

Brian M. Donovan

Last Updated 4/28/26

Education

- 2016 Ph.D. Science Education, Stanford University; Advisor: Bryan Brown
- 2016 M.Sc. Biology, Stanford University; Advisor: Noah Rosenberg
- 2009 M.A. Teaching, University of San Francisco; Advisor: Noah Borrero
- 2001 B.A. Biology, The Colorado College (2001); Advisor: Sylvia Kelso

Research Appointments

- 2024-2025 Associate Research Professor (Genetics Education), Institute for Behavioral Genetics, University of Colorado at Boulder. Note: Since the DOGE canceled my NSF grants, I was laid off as a research professor as these grants funded the position.
- 2021-2024 Senior Research Scientist, BSCS Science Learning, Colorado Springs, CO
- 2016-2021 Research Scientist, BSCS Science Learning, Colorado Springs, CO

Teaching Appointments

- 2017-2024 Lead Genetics Instructor for Humane Genomics Teacher Institute. A 40-hour institute exploring the learning theories and instructional frameworks for teaching genetics to reduce racism. Concepts included patterns of genetic variation in human populations, multifactorial inheritance, and causal inference issues when explaining variation within and between ancestry groups. Colorado Springs, CO
- 2015 Teaching Assistant, EDUC 267e, curriculum and instruction in science for pre-service elementary school science teaching candidates in the Stanford Teacher Education Program (STEP), Stanford Graduate School of Education (GSE), Stanford, CA
- 2013-2014 Teaching Fellow, EDUC 267b, EDUC 267c, instructor of record for curriculum and instruction in science for pre-service middle and high school science teaching candidates, STEP, Stanford GSE, Stanford, CA
- 2012 Undergraduate Statistics Instructor, Gateways to Math and Science Summer Program, Stanford GSE, Stanford, CA.
- 2011-2012 Teaching Assistant, EDUC 267a, EDUC 267b, EDUC 267c, three-course sequence of curriculum and instruction in science, STEP, Stanford GSE. Stanford, CA
- 2011 Mentor Teacher, Breakthrough Collaborative Summer Program at San Francisco Day School, San Francisco, CA
- 2006-2011 Teacher of Record (7/8 Science), The San Francisco School, San Francisco, CA
- 2006 Genetics Co-Instructor, Mission High School Summer Program, San Francisco, CA
- 2004-2006 Co-Teacher (5-8th Science), The Town School for Boys, San Francisco, CA
- 2003-2004 Elementary Substitute Teacher, The Prospect Sierra School, El Cerrito, CA
- 2001-2002 Outdoor Educator, Aspen Achievement Academy, Loa, UT

Awards and Fellowships

- 2026 *Genetics Society of America Elizabeth W. Jones Award for Excellence in Education*: recognizes individuals or groups who have had a significant, sustained impact on genetics education at any level, from K-12 through graduate school and beyond.
- 2021 *National Association for Research in Science Teaching (NARST) and National Science Teacher Association (NSTA) Research Worth Reading Award*: recognizing annually selected articles from the *Journal of Research in Science Teaching* that offer significant implications for science educators and practitioners, highlighting impactful research to bridge theory and practice in science education.
- 2020 *NARST Early Career Research Award*: given annually to the early researcher who demonstrates the greatest potential to make outstanding and continuing contributions to educational research.
- 2017 *Research Paper Worth Reading Award for NARST and NSTA*
- 2014 *John Evans Gessford Stanford Interdisciplinary Graduate Fellowship in K-12 Education*: a competitive, university-wide program that awards three-year fellowships to outstanding doctoral students engaged in interdisciplinary research
- 2009 *Herbst Award for Teaching Excellence*: awarded to outstanding K-8 teachers in San Francisco, recognizing educators who foster critical thinking, inspire learning, challenge students, and demonstrate high professional standards.

Federal Grant Awards

Research Statement: My research integrates social-cognitive learning theories into the study of biology education. Specifically, I work to prevent the development of a social-cognitive bias that impedes biology learning (known as psychological essentialism) through the design of learning materials that support scientific argumentation, model-based reasoning, and quantitative reasoning about human genetic variation and multifactorial genetics. Over the last decade, I led four collaborative research grants in this area. Each employed qualitative methods, design-based research methods, and various kinds of field-based randomized trials and quasi-experiments. All of them explored how to reduce prejudice through genetics curriculum and instruction.

