Laboratory, Michigan State University Dept. of Biochemistry and Molecular Biology

INSTRUCTION EXPERIENCE

Workshops (General)

- Library Carpentry workshop. (Co-instructor, Feb. 2022)
- Data Carpentry workshop: Ecology with R. (Co-instructor, Nov. 2021)
- Software Carpentry workshop. (Helper, May 2022)

Workshops (University of Virginia)

- Reproducible Analysis and Documentation with R and R Markdown/Quarto
- Preparing Datasets for Publishing

Courses (University of Michigan)

- SI 666: Organization of Information Resources (Graduate Student Instructor)
- SI 106: Programs, Information, and People (Graduate Student Instructor)
- SI 699: Digital Curation Mastery Course (Tutor)

CHEM 125/126: General Chemistry Laboratory I & II (Graduate Student Instructor)

CHEM 453: Biophysical Chemistry I (Graduate Student Instructor)

CHEM 260/261: Chemical Principles & Introduction to Quantum Chemistry (Graduate Student Instructor)

CHEM 230: Physical Chemical Principles and Applications (Graduate Student Instructor)

Courses (Michigan State University)

PHY 184: Physics for Scientists and Engineers II (Teaching Assistant)

PHY 232: Introductory Physics II (Teaching Assistant)

PHY 191: Physics Laboratory for Scientists I (Teaching Assistant)

PHY 251: Introductory Physics Laboratory I (Teaching Assistant)

PHY 102: Physics Computations I (Teaching Assistant)

PUBLICATIONS

Articles

- 2024 Alofs, K. M., King, K. B. S., Lenard, M., Schell, J., Singer, R. A., Wehrly, K. E., López-Fernández, H., & Thomer, A. K. Community science brings together natural history collections and historical survey data to understand changing ecological patterns. *BioScience*(biae131). (<https://doi.org/10.1093/biosci/biae131>)
- 2022 Thomer, A. K., Starks, J. R., Rayburn, A., & **Lenard, M.** Maintaining Repositories, Databases, and Digital Collections in Memory Institutions: An Integrative Review. *Proceedings of the Association for Information Science and Technology* 59: 310-323. <https://doi.org/10.1002/pra2.755>
- 2017 Jafari, M., Welden, A., Williams, K., Winograd, B., Hendrickson, H., **Lenard, M.**, Gottfried, A., & Geva, E. Compute-to-Learn: Authentic Learning via Development of Interactive Computer Demonstrations within a Peer-Led Studio Environment. *J. Chem. Ed.* 94(12): 1896-1903. <https://pubs.acs.org/doi/10.1021/acs.jchemed.7b00032#>
- 2015 Wiley, T., Arruda, B., Miller, N., **Lenard, M.**, & Sension, R. Excited electronic states and internal conversion in cyanocobalamin. *CCL* 26(4): 439-444. <https://doi.org/10.1016/j.cclet.2015.03.003>

Book Chapters

- 2023 Thomer, A. K., Wofford, M. F., **Lenard, M.**, Dominguez Vidana, S. E., & Goring, S. J. Revealing Earth Science code and data use practices using the Throughput Graph Database. In Ma, X., Mookerjee, M., Hsu, L. & Hills, D. (eds.), Recent Advancement in Geoinformatics and Data Science: Geological Society of America Special Paper 558. [https://doi.org/10.1130/2022.2558\(10\)](https://doi.org/10.1130/2022.2558(10))

White Papers

- 2022 **Lenard, M.**, Thomer, A. K. Draft of Statistical Metadata Standards–In Detail. In *Transparency in Statistical Information for the National Center for Science and Engineering Statistics and All Federal Statistical Agencies*. 177-218. Washington, DC: The National Academies Press. <https://doi.org/10.17226/26360>.

PRESENTATIONS

Talks

- 2021 Dominguez Vidana, S., Goring, S. J., **Lenard, M.**, Wofford, M., & Thomer, A. K. (2021, October 13). Machine Learning in the Earth Sciences: A Broad Survey with Use Cases from the Throughput Database. GSA Connects, Portland, OR. <https://doi.org/10.1130/abs/2021AM-370665>

Posters

- 2022 Starks, J., **Lenard, M.**, & Thomer, A. K. (2022, March 15–17). What best practices exist to support database and digital collection migration? RDAP (Virtual). <https://doi.org/10.17605/OSF.IO/VXE3A>
- 2021 Wofford, M. F., Goring, S. J., **Lenard, M.**, Dominguez Vidana, S. E., & Thomer, A. K. (2021, December 9). Discovering data reuse with the Throughput Annotation Database. FORCE 2021 Online Conference. <https://doi.org/10.5281/zenodo.5768578>
- 2020 **Lenard, M.** (2020, February). Zooniverse Data Workflows. UMSI QuasiCon, Ann Arbor, MI.

SKILLS AND OTHER EXPERIENCE

Knowledge of scientific literature and journal databases, the scientific research process, scientific research practices, and the research data lifecycle

Experience with Darwin Core, Dublin Core, MARC, METS, OAIS, BIBFRAME, XML, JSON, RDF, RDFS, SKOS, OWL, PROV, and various other data and metadata standards

Competency with Python, R, Regular expressions, SQL, SPARQL, OpenRefine, Protégé, Mathematica; familiarity with MATLAB

Certified instructor for The Carpentries workshops

Familiarity with statistical analyses and data cleaning and wrangling techniques

Experience working with large, heterogeneous scientific databases and datasets in several domains

Ability to learn new systems and software quickly, including *inter alia* integrated library systems, stats packages, various APIs, content management systems, and database software

AWARDS, HONORS, AND FELLOWSHIPS

- 2019 Rackham Diversity, Equity, and Inclusion Certificate
- 2014–17 Rackham Science Award (Fellowship)
- 2011–12 Kaplan, Strangis and Kaplan Law School Scholarship
- 2011–12 Dean’s Distinguished Scholarship
- 2010 Herbert T. Graham Scholarship
- 2006–10 Michigan Competitive Scholarship

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