

Emily L. Howell

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EDUCATION

- University of Wisconsin-Madison** 2016-2019
Ph.D. Nelson Institute for Environmental Studies – Science & Risk Communication
Minor in Life Sciences Communication
Science, Media, and the Public Research Group (<https://scimep.wisc.edu/>)
- University of Wisconsin-Madison** 2014-2016
M.S. Environment & Resources
Certificate in Energy Analysis and Policy
- Harvard University** 2009-2013
B.A. History of Science
Minor in Earth and Planetary Sciences
Coursework in history, environmental studies, and literature at:
Albert-Ludwigs-Universität Freiburg, Freiburg, Germany
Universität Basel, Basel, Switzerland

RESEARCH & FUNDING

- Civic Science Postdoctoral Fellow 2019-present
UW-Madison Life Sciences Communication Department, Madison, WI
- Creating infrastructure for learning and research-based interdisciplinary collaborations in communication and civic engagement across complex science, health, environment, and policy issues, for the Civic Science Fellows Program: <https://civicsciencefellows.org/>.
 - Funded by and partnering with the Rita Allen Foundation and Gordon & Betty Moore Foundation, in collaboration with the Kavli Foundation, the Burroughs Wellcome Fund, the Chan Zuckerberg Initiative, and the David and Lucile Packard Foundation.
- Collaborator – NSF-funded project connecting research to filmmaking 2020-2022
- Wrote successful National Science Foundation grant proposal in support of “Collaborative Research: A new model for producing science documentaries: Building collaborations between scientists and storytellers to test methods of communication in film” (Award # AISL-2006010; PIs: Sarah Goodwin & Dietram Scheufele), \$500,000.
 - Developing iterative social science research process into film production and design to experiment with ways of communicating complex science & social issues with diverse audiences, with Wonder Collaborative film production company.
- Consultant – Landscape Assessment of Public Opinion of Artificial Intelligence 2020
The American Association for the Advancement of Science, Washington, D.C.
- Conducted assessment of public opinion research concerning AI research and applications, synthesizing findings, gaps, and recommendations for policymaking, public engagement, and future research.
 - Focused on AI technologies related to addressing COVID-19 pandemic, issues of equity in representation and distribution of risk and benefits, and AI in other public health contexts.

- Project assistant 2017-2019
 UW-Madison Life Sciences Communication Department, Madison, WI
- Subcontracted on NSF grant by the Museum of Science, Boston, with the American Chemical Society to test effective communication on chemistry (Award # AISL-1612482, PI: Larry Bell) \$154,745 (total grant: \$2.6 million). Involved in grant proposal development, budgeting, and reporting to NSF.
- Consultant – Public Perceptions of Uncertainty in Science 2018
 The National Academies of Sciences, Engineering, & Medicine, Committee on Reproducibility and Replicability in Science, Washington, D.C.
- Commissioned by NASEM committee to synthesize research on public perceptions of uncertainty in science; conducted content analyses of news' and online sources' coverage of reproducibility and replicability in science to inform their report, *Reproducibility and Replicability in Science*.
- Project assistant - Drs. Dominique Brossard & Dietram Scheufele 2015-2018
 The Morgridge Institute for Research, Madison, WI
- Conducted research on public and scientists' perceptions of controversial science and on effective communication and engagement, developing experiments, surveys, interviews, and focus groups.
 - Produced extensive writing, analysis, experiment development, and editing for successful NSF grant application on "Enabling decision-relevant debates about human genome editing" (Award # SES-1827864); \$449,977.
- Consultant - Madison Community Operations 2014 Carbon Emissions Inventory 2015
 City of Madison, WI; Energy Analysis and Policy Capstone.
- Conducted carbon emissions inventory for the City of Madison, modeling opportunities for emissions reductions and impacts on air quality and City public health and sustainability goals.
 - Prepared report and presented findings to the Sustainable Madison Committee, City of Madison representatives, local energy industries and utilities, and non-governmental environmental and developmental organizations.
- Bunn Distinguished Graduate Fellow 2014-2015
 UW-Madison Energy Analysis and Policy Certificate Program, Madison, WI
- Studied technical, environmental, economic, health, and policy factors shaping past, present, and potential future energy systems globally and in the U.S.
 - Researched public perceptions of hydraulic fracturing in the U.S. and implications for communication and policymaking.
- Tobis Fellow 2013-2014
 UC-Irvine Center for the Scientific Study of Ethics and Morality, Irvine, CA
 Continued research started at the Radcliffe Institute for Advanced Study (below).
- Research Assistant – Dr. Kristen Monroe 2012-2013
 Radcliffe Institute for Advanced Study, Harvard University, Cambridge, MA
- Researched barriers to gender equity in academia, conducted interviews with university presidents, faculty, and students, and transcribed and analyzed resulting qualitative data to identify challenges and best practices for achieving equity.
- Research Assistant – Dr. Diana Six 2010
 College of Forestry and Conservation, University of Montana, Missoula, MT
- Conducted field work on the severity of the mountain pine beetle and white pine blister rust epidemics affecting the keystone species white bark pines in the Greater Yellowstone Ecosystem.