2020-2025 Principal Investigator (PI): *Exploring how the learning of multifactorial genetics affects belief in genetic determinism*. National Science Foundation (NSF) # 2450245

Secured \$628,832 in funding as the prime institution of a larger collaborative grant. Led a team spanning three universities, three PIs, and six junior researchers to iteratively develop computer-based learning resources for undergraduate genetics instruction to reduce belief in genetic determinism. Work involved semi-structured interviews and factorial experiments conducted with nationally representative samples of undergraduates majoring in biology at HBCUs, Tribal Colleges and Universities, Liberal Arts Schools and High Research Intensity Universities. We used research findings to guide development of curricular resources. Conducted numerous professional developments for college biology faculty and designed and validated learning assessments.

2021-2025 PI: Collaborative Research: *Reducing Racially Biased Beliefs by Fostering a Complex Understanding of Human Genetics Research in High School Students*. NSF # 2452096

Secured \$1,108,829 in funding as the prime institution of a larger collaborative grant. Led a team spanning four institutions, three PIs, and 8 junior researchers to iteratively develop classroom-based resources for high-school genetics instruction to reduce racism. Involved natural experiments, interrupted time series, difference-in-difference designs, and structured interviews, all conducted in within high schools and colleges in twenty different states. Research findings used to guide development of curriculum and teacher professional learning programs. Responsible for all hiring decisions, research management, teacher professional learning design and implementation, and budget management. Trained roughly 40 teachers through a 40-hour institute. Work cancelled by DOGE. Project outcome example:

[https://www.cell.com/hgg-advances/abstract/S2666-2477\(25\)00151-4](https://www.cell.com/hgg-advances/abstract/S2666-2477(25)00151-4)

2020-2025 PI: Collaborative Research: *Exploring how learning about the genetics of sex differences impacts genetic essentialism and STEM belonging and interest*. NSF # 2450246

Secured \$853,318 in funding as the prime institution of a larger collaborative grant. Led a team spanning three universities, three PIs, and seven junior researchers to conduct research and development efforts to iteratively develop a computer-based instructional resource for high-school genetics that reduces sexism. Work involved a content analysis of a nationally representative sample of high school biology texts as well as an individually randomized trial with clustering. Research findings used to guide development of a new high school genetics curriculum that promotes the social belonging of women in the science classroom by reducing the prevalence of science-gender stereotypes. Responsible for all hiring decisions, research management, and budget management. Cancelled by DOGE. Project outcome example:

<https://www.science.org/doi/10.1126/science.adi1188>

2017-2024 PI: *Towards a More Human(e) Genetics Education: Exploring How Knowledge of Genetic Variation and Causation Affects Racial Bias Among Adolescents*. NSF # 1660985

Secured \$1,299,042 in funding and led a team of three junior researchers to study how high school genetics education affects the development of racial prejudice and whether it can be used to counteract its development. Work involved three individually randomized trials with clustering in different populations of high school students and adults as well as a cluster-randomized cross-over trial. Research findings used to guide development of a new learning program for teachers that included teacher and student learning resources. Trained approximately 200 teachers through a 40-hour PD institute designed by the team that I managed. The PD and research-based curriculum we developed was clinically proven to promote the social belonging of students of color in science classrooms by reducing the prevalence of racial stereotypes about science ability. Collaborated with a variety of educational stakeholders—including instructional coaches, academic deans, principals, high school teachers, and biology faculty across undergraduate institutions. Responsible for all research, training, mentorship and fiscal oversight. Project outcome example:

