

# Catherine Elizabeth Kendig

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Citizenship: U.S.

**AOS:** Philosophy of Biology, Philosophy and History of Science, Metaphysics

**AOC:** Philosophy of New and Emerging Technologies (especially of Synthetic Biology and Agriculture);  
Philosophy of Race; Philosophy of Ethnobiology

## **Appointments**

Associate Professor, (tenured) Department of Philosophy  
Michigan State University (2019-present)

Assistant Professor, (tenure-track) Department of Philosophy  
Michigan State University (2016-2019)

Associate Professor of Philosophy, (tenured) Department of Philosophy and Religion  
Missouri Western State University (2015–2016)

Assistant Professor of Philosophy, (tenure-track) Department of Philosophy and Religion  
Missouri Western State University (2010-2015)

Lecturer in Philosophy of Science/ UK Teaching Fellow, Department of Science and Technology Studies  
University College London (September 2009–2010)

## **Secondary Appointments**

Secondary appointment, Lyman Briggs College, Michigan State University. 1 December 2020-present.

Core Associated Faculty, Center for Gender in Global Context, Michigan State University. 18 January-present.

Journal Associate Editor, *History and Philosophy of the Life Sciences*. 1 March 2020-present.  
<https://www.springer.com/journal/40656/editors>

Book Series Co-Editor (with Lydia Patton and Alan Richardson), "History of Philosophy and Science" (De Gruyter). 1 March 2020-present. <https://cloud.newsletter.degruyter.com/hss-shot2020>

## **Research Fellowships**

Visiting Research Fellow, Project: "Tangled kinds of being: towards a practice-based metaphysics for homology" Center for Philosophy of Science, University of Pittsburgh (Spring Term 2017)  
[http://www.pitt.edu/~pittcntr/People/visiting\\_fellows/vf\\_2016\\_17/kendig.html](http://www.pitt.edu/~pittcntr/People/visiting_fellows/vf_2016_17/kendig.html)

Research Fellow, Project: "Homology, redux: Revisiting Richard Owen's analogy/homology distinction"  
Linda Hall Library of Science, Engineering & Technology, Kansas City (Summer 2013)  
<http://www.lindahall.org/fellowships/former-fellows/>

## **Visiting Researcher**

Visiting Researcher, Institut für Philosophie and Centre for Ethics and Law in the Life Sciences (CELLS)  
Leibniz Universität Hannover (May-June 2016, June-July 2017, May-July 2018, May-August 2019)  
<https://www.philos.uni-hannover.de/gast.html?&L=1> and <https://www.cells.uni-hannover.de/de/institut/people/>

## **Education**

PhD Philosophy (2009)

ESRC Centre for Genomics in Society/Department of Sociology and Philosophy, University of Exeter

Dissertation: *Biology and Ontology: An Organism-centred View* (supervisor: Lenny Moss)

Available at: <http://hdl.handle.net/10036/42121>

MSc Philosophy and History of Science (1998)

King's College London and London School of Economics

Dissertation: *Mathematical Structuralism and Structural Realism* (supervisors: Donald Gillies, Stathis Psillos)

MA Philosophy, Social Policy, and Ethics (1996)

American University, Washington, DC

Dissertation: *The Necessity of Valued Labor: Innovative Applications of the Grameen Bank model of Microenterprise Lending* (supervisor: Jeffrey Reiman)

BA Philosophy (major), Political Philosophy (major), Biology (minor), Cognitive Science (minor) (1993)

Syracuse University

## **Scholarship**

### **Books**

Kendig, Catherine (ed.) (2016) *Natural Kinds and Classification in Scientific Practice*. Abingdon and New York: Routledge, 1-247. <https://www.routledge.com/Natural-Kinds-and-Classification-in-Scientific-Practice/Kendig/p/book/9781138344839>