TEACHING

- Instructor of record – Life Sciences Communication 660: Data Analysis in Communication Spring 2019
University of Wisconsin-Madison
Undergraduate & graduate quantitative data methods and analysis course for communication research.
Responsible for all content and instruction for graduate and undergraduate students (11 students).
- Teaching assistant – Life Sciences Communication 902: Public Opinion & Science Fall 2018
University of Wisconsin-Madison
Graduate interdisciplinary seminar on communication, public opinion, and media effects theories related
to science communication (25 students).
- Teaching assistant – Life Sciences Communication 100: The Science of Storytelling Spring 2018
University of Wisconsin-Madison
Undergraduate expository writing and public speaking course. Independently taught two sections of 15
students each in a large introductory course.
- Teaching assistant – Life Sciences Communication 875: Science & Social Media Spring 2018
University of Wisconsin-Madison
Graduate interdisciplinary seminar on science communication and communication research through
social media (14 students).
- Teaching assistant – Environmental Studies 101: Forum on the Environment Spring 2016
University of Wisconsin-Madison
Undergraduate lecture course consisting of weekly guest lectures and individual and small-group
activities (75 students).
- Teaching assistant – Environmental Studies 809: Introduction to Energy Analysis and Policy Fall 2015
University of Wisconsin-Madison
Graduate course on energy systems and local and global energy policy (30 students).

HONORS & AWARDS

- AEJMC Top Paper Award, Third Place – Electronic News Division 2020
- Society for Risk Analysis Travel Award 2019
- Professional Development Grant & Travel Grant 2019
Energy Analysis and Policy Program, University of Wisconsin-Madison
- Linda Latham Scholar, Summer Study on Energy Efficiency in Buildings 2016
American Council for an Energy Efficient Economy
- Graduate Travel Awards for Professional Development *annually* 2015-2019
Department of Life Sciences Communication, University of Wisconsin-Madison
- Bunn Distinguished Graduate Fellow 2014-2015
Energy Analysis and Policy Program, University of Wisconsin-Madison
- Jerome and Hazel Tobis Fellow 2013-2014
*Center for the Scientific Study of Ethics and Morality (Ethics Center),
University of California Irvine School of Social Sciences*
- Science and Technology Studies Undergraduate Essay Prize 2013
Kennedy School of Government, Harvard University
- U.S. Presidential Scholar – Montana representative 2009
U.S. Department of Education