<https://www.science.org/doi/10.1126/science.adi7895>

Senior Author Publications

1. Malerbi, K. F., Brubaker, A., Weindling, M., Thompson, K. N., Habib, C. M., Jeong, Y., **Donovan, B. M.**, & Wedow, R. (2026). Developing and Teaching Curriculum to Reduce Genetic Essentialism in University Classrooms. *Behavior Genetics*.
2. Wedow, R., Jeong, Y., Thompson, K. N., Malerbi, K. F., Brubaker, A., Weindling, M., Lo, S. M., Amemiya, J., & **Donovan, B. M.** (2026). How and for whom can genetics education reduce beliefs in genetic essentialism? *Human Genetics and Genomics Advances*, 7(1).
3. **Donovan, B. M.**, Weindling, M., Amemiya, J., Salazar, B., Lee, D., Syed, A., ... Snowden, J. (2024). Humane genomics education can reduce racism. *Science*, 383(6685), 818–822.
4. **Donovan, B. M.**, Syed, A., Arnold, S. H., Lee, D., Weindling, M., Stuhlsatz, M. A. M., ... Cimpian, A. (2024). Sex and gender essentialism in textbooks. *Science*, 383(6685), 822–825.
5. **Donovan, B. M.**, Salazar, B., Weindling, M. (2022) How can we make genetics education more humane? *Genetics Education for the 21st Century*. Springer.
6. **Donovan, B. M.**, Weindling, M., & Lee, D. M. (2020). From Basic to Humane Genomics Literacy. *Science & Education*, 29(6), 1479–1511.
7. **Donovan, B. M.**, Weindling, M., et al. (2020). Genomics Literacy Matters: Supporting the development of genomics literacy through genetics education could reduce cognitive forms of racial prejudice. *Journal of Research in Science Teaching*.
8. **Donovan, B.**, & Nehm, R. H. (2020). Genetics and Identity: Introduction to the Special Issue. *Science & Education*, s11191-020-00180–0.
9. **Donovan, B. M.**, et al. (2019). Towards a More Humane Genetics Education: Learning about the social and quantitative complexities of human genetic variation research could reduce racial bias in adolescent and adult populations. *Science Education*. 103(3), 539-560.
10. **Donovan, B.M.**, Stuhlsatz, M., Edelson, D.C., Buck Bracey, Z.B. (2019) Gendered Genetics: How reading about the genetic basis of sex differences in biology textbooks could affect beliefs associated with science gender disparities. *Science Education*. 103(4), 719-749.
11. **Donovan, B. M.**, Moreno Mateos, D., Osborne, J. F., & Bisaccio, D. J. (2014). Revising the Economic Imperative for US STEM Education. *PLoS Biology*, 12(1), e1001760.

Sole Author Publications

12. **Donovan, B. M.** (2021). Ending Genetic Essentialism Through Genetics Education. *Human Genetics and Genomics Advances*, 3(1), 1–13.
13. **Donovan, B.M.** (2018). Looking backwards to move biology education toward its humanitarian potential: A review of Darwinism, Democracy, and Race. *Science Education*.
14. **Donovan, B. M.** (2017) Learned inequality: Racial labels in the biology curriculum can affect the development of racial prejudice. *Journal of Research in Science Teaching*. 54(3), 379-411.
15. **Donovan, B. M.** (2016). Framing the genetics curriculum to support social justice: An experimental exploration of how the biology curriculum influences students' beliefs about the racial achievement gap. *Science Education*. 100(3), 586-616.
16. **Donovan, B. M.** (2015a). Putting humanity back into the teaching of human biology. *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences*. 52, 65-75.
17. **Donovan, B. M.** (2015b). Reclaiming race as a topic of the United States biology curriculum. *Science Education*. 99(6) 1092-1117.
18. **Donovan, B. M.** (2014). Playing with fire? The impact of the hidden curriculum in school genetics on essentialist conceptions of race. *Journal of Research in Science Teaching*, 51(4), 462–496.