### **Articles**

Kendig, Catherine (2022). "Metaphysical presumptions about species stability: problematic and unavoidable". In John S. Wilkins, Frank E. Zachos, and Igor Ya. Pavlinov (eds.) *Species Problems and Beyond: Contemporary Issues in Philosophy and Practice*. Boca Raton: CRC Press/Taylor & Francis. <https://www.routledge.com/Species-Problems-and-Beyond-Contemporary-Issues-in-Philosophy-and-Practice/Wilkins-Zachos-Pavlinov/p/book/9781032221472>

Bursten, Julia and Catherine Kendig\* (2021). "Growing Knowledge: Epistemic Objects in Agricultural Extension Work". *Studies in History and Philosophy of Science Part A* 88: 85-91. <https://doi.org/10.1016/j.shpsa.2021.03.002> \*co-authors contributed equally.

Kendig, Catherine and Wenda K. Bauchspies (2021). "The Ethics of Speculative Anticipation and the COVID-19 Pandemic". *Hypatia* 36(1): 228-236. <http://doi.org/10.1017/hyp.2020.56>

Kendig, Catherine (2020). "Ontology and values anchor indigenous and grey nomenclatures: a case study in lichen naming practices among the Sámi, Sherpa, Scots, and Okanagan". *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* 84 (101340): 1-11. <https://doi.org/10.1016/j.shpsc.2020.101340>

Kendig, Catherine and Joeri Witteveen\* (2020). "History and Philosophy of Taxonomy as an Information Science". *History and Philosophy of the Life Sciences* 42: 40-51. <https://doi.org/10.1007/s40656-020-00337-8>

Ferkany, Matt and Catherine Kendig (2020). "Countering scientism and skepticism in teaching the nature of science through its virtues". In Wayne Melville and Donald Kerr (eds.) *Virtues as Integral to Science Education: Understanding the Intellectual, Moral, and Civic Value of Science and Scientific Inquiry*. New York & London: Routledge, pp. 83-101. <https://www.routledge.com/Virtues-as-Integral-to-Science-Education-Understanding-the-Intellectual/Melville-Kerr/p/book/9780367421397>

Kendig, Catherine and John Grey (2019/2021). "Can the epistemic value of natural kinds be explained independently of their metaphysics?" *British Journal for the Philosophy of Science* 72 (2): 359-376. <https://www.journals.uchicago.edu/doi/10.1093/bjps/axz004>

Kendig, Catherine and Bryan A. Bartley (2019). "Synthetic kinds: kind-making in synthetic biology." In Julia R. S. Bursten (ed.) *Perspectives on Classification in Synthetic Sciences: Unnatural Kinds*. London: Taylor & Francis, pp. 78-96. <https://www.taylorfrancis.com/books/e/9781315098838/chapters/10.4324/9781315098838-5>

Kendig, Catherine (2018). "Considering the role marked variation plays in classifying humans: a normative approach." *Philosophy, Theory, and Practice in Biology* 10(13): 1-15. <http://dx.doi.org/10.3998/ptpbio.16039257.0010.013>

Kendig, Catherine (2018). "Grounding knowledge and normative valuation in agent-based action and scientific commitment". In Hauke Riesch, Nathan Emmerich & Steven Wainwright (eds.) *Philosophies and Sociologies of Bioethics: Crossing the Divides*. Cham, Switzerland: Springer, pp. 41-64. [https://link.springer.com/chapter/10.1007/978-3-319-92738-1\\_3](https://link.springer.com/chapter/10.1007/978-3-319-92738-1_3)

Kendig, Catherine and Eckdahl, Todd T. (2017). "Reengineering metaphysics: modularity, parthood, and evolvability in metabolic engineering". *Special issue: Ontologies of Living Beings* (A.M. Ferner and Thomas Pradeu, eds.) *Philosophy, Theory, and Practice in Biology* 9(8): 1-21. <http://dx.doi.org/10.3998/ptb.6959004.0009.008>