PUBLICATIONS

Peer-reviewed articles

- Anderson, J. T., **Howell, E. L.**, Xenos, M. A., Scheufele, D. A., & Brossard, D. (forthcoming). Learning without seeking? Incidental exposure to science news on social media & knowledge of gene editing. *Journal of Science Communication*.
- Kollmann, E. K., Beyer, M., **Howell, E. L.**, Anderson, A., Weitzman, O., Bequette, M., Haupt, G., Velázquez, H., Yang, S., & Scheufele, D. A. (forthcoming). Collaboration for chemistry communication: Insights from a research-practice partnership. *Journal of Science Communication*.
- **Howell, E. L.**, Yang, S., Holesovsky, C., & Scheufele, D. A. (2021). Communicating chemistry through cooking & personal health: Everyday applications increase perceived relevance, interest, & self-efficacy in chemistry. *Journal of Chemical Education*. DOI: 10.1021/acs.jchemed.1c00125.
- **Howell, E. L.** & Brossard, D. (2021). (Mis)informed about what? What it means to be a science-literate citizen in a digital world. *Proceedings of the National Academy of Sciences*, 118(15). DOI: 10.1073/pnas.1912436117.
- **Howell, E. L.** (2020). Science communication in the context of reproducibility and replicability: how non-scientists navigate scientific uncertainty. *Harvard Data Science Review*, 2(4). DOI: 10.1162/99608f92.f2823096
- **Howell, E. L.**, Scheufele, D. A., Brossard, D., & Xenos, M. A. (2020). Deference and decision-making in science and society: How deference to scientific authority goes beyond confidence in science & scientists to become authoritarianism. *Public Understanding of Science*, 29(8): 1-19. DOI: 10.1177/0963662520962741.
- Wirz, C. D., **Howell, E. L.**, Brossard, D., Xenos, M. A., & Scheufele, D. A. (2020). The state of GMOs on social media: An analysis of state-level variables and discourse on Twitter in the U.S.A. *Politics and the Life Sciences*, 1-16. DOI:10.1017/pls2020.15.
- **Howell, E. L.**, Kohl, P., Scheufele, D. A., Clifford, S., Shao, A., Xenos, M. A., & Brossard, D. (2020). Enhanced threat or therapeutic benefit? Risk & benefit perceptions of human gene editing by purpose & heritability of edits. *Journal of Risk Research*. DOI: 10.1080/13669877.2020.1806911.
- **Howell, E. L.**, Yang, S., Beets, B., Brossard, D., Scheufele, D. A., & Xenos, M. A. (2020). What do we (not) know about global views of human gene editing? Insights and blind spots in the CRISPR era. *The CRISPR Journal*. 3(3): 148-155. DOI: 10.1089/crispr.2020.0004.
- **Howell, E. L.**, Wirz, C. D., Scheufele, D. A., Brossard, D., & Xenos, M. A. (2019). Seeing through risk-colored glasses: Risk and benefit perceptions, knowledge, and the politics of fracking in the United States. *Energy Research & Social Science*. 55: 168-178. DOI: 10.1016/j.erss.2019.05.020.
- **Howell, E. L.**, Nepper, J., Brossard, D., Xenos, M. A., & Scheufele, D. A. (2019). Engagement present and future: Graduate student and faculty perceptions of social media and the role of the public in science engagement. *PLoS ONE*. 14(5): e0216274. DOI: 10.1371/journal.pone.0216274.
- Rose, K. M., **Howell, E. L.**, Su, L. Y.-F., Xenos, M. A., Brossard, D., & Scheufele, D. A. (2019). Distinguishing scientific knowledge: The impact of different measures of knowledge on GM food attitudes. *Public Understanding of Science*. 28(4): 449-467. DOI: 10.1177/0963662518824837.
- **Howell, E. L.**, Wirz, C. D., Brossard, D., Jamieson, K. H., Scheufele, D. A., Winneg, K. M., & Xenos, M. A. (2018). National Academies of Sciences, Engineering, and Medicine report on genetically engineered crops influences public discourse. *Politics and the Life Sciences*. 37(2): 250-261. DOI:10.1017/pls.2018.12.
- Rose, K. M., **Howell, E. L.**, Scheufele, D. A., Brossard, D., Xenos, M. A., Shapira, P., Youtie, J., & Kwon, S. (2018). The values of synthetic biology: Researcher views of their field and participation in public engagement. *BioScience*. 68(11): 782-791. DOI: 10.1093/biosci/biyo77.
- Scheufele, D. A., Xenos, M.A., **Howell, E. L.**, Rose, K. M., Brossard, D., & Hardy, B. W. (2017). U.S. attitudes on human genome editing. *Science*. 357(6351): 553-554. DOI: 10.1126/science.aan3708.