Contributing Author Publications

19. Wilson, C. D., Haudek, K. C., Osborne, J. F., Buck Bracey, Z. E., Cheuk, T., **Donovan, B. M.**, Stuhlsatz, M. A., Santiago, M. M., & Zhai, X. (2023). Using automated analysis to assess middle school students' competence with scientific argumentation. *Journal of Research in Science Teaching*.
20. Herrmann-Abell, C. F., Stuhlsatz, M. A. M., Wilson, C. D., Snowden, J., & **Donovan, B. M.** (2023). Using Rasch Measurement to Develop Model-Based Reasoning Assessment Tasks. In X. Liu & W. J. Boone (Eds.), *Advances in Applications of Rasch Measurement in Science Education* (Vol. 57, pp. 241–264). Springer International Publishing.
21. Bracey, Z. B., Stuhlsatz, M. A. M., Wilson, C. D., Cheuk, T., Santiago, M. M., Osborne, J., Haudek, K., & **Donovan, B. M.** (2023). Investigating Differential Severity Across Linguistic Subgroups in Automated Scoring of Student Argumentation. In X. Liu & W. J. Boone (Eds.), *Advances in Applications of Rasch Measurement in Science Education* (Vol. 57, pp. 385–426). Springer International Publishing.
22. Schmid, K. M., Lee, D., Weindling, M., Syed, A., Agyemang, S.-L. Y., **Donovan, B.**, Radick, G., & Smith, M. K. (2022). Mendelian or Multifactorial? Current Undergraduate Genetics Assessments Focus on Genes and Rarely Include the Environment. *Journal of Microbiology & Biology Education*, 23(3).
23. Zummo, L., **Donovan, B. M.**, Busch, K.C. (2020). Complex influences of mechanistic knowledge, worldview, and quantitative reasoning on climate change discourse: Evidence for ideologically motivated reasoning among youth. *Journal of Research in Science Teaching*.
24. Stuhlsatz, M. A. M., Buck Bracey, Z. E., & **Donovan, B. M.** (2020). Investigating Conflation of Sex and Gender Language in Student Writing About Genetics. *Science & Education*, 29(6), 1567–1594.
25. Brown, B. A., **Donovan, B.**, Wild, A. (2019) Language and Cognitive Interference: How using complex science language limits cognitive performance. *Science Education*.
26. Patterson, A., Roman, D., Friend, M., Osborne, J., **Donovan, B.**, (2018). Reading for Meaning: The Foundational Knowledge Every Teacher of Science Should Have. *International Journal of Science Education*. pp. 1-17.
27. Smith, E. N., Romero, C., **Donovan, B. M.**, Herter, R., Paunesku, D., Cohen, G. L., Dweck, C.S., Gross, J. J. (2018). Emotion Theories and Adolescent Well-Being: Results of an Online Intervention. *Emotion*, 18(6), 781–788.
28. Brown, B. A., Henderson, J. B., Gray, S., **Donovan, B.**, Sullivan, S., Patterson, A., & Waggstaff, W. (2016). From description to explanation: An empirical exploration of the African- American pipeline problem in STEM. *Journal of Research in Science Teaching*, 53(1), 146–177.
29. Brown, B. A., Henderson, J. B., Gray, S., **Donovan, B.**, & Sullivan, S. (2013). From Access to Success: Identity Contingencies & African-American Pathways to Science. *Higher Education Studies*, 3(1) 13pp.

In Preparation Manuscripts

30. **Donovan, B.M.**, Schmid, K., Syed, A., Weindling, M., Brubaker, A., Snowden, J., Radick, G., Smith, M.K. (in prep) Multifactorial genetics instruction reduces belief in genetic determinism in a representative randomized trial of biology undergraduates. (see NSF award # 2450245 above)
31. Arnold, S., Cimpian, A., Riegler-Crumb, C., Brubaker, A., Weindling, M., Stuhlsatz, M., **Donovan, B.M.** (in prep) Biology instruction on sex variation reduces science-gender stereotypes. (see NSF award # 2450246 above)

Published Biology Curricula

1. *Humane Genetics Curriculum (HGC)*. (n.d.). Wedow Lab. Retrieved March 7, 2026, from <https://www.wedowlab.com/humane-genetics-curriculum-hgc>
2. Osborne, J., Donovan, B. M., Henderson, J. B., MacPherson, A. C., & Wild, A. (2016). *Arguing from Evidence in Middle School Science: 24 Activities for Productive Talk and Deeper Learning*. Thousand Oaks: CA: Corwin Press. See also: <https://www.serpoinstitute.org/reading-science>

Advising, Mentoring, and Supervision

- 2024-2025 CU Boulder: Two Senior Professional Research Assistants mentored into master's degree programs
- 2017-2024 BSCS Science Learning: Five post-baccalaureate research assistants mentored into industry positions or doctoral programs and one postdoc. Also, trained six mentor teachers who assisted me in providing professional development and support to high school teachers participating in my educational research program.
- 2014-2016 Stanford University, Graduate School of Education: Advised one undergraduate research assistant and mentored him through his honors thesis in Critical Race Studies. Also served as the teaching event coordinator for roughly 20 pre-service science teachers working on the Performance Assessment of California Teachers
- 2011 The Breakthrough Collaborative: Supervised four undergraduate science teachers at the SF Day campus of Breakthrough.

