# 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

2020–22 Project Manager, Thomer Lab, University of Michigan School of Information

## PROFESSIONAL AND ACADEMIC INTERESTS

*Research data:* data curation and management, facilitating access to research data, data cleaning and processing, developing and documenting transparent data workflows for reproducible scientific analysis, developing best practices for data management during the research process

*Libraries' role in science:* outreach to and collaboration with scientific researchers, support for research throughout the research lifecycle, advocating for open science & equitable access to scientific research and resources, getting involved with citizen & community science projects

*Technical instruction:* improving pedagogy and materials for technical skills instruction and data/scientific/information literacy instruction to create better, more effective workshops

*Semantics-based knowledge organization:* linked data, taxonomies, ontologies, thesauri, classification schemes, controlled vocabularies, and how they can be used both in the library and in other domains

## WORK, RESEARCH, & PROJECT EXPERIENCE

2022 Data Repository Assistant, University of Michigan Library

- Assessed datasets being deposited into Deep Blue repository and consulted with faculty regarding how they could be better documented and made fit for archiving

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

- Created data processing workflows for the Lab's Zooniverse projects
- Crosswalked Ann Arbor biodiversity data to Darwin Core for upload to GBIF

2020 Summer Librarian, University of Michigan Biological Station

- Provided reference service and completed collection development projects

2019 Technical Services Project Assistant, University of Michigan Library

- Assessed BIBFRAME record dataset for accuracy & fitness for use by the 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

Library Carpentry workshop. (Co-instructor, Feb. 2022)

Data Carpentry workshop: Ecology with R. (Co-instructor, Nov. 2021)

Software Carpentry workshop. (Helper, May 2022)

### 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)

### 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

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)

### 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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