- **Howell, E. L.**, Li, N., Akin, H., Scheufele, D. A., Xenos, M. A., & Brossard, D. (2017). How do U.S. state residents form opinions about 'fracking' in social contexts? A multilevel analysis. *Energy Policy*. 106: 345-355. DOI: 10.1016/j.enpol.2017.04.003.
- Monroe, K. R., Choi, J., **Howell, E.**, Lampros-Monroe, C., Trejo, C., & Perez, V. (2014). Gender equality in the ivory tower, and how best to achieve it. *PS: Political Science & Politics*. 47(2): 418-426. DOI: 10.1017/S104909651400033X.

Manuscripts under peer review

- Wirz, C. D., Shao, A., Bao, L., **Howell, E. L.**, Monroe, H., Chen, K. (revise & resubmit). Media systems and attention cycles: Trends and topics in news coverage of COVID-19 in the U.S. and China. *Journalism & Mass Communication Quarterly*.
- Calice, M. Bao, L., Freiling, I., **Howell, E. L.**, Xenos, M. A., Yang, S., Brossard, D., Newman, T. P., & Scheufele, D. A. (revise & resubmit). Polarized platforms? How partisanship shapes perceptions of "algorithmic news bias." *New Media and Society*.

White papers

- Newman, T. P., **Howell, E. L.**, Bao, L., Beets, B., & Yang, S. (2020). Landscape assessment of public opinion work on use of AI in public health. Commissioned by the *AAAS Center for Public Engagement with Science and Technology*, the American Association for the Advancement of Science.
- **Howell, E. L.** (2018). Public perceptions of uncertainty and media reporting of reproducibility and replicability in science. Commissioned by *The Committee on Reproducibility & Replicability in Science*, National Academies of Sciences, Engineering, and Medicine.

Chapters in edited volumes

- **Howell, E. L.**, Scheufele, D. A., Brossard, D., Xenos, M. A., Kwon, S., Youtie, J., & Shapira, P. (2020). Scientists' and the publics' views of synthetic biology. In: B. D. Trump, C. Cummings, J. Kuzma, & D. D. Linkov (Eds.), *Synthetic Biology 2020: Frontiers in risk analysis and governance* (pp. 371-387). Cham, Switzerland: Springer.
- **Howell, E. L.** & Brossard, D. (2019). Science engagement & social media. In Newman, T. (Ed.), *Theory and Best Practices in Science Communication Training*. Routledge: New York, NY.
- **Howell, E. L.** & Scheufele, D. A. (2018). Public engagement. In M. H. Bornstein (Ed.), *The SAGE Encyclopedia of Lifespan Human Development* (4: 1779-1781). Washington, DC: Sage Publications.

Perspectives & op-eds

- Christopherson, E. G., Howell, E. L., Scheufele, D. A., Viswanath, K., & West, N. P. (forthcoming). An equity-centered civic science framework. *Stanford Social Innovation Review*.
- Newman, T., **Howell, E. L.**, & Brossard, D. (2021). COVID-19 public health messages have been all over the place – but researchers know how to do better. *The Conversation*, April 14. <https://theconversation.com/covid-19-public-health-messages-have-been-all-over-the-place-but-researchers-know-how-to-do-better-150584>

INVITED TALKS

Mission Forward podcast, Season Three – The Future of Health

Guest, speaking on improving communication, lessons from the COVID-19 pandemic.