Research Collaborations in Biology Education

- 2022-2024 Senior Research Scientist, Climate Education Pathways. *PI: Lindsey Mohan*. Responsible for directing a quasi-experimental study and designing survey instrumentation for a high school science curriculum on the ecological effects of climate change.
- 2018-2021 Research Scientist, Extending and Investigating the Impact of the High School Model-Based Educational Resource. *PI: Chris Wilson*. Responsible for directing a quasi-experimental study of a high school biology curriculum on evolution.
- 2015 – 2020 Research Scientist, Measuring scientific argumentation. *PI: Chris Wilson*. Responsible for content analysis efforts to train a machine learning model for a argumentation instrument assessing middle school students' microbiology reasoning.
- 2017-2020 Research Scientist, Scientific Data in Schools: Measuring the Efficacy of an Innovative Approach to Integrating Quantitative Reasoning in Secondary Science. *PI: Molly Stuhlsatz*. Directed instrument development and statistical analysis of a cluster-randomized trial in schools of a quantitative reasoning intervention about environmental science and biology concepts for high schoolers.
- 2019-2020 Research Scientist, Teaching Students to Reason about Variation and Covariation in Data: What Do We Know and What Do We Need to Find Out? *PI: Sue Kowalski*. Responsible for interrater reliability in a meta-analysis of interventions that promote quantitative reasoning in biology education.
- 2016-2019 Research Scientist, Measuring science teacher Pedagogical Content Knowledge. BSCS Science Learning, *PI: Chris Wilson*. Responsible for content analysis efforts to train a machine learning model for an open response instrument assessing teacher professional knowledge in science, especially knowledge about biological teaching contexts.
- 2012-2015 Research Assistant, Improving academic achievement by teaching growth mindsets about emotion, PIs: James Gross, Carol Dweck, Geoff Cohen. Responsible for the design of an intervention that taught middle schoolers about the neurobiological basis of emotion regulation to assess its impact on achievement through growth mindset.

Biological Research Training

- 2013 Graduate Research Assistant, Insect Flux Across Ecotones, Stanford Department of Biology, Jasper Ridge Biological Preserve. Assessed insect diversity across terrestrial and aquatic habitats to better understand the role of terrestrial subsidies involved in wetland restoration.
- 2003 Forest Ecologist & Wildlife Biologist, Southwest Research, Moab, Utah. Performed forest inventory analysis in Rio Grande National Forest and assessed population density of spotted owls in and around Canyonlands and Arches National Parks.
- 2002-2003 Forest Ecology Technician, Rocky Mountain Research Station, United States Forest Service, Ogden, UT. Performed forest inventory analysis around Southern Utah.

Public Speaking Exemplars

- 2022 The Royal Society, London:
<https://youtu.be/LI5Mwu6MBdI?si=Dz8WzUWvdEsrrUcC&t=1>
- 2022 The BBC:
<https://www.bbc.com/audio/play/w3ct30cq>

Invited Research Talks

1. Penn State University Biology Department (November 2023)
2. Duke University Biology Department (Sept. 2023)
3. Durham Museum of Life and Science (Sept. 2023)
4. NC State Genetics and Genomics Group (Sept. 2023)
5. NC State Biology Department (Sept. 2023)
6. Society for the Study of Evolution, Presidential Address (June 2023)
7. New York University, Department of Psychology (April 2023)
8. Adelphi Genetics Forum, The Royal Society, London (2022)
9. The Konrad Lorenz Institute, Vienna (2022)
10. University of Virginia, Department of Biology (2022)
11. University of Chicago, Department of Human Genetics (2022)
12. University of Arizona, Ecology and Evolutionary Biology Department (2021)
13. Keynote Address: Biology and Mathematics Educators Institute (2021)
14. UC Davis Center for Population Biology (2021)
15. Science Education Department at Harvard-Smithsonian Center for Astrophysics (2021)
16. University of California, Riverside, Department of Biology (2021)
17. The University of Utah, School of Medicine (2020)
18. The University of Iowa, Department of Biology and College of Education (2020)
19. The University of California, San Diego, Department of Biology (2019)
20. The University of Colorado at Boulder, Center for Medieval and Early Modern Studies (2019)
21. The University of Colorado, Molecular, Cellular and Developmental Biology (2019)
22. The Weizmann Institute, Rehovot, Israel (2019)
23. Stanford University, Science Education Research Group, Stanford, CA (2019)
24. Harvard Medical School, Department of Genetics, Boston, MA (2018)
25. Colorado College, Molecular Biology, Organismal Biology and Ecology, and Psychology, Colorado Springs, CO (2018)
26. University of Maine, Center for Research in STEM Education, Orono, ME (2017)

Finalist Job Talks

1. Fort Lewis College of Education (2025)
2. University of Colorado Boulder, Institute for Behavioral Genetics (2023)
3. University of Utah, College of Education (2022)
4. University of California, Santa Cruz, Department of Education, Santa Cruz, CA (2019)
5. California State Polytechnic University, Department of Education, San Luis Obispo, CA (2018)
6. University of California, Berkeley, Graduate School of Education, Berkeley, CA (2017)
7. University of Southern California, Los Angeles, CA (2015)
8. University of San Francisco, San Francisco, CA (2014)

Refereed Research Presentations

1. Snowden, J., **Donovan, B.M.**, Mohan, L., Harris, E. (2025, April). The Impact of Localized Climate Change Curriculum on Student Environmental Agency. Paper presented at the meeting of American Educational Research Association, Denver, CO, USA.
2. Snowden, J., **Donovan, B.M.**, Mohan, L., Harris, E. (2025, April). What do Middle School Students Tell us about Science Classroom Assessments. Paper presented at the meeting of American Educational Research Association, Denver, CO, USA.
3. Syed, A., **Donovan, B. M.**, Cimpian, A., Riegler-Crumb, C., Stuhlsatz, M. (2022, April). An Analysis of Sex and Gender Terminology in High School Biology Textbooks Through the Lens of Neurogenetic Essentialism. Paper presented at the meeting of American Educational Research Association, San Diego, CA, USA.
4. Syed, A., Lee, D., Weindling, M., Arnold, S., Cimpian, A., Riegler-Crumb, C., Stuhlsatz, M., & **Donovan, B. M.** (2022, March). Uncovering sex and gender language in high school biology textbooks. Poster presented at the meeting of NARST, Vancouver, Canada.
5. Lee, D. M., **Donovan, B. M.**, Weindling, M., & Syed, A. (2022, March). A case for humane genetics education: How students used genetics knowledge to argue about a racial disparity. Paper presented at the meeting of NARST, Vancouver, Canada.
6. **Donovan, B.M.** (2022) Genomics Literacy Matters for Dismantling White Supremacy. *Paper presented at the annual meeting of the National Association of Research in Science Teaching (Online)*.
7. **Donovan, B.M.** (2021) Toward a More Humane Genetics Education. *Paper presented at the annual meeting of the National Association of Research in Science Teaching (Online)*.
8. Wilson, C., Stuhlsatz, M., **Donovan, B.**, Buck Bracey, Z., Gardner, A., Osborne, J., Cheuk, T., Haudek, K., Zhai, X. (2021) Developing Automated Analysis for a Learning Progression to Assess Scientific Argumentation in Middle School Students. *Paper presented at the annual meeting of the National Association of Research in Science Teaching (Online)*.
9. Stuhlsatz, M., Kjelvik, M., Schultheis, E., Snowden, J., **Donovan, B.**, Mead, L. (2021) Measuring the Efficacy of an Approach to Integrating Quantitative Reasoning in High School Biology. *Paper presented at the annual meeting of the National Association of Research in Science Teaching (Online)*.
10. **Donovan, B.M.** (2021) Genetics Education and Racial Prejudice. *Paper presented at The University of Pittsburgh Conference on Ancestry: Evidence, Inference, and Identity (Online)*.
11. **Donovan, B.M.** (2019) Towards A More Human(e) Genetics Education: The Impact of Human Genetics Education on Adolescent Conceptions of Race. *Paper presented at the Annual Meeting of the American Academy for the Advancement of Science, Washington DC*.
12. **Donovan, B.M.** (2018) Towards A More Human(e) Genetics Education: Learning about Human Genetic Variation Reduces Racial Bias. *Paper presented at the 10th Annual Biology Education Research Symposium, San Diego, CA*.
13. **Donovan, B.M.**, Stuhlsatz, M., Edelson, D., Buck Bracey, Z. (2018) Gendered Genetics: Reading about the genetics of sex differences could affect gender stereotypes about intelligence. *Paper*

presented at the annual meeting of the National Association of Research in Science Teaching, Atlanta, GA.

14. **Donovan, B.M.** (2018) Learned Inequality: Racial labels in the biology curriculum can affect the development of racial prejudice. *Paper presented at the annual meeting of the National Association of Research in Science Teaching in response to the NSTA “research that matters” award, Atlanta, Georgia.*
15. **Donovan, B.M.**, Semmens, R., Keck, P., Brimhall, E., Busch, K.C. (2017). A Human(e) Genetics Education: Teaching about human genetic variation reduces racial bias amongst adolescents. *Paper presented at the annual Meeting of the National Association for Research in Science Teaching, San Antonio, Texas.*
16. Edelson, D., **Donovan, B.M.**, Stuhlsatz, M. (2017). Gendered interest: High school genetics curricula activate topical interest in biology amongst girls. *Paper presented at the annual Meeting of the National Association for Research in Science Teaching, San Antonio, Texas.*
17. **Donovan, B.M.** (2016) Learned Inequality: Racial Labels in the Biology Curriculum Can Affect the Development of Racial Prejudice by Affecting the Perception of Human Biological Variation. *Paper presented at the annual meeting of the National Association of Biology Teachers, Denver, Colorado.*
18. Osborne, J., & **Donovan, B. M.** (2016). Developing Elementary and Middle School Teachers’ Capabilities to Support Reading for Learning in Science. *Paper presented at the 2016 annual meeting of the National Association for Research in Science Teaching, Baltimore, Maryland.*
19. **Donovan, B. M.** (2016). Learned Inequality: Racial labels in the biology curriculum can affect the development of racial prejudice by affecting the perception of human biological variation. *Paper presented at the 2016 annual meeting of the National Association for Research in Science Teaching, Baltimore, Maryland.*
20. **Donovan, B. M.** (2015). The educational debt of school biology? Evidence that students’ intentions to fix the racial achievement gap are affected by subtle racial framings of monogenic diseases. *Paper presented at the 2015 annual meeting of the International Society for the History, Philosophy, and Social Studies of Biology. Montreal, Quebec.*
21. **Donovan, B.M.** (2014). Playing with Fire? The Impact of the Hidden Curriculum in School Genetics on Essentialist Conceptions of Race. *Paper presented at the 2014 Genomics and Philosophy of Race Conference. University of California Davis, Davis, CA.*
22. Osborne, J., Roman, D., **Donovan, B.M.**, Friend, M., Patterson, A.P. (2014). Towards a pedagogical content knowledge for literacy instruction in science. *Paper presented at the 2014 annual meeting of the National Association for Research in Science Teaching Conference, Pittsburgh, PA.*
23. **Donovan, B.M.** (2014). Playing with fire? The Impact of the Hidden Curriculum in School Genetics on Essentialist Conceptions of Race. *Paper presented at the 2014 annual meeting of the National Association for Research in Science Teaching Conference, Pittsburgh, PA.*

Professional Developments Offered to Inservice Science Teachers

1. **Donovan, B. M.** (2019-2025). Humane genetics institutes. This 40-hour institute explores the learning theories and instructional frameworks for teaching genetics to reduce racism.
2. **Donovan, B. M.** (2021). Towards a more humane genetics education. Four-hour professional development offered at the Association for Human Medical Genetics Professors.
3. Strode, P., **Donovan, B. M.** (2020). Playing with Fire? How We Perpetuate Biological Beliefs about Race in the Classroom and How to Avoid it. *Workshop offered at the Annual Meeting of the University of Iowa Darwin Days Celebration in Iowa City, IA.*
4. **Donovan, B. M.**, Strode, P., Weindling, M. (2019). Avoiding Teaching Genetic Determinism: Model-based Reasoning That Helps Students Understand Multifactorial Models of Inheritance. *Workshop offered at the Annual Meeting of the National Association of Biology Teachers in Chicago, Ill.*
5. **Donovan, B. M.**, Strode, P., Keck, P. (2018). Playing with Fire? How We Perpetuate Biological Beliefs about Race in the Classroom and How to Avoid it. *Workshop offered at the Annual Meeting of the National Association of Biology Teachers in San Diego, CA.*

6. **Donovan, B. M.**, Strode, P., Keck, P. (2018). Engaging students in model-based learning about multifactorial genetics. *Workshop offered at Boulder Valley School District, CO.*
7. Co-teacher, *Reading to Learn in Science*, Stanford Graduate School of Education (2012-2014): A two-year professional development for in-service elementary and middle school teachers for teaching reading in science. <https://www.serpoinstitute.org/reading-science>
8. Osborne, J., & **Donovan, B. M.** (2014). Supporting Literacy in Science Instruction. *Workshop offered at the National Science Teacher Association Conference, Long Beach, CA.*
9. **Donovan, B.M.**, & Friend, M. (2013). Read It, Write It, Talk It: Practical Strategies for Addressing Literacy Development in Science Instruction. *Workshop offered at the National Science Teacher Association Conference, San Antonio, TX.*
10. **Donovan, B.M.** (2011). Becoming a bad scientist. *Workshop offered at the annual meeting of the California Association of Independent Schools Northern Regional Meeting, Oakland, CA.*
11. **Donovan, B.M.** (2011). Educating the heart of a scientist: Field-based science instruction for environmental justice. *Workshop offered at the BATDC, San Francisco, CA.*
12. **Donovan, B.M.** (2010). How to become a bad scientist. *Workshop offered at the annual meeting of the California Science Teacher Association, Sacramento, CA.*

Select Media Coverage

1. Molteni, M. (2026, April 7). A star scientist showed that better genetics lessons could reduce racism. It was the death knell for his career. *STAT*. <https://www.statnews.com/2026/04/07/brian-donovan-fighting-racism-with-genetics-education/>
2. *US biology textbooks promoting “misguided assumptions” on sex and gender.* (2024, February 22). Newsweek. <https://www.newsweek.com/sex-gender-assumptions-us-high-school-textbook-discrimination-1872548>
3. Morrison, N. (n.d.). *High School Textbooks Fail To Distinguish Between Sex And Gender, Researchers Find.* Forbes. Retrieved May 5, 2025, from <https://www.forbes.com/sites/nickmorrison/2024/02/22/high-school-textbooks-fail-to-distinguish-between-sex-and-gender-researchers-find/>
4. Sparks, S. D. (2019, March 27). Genetics Lessons Can Spark Racism in Students. This Change Can Prevent It. *Education Week*. <https://www.edweek.org/teaching-learning/genetics-lessons-can-spark-racism-in-students-this-change-can-prevent-it/2019/03>
5. Harmon, A. (2019, December 7). Can Biology Class Reduce Racism? *The New York Times*. <https://www.nytimes.com/2019/12/07/us/race-biology-genetics.html>
6. How racial prejudice can easily appear in classrooms. (2019, March 22). [Sound]. *ABC Radio National*; Australian Broadcasting Corporation. <https://www.abc.net.au/radionational/programs/scienceshow/how-racial-prejudice-can-easily-appear-in-classrooms/10928726>
7. Gabbatiss, J. (2019, February 15). School science textbooks make children more racially prejudiced, scientists find. *The Independent*. <https://www.independent.co.uk/news/science/school-racism-children-textbooks-race-prejudice-education-sickle-cell-africa-a8780296.html>
8. Undark, M. S. (2018, September 16). The Dilemma of Teaching Race in High-School Biology. *The Atlantic*. <https://www.theatlantic.com/science/archive/2018/09/teaching-race-high-school-biology-textbooks/570319/>
9. Researchers urge increased environmental science education. (2014, February 24). *The Brown Daily Herald*. <https://www.browndailyherald.com/article/2014/02/researchers-urge-increased-environmental-science-education>

Professional Service

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| 2022,2025 | Ad-Hoc Reviewer and Panelist, NSF ECR-Core Competition |
| 2020 | Panelist, NSF DRK-12 Competition |
| 2021-2024 | Editorial Board, Journal of Research in Science Teaching |
| 2020-2025 | Reviewer, Child Development |
| 2019-202 | Guest Editor, Science & Education |
| 2017-2025 | Reviewer, Science & Education |
| 2015-2025 | Reviewer, Science Education |
| 2014-2021 | Reviewer, Journal of Research in Science Teaching |

Certifications

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| 2022 | American Institute for Avalanche Research and Education (AIARE) Level 2 |
| 2021 | AIARE Level 1 and Rescue |
| 2001 | AIARE Level 1 |
| 2001 | Wilderness First Responder |
| 1997 | Eagle Scout |

Research Skills

Statistics - Item Response Theory, Rasch, Hierarchical Linear Models, Causal Mediation Analysis, PCA and Factor Analysis, Structural Equation Models, Seemingly Unrelated Regression, GLMS and Population Average Models. Graduate coursework: Introduction to Statistical Methods in Education; Inquiry and Measurement in Education; Statistical Analysis in Education: Regression; Application of Hierarchical Linear Models in Behavioral and Social Research; Introduction to Probability and Statistics for Epidemiology; Intermediate Biostatistics: Analysis of Discrete Data; Intermediate Biostatistics: Regression, Prediction, Survival Analysis.

Causal Inference Methods - Expert in Experimental Methods, including Parallel and Cross-over trials, Cluster Randomized Trials with Panel Data, Factorial Designs, and Individually Randomized Trials with Clustering, difference-in-difference methods and comparative interrupted time series. Knowledgeable about regression discontinuity designs and instrumental variables analysis for natural experiments. Graduate coursework in: Experimental Research Designs in Educational Research

Qualitative Methods - Skilled in video and text-based content analysis, structured and semi-structured interviews, cognitive think-alouds, and video-ethnography. Graduate coursework: Content Analysis: Studying Communication Artifacts; Introduction to Research in Curriculum and Teacher Education; Doctoral Seminar in Curriculum Research; Qualitative Analysis in Education.