Kendig, Catherine (2016). "Homologizing as kinding". In Catherine Kendig (ed.) *Natural Kinds and Classification in Scientific Practice*. Abingdon and New York: Routledge, 106-125. <https://www.routledge.com/products/9781848935402>

Kendig, Catherine (2016). "Activities of *kinding* in scientific practice" In Catherine Kendig (ed.) *Natural Kinds and Classification in Scientific Practice*. Abingdon and New York: Routledge, 1-13. <https://www.routledge.com/products/9781848935402>

Kendig, Catherine (2016). "What is *proof of concept* research and how does it generate epistemic and ethical categories for future scientific practice?" *Science and Engineering Ethics* 22(3), 735-753. <https://link.springer.com/article/10.1007/s11948-015-9654-0>

Kendig, Catherine (2014). "Synthetic Biology and Biofuels." In Paul B. Thompson and David M. Kaplan (eds.), *Encyclopedia of Food and Agricultural Ethics*. Dordrecht: Springer, 1695-1703. [http://link.springer.com/referenceworkentry/10.1007/978-94-007-0929-4\\_124](http://link.springer.com/referenceworkentry/10.1007/978-94-007-0929-4_124)

Kendig, Catherine (2014). "Hybridity in Agriculture." In Paul B. Thompson and David M. Kaplan (eds.), *Encyclopedia of Food and Agricultural Ethics*. Dordrecht: Springer, 1210-1218. [http://link.springer.com/referenceworkentry/10.1007/978-94-007-0929-4\\_421](http://link.springer.com/referenceworkentry/10.1007/978-94-007-0929-4_421)

Kendig, Catherine (2014). "Towards a Multidimensional Metaconception of Species." *Ratio* 27 (2): 155–172. <http://onlinelibrary.wiley.com/doi/10.1111/rati.12037/full>

Kendig, Catherine (2013). "Integrating History and Philosophy of the Life Sciences in Practice to Enhance Science Education: Swammerdam's *Historia Insectorum Generalis* and the case of the water flea." *Science & Education* 22(8): 1939-1961. <http://link.springer.com/article/10.1007%2Fs11191-013-9596-3>

Kendig, Catherine, Swindler, Joshua\*, and Anderson, Austin\* (2012). "Bringing History and Philosophy of Biology into the Lab." *Bioscene* 38(2): 36-42. [\* denotes undergraduate contributors] [http://www.acube.org/wp-content/uploads/2017/11/2012\\_2.pdf](http://www.acube.org/wp-content/uploads/2017/11/2012_2.pdf)

Kendig, Catherine (2011). "Race as a Physiosocial Phenomenon." *History and Philosophy of the Life Sciences* 33(2): 191–222. <http://www.jstor.org/stable/23335116>  
[Awarded Honorable Mention for the American Philosophical Association 2012 Article Prize]

Kendig, Catherine (2011). "Debates in Philosophy of Biology: One Long Argument, or Many?" *International Studies in the Philosophy of Science* 25(1): 73–81. <http://www.tandfonline.com/doi/abs/10.1080/02698595.2011.552419>

### **Book reviews**

Kendig, Catherine (2018). "Review of *Biological Individuality: Integrating Scientific, Philosophical, and Historical Perspectives*, Scott Lidgard and Lynn K. Nyhart (eds)." *HOPOS: The Journal of the International Society for the History of Philosophy of Science* 8 (2): 475-480. <https://doi.org/10.1086/699184>

Kendig, Catherine (2015) "Review of *The Nature of Classification* by John S. Wilkins and Malte C. Ebach." *History and Philosophy of the Life Sciences* 37 (4): 477-479. <http://link.springer.com/article/10.1007/s40656-015-0083-9>

Kendig, Catherine (2012). "Review of *The Species Problem* by Richard Richards." *The Philosophical Quarterly* 62(2): 405–408. <http://onlinelibrary.wiley.com/doi/10.1111/j.1467-9213.2011.00025.x/abstract>