Center for Population Health Research, University of Montana – Science Meeting,

Missoula, MT – February 9, 2021

Guest speaker on communicating for civic engagement in science and health.

National Academies of Sciences, Engineering, and Medicine—Symposium Addressing Misinformation,

Washington, D.C. – February 20, 2020

Panelist, discussing public perceptions of scientific uncertainty, on panel on *Trust in online health and science information*.

Sigma Xi Annual Meeting—Science of Science Communication panel,

Madison, WI – November 15, 2019

Panelist, presenting work on advancing research-practice partnerships in communication, engagement, and informal learning.

Midwest Center of Excellence—Vector-Borne Disease research group,

Madison, WI – October 10, 2019

Advised on communication strategies, particularly for addressing and preventing spread of misinformation, concerning lyme disease prevention and treatment.

Risk Communication, Life Sciences Communication 625 course,

Madison, WI – September 26, 2019

Guest lecturer on the roles of trust and knowledge in public risk perceptions on health and science issues.

Holtz Center for Science & Technology Studies Special Brown Bag on Gene Editing,

Madison, WI – March 13, 2019

Panelist, presenting work on U.S. views of human gene editing: Understanding and deliberating across diverse publics, goals, and values.

Department of Life Sciences Communication Colloquium,

Madison, WI – February 13, 2019

Invited talk presenting Capturing science engagement: Understanding scientists, publics, and outcomes.

Committee on Reproducibility & Replicability in Science, National Academies of Sciences, Engineering, and Medicine, Washington, D.C. – April 18, 2018

Invited presentation on public perceptions of scientific uncertainty and media coverage of reproducibility and replicability in science.

Department of Life Sciences Communication Colloquium,

Madison, WI – March 21, 2018

Invited talk presenting research from: **Howell, E. L.**, Nepper, J., Brossard, D., Xenos, M. A., Scheufele, D. A., Cohort shift in engagement? Graduate student and faculty perceptions of engagement, social media, and the role of the public.

Environmental Studies 901 – Professional Development for the Energy Analysis and Policy Certificate Program, Madison, WI – October 12, 2017.

Invited talk on introduction to science communication theories and applications, for interdisciplinary graduate seminar in Energy Analysis and Policy program.

Bagels and Research Colloquium, Morgridge Center for Public Service,

Madison, WI – October 5, 2017.

Invited presentation on *Science Engagement Across Campus: The Wisconsin Science Festival and Beyond*, on campus researchers' views of science engagement and the role of citizens and scientists in engagement and decision-making around science issues.

PEER-REFEREED CONFERENCES

Science Public Engagement Partnership (SciPEP) Conference – Communicating the Future: Engaging the Public in Basic Science

Virtual – July 27-28, 2021

Howell, E. L., DeSalazar, M., Goodwin, S., Kirschner, E., Martinek, A., Qian, Y., & Scheufele, D. A. (2021, July). *Connecting research and storytelling to engage with audiences through documentary film: insights from a scientist-filmmaker collaboration*. Poster session.

Society for Risk Analysis Annual Meeting

Virtual – December 14-17, 2020

Howell, E. L., Monroe, H., Wirz, C., Shao, A., Bao, L., & Chen, K. (2020, December). *Public opinion & news coverage of COVID-19: Risks & responsibility in U.S. perceptions of the pandemic*. Conference presentation.

Association for Education in Journalism and Mass Communication (AEJMC)

San Francisco, CA – August 6-9, 2020.

Anderson, J., **Howell, E. L.**, Xenos, M. A., Scheufele, D. A., & Brossard, D. (2020, August). Learning without seeking: Incidental exposure to science news on social media may fill knowledge gaps. Conference paper.

Public Communication of Science and Technology (PCST)

Aberdeen, Scotland – May 26-28, 2020.

Howell, E. L., Scheufele, D. A. (2020, May). U.S. scientists' views of gene editing: Measuring short-term impact of the documentary film, *Human Nature*. Conference paper.

Society for Risk Analysis Annual Meeting

Arlington, VA – December 8-12, 2019.

Howell, E. L., & Scheufele, D. A. CRISPR benefit, risk, and ambivalence: The impact of the documentary *Human Nature* on scientists' views of human gene editing. Conference paper.

International Communication Association

Washington, D.C. – May 24-28, 2019.

Howell, E. L., Wirz, C. D., Scheufele, D. A., Brossard, D., & Xenos, M. A. Seeing through risk-colored glasses: Risk, benefit, and political polarization in U.S. views of fracking. Conference paper.

American Association for the Advancement of Science Annual Meeting

Washington, D.C. – February 14-17, 2019.

Panelist on *Improving Attitudes towards Chemistry through Informal Science Communication*, presenting Public views of chemistry: Relations to interest, relevance, and self-efficacy. Part of work on NSF Award # AISL-1612482.

Society for Risk Analysis Annual Meeting

New Orleans, LA – December 2-6, 2018.

Howell, E. L., Scheufele, D. A., Brossard D., Xenos, M. A., Deference, risk, & benefit in public perceptions of human genome editing. Conference presentation.

Visitor Studies Association Annual Conference

Chicago, IL – June 20, 2018

Panelist on *What Research Tells Us About Support Engagement in Science*, presenting Capturing interest, relevance, and self-efficacy for science engagement. Part of work on NSF Award # AISL-1612482.

Society for Risk Analysis Annual Meeting

Arlington, VA – December 11-12, 2017.

Howell, E. L., Kohl, P., Scheufele, D. A., Brossard D., Xenos, M. A., U.S. public on human genome editing: Purposes of edits drives attitudes. Conference presentation. *Presented in panel on Risk Communication in Public Health and Medical Contexts*.

International Public Science Events Annual Conference

Madison, WI – June 5-6, 2017.

Led session *Scaling Up While Drilling Down* on applying social science to science event design, outreach, and evaluation. Presented research from **Howell, E. L.**, Xenos, M. A., Scheufele, D. A., Brossard D., The role of values in understanding public and expert risk and benefit perceptions of the science. Conference paper.

American Association for the Advancement of Science Annual Meeting

Boston, MA – February 16-18, 2017.

Howell, E. L., Wirz, C. D., Brossard, D., Scheufele, D. A., Jamieson, K. H., Winneg, K., & Xenos, M. A., The NAS release a consensus report on GE crops – with what impact? Conference poster.

Midwest Association for Public Opinion Research Annual Conference

Chicago, IL – November 18, 2016.

Howell, E. L., Xenos, M. A., Scheufele, D. A., Brossard D., Public and expert perceptions of synthetic biology: The role of values in understanding public and expert risk and benefit perceptions of the science. Conference paper. *Presented in the Science and Technology panel.*

Association for Politics and the Life Sciences Annual Conference

Madison, WI – October 23-24, 2015.

Howell, E. L., Brossard, D., Scheufele, D.A., Xenos, M.A. Effects of ideology, trust, and knowledge on public risk-benefit perceptions of hydraulic fracturing in the U.S. Conference presentation. *Presented in the Energy Panel.*

The International Association for Media and Communication Research Annual Conference

Montreal, QC, Canada – July 12-16, 2015.

Howell, E. L., Li, N., Akin, H., Brossard, D., Scheufele, D. A., & Xenos, M. A. Modeling public perceptions of 'fracking:' A multilevel approach. Conference presentation. *Presented at the Environment, Science, and Risk Communication Working Group.*

ASSOCIATION MEMBERSHIPS

Association for Politics and the Life Sciences

International Communication Association

Society for Risk Analysis – *Risk Communication Special Group*