### **Grants (funded)**

United States Department of Agriculture (USDA)/National Institute of Food and Agriculture (NIFA): \$50,000 (September 2020-August 2022)

Conference: "Social Implications of Emerging Technologies in Agriculture"

- Kendig (Co-PI) with Wenda Bauchspies (Co-PI) and Kurt Richter (Co-PI). This proposal is to build an interdisciplinary collaborative among social scientists, humanities, and agricultural scientists. We host an interdisciplinary 1 week/3 day workshop on the social dimensions of emerging agricultural technologies such as gene drive, genome editing technologies (like CRISPR-Cas9) and related emerging bio-technologies. Scholars and researchers working in the biological and physical sciences as well as the social sciences and humanities were invited to participate in the workshop focused on ethical uses, social impacts, cultural issues and intended and un-intended consequences of emerging bio-technologies in agriculture. (NIFA/USDA Grant Number: 2020-67023-31635). <https://portal.nifa.usda.gov/web/crisprojectpages/1022860-conference-social-implications-of-emerging-technologies-in-agriculture.html> Conference website: <https://www.canr.msu.edu/nifaworkshop/about>

National Science Foundation Research Opportunity Award: \$8,902 (May-June 2014)

"How Synthetic Biology reconfigures Biological and Bioethical Categories"

- Kendig (PI). "How synthetic biology reconfigures biological and bioethical categories". Synthetic biology research is based on an underlying philosophical premise—that the world is organized in a certain way: that living organisms have an organization that is modular. The premise of biological modularity is an ontological claim that comes out of a practice. The project investigates how our epistemological, ontological, and ethical categories may be reconfigured in light of this research. This Research Opportunity Award project is funded by the NSF Division of Molecular and Cellular Biosciences (MCB), BIOMAPS: Modular Programmed Evolution of Bacteria for Optimization of Metabolic Pathways, Eckdahl Todd (PI), Poet Jeff. Grant No. MCB-1329350, Amendment No. 001, Proposal No. MCB-1417799. \$461,051 Awarded September 2013. [http://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1329350&HistoricalAwards=false](http://www.nsf.gov/awardsearch/showAward?AWD_ID=1329350&HistoricalAwards=false)

National Science Foundation Standard Grant: \$269,700

"Synthetic Biology workshops for Interdisciplinary teams of Undergraduate Faculty" (2011-2014)

- Kendig (Named Collaborator/team member) with A. Malcolm Campbell (Davidson College-biology), PI, Todd Eckdahl (MWSU-biology) co-PI, Laurie Heyer (Davidson College-mathematics) Co-PI, and Jeff Poet (MWSU-mathematics) co-PI. Invited by the PI and co-PIs to collaborate and provide training to interdisciplinary teams of faculty on synthetic biology at the 2011, 2012, 2013, and 2014 Genome Consortium for Active Teaching (GCAT) Synthetic Biology workshops. Responsible for blending metaphysical and ethical discussions into the wet lab and dry lab portions of the workshops, provide training for faculty in the planning and execution of undergraduate research that bridges STEM disciplines and humanities, and presented faculty with practical ways of integrating ethical and philosophical discussion into their undergraduate synthetic biology projects and curricula. The aim of the workshops is to attract underrepresented communities and students to interdisciplinary research in synbio. Workshop participants were faculty research teams from Historically Black Colleges and Universities, Tribal Colleges and Universities, Hispanic-serving institutions, minority-serving institutions and other predominantly undergraduate colleges and universities. Through GCAT SynBio, they developed new curricula and active research-based approaches for their students, formed interdisciplinary research groups, and applied for further grant funding in support of their research with students. In 2012 and 2013 these workshops were held at Howard Hughes Medical Institute, Janelia Farm Research Campus, Ashburn, VA. NSF grant # DBI-1127271 <http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=1127271>.

Summer Research Institute (SRI): Research Grant \$4,319

"Classification and Complementary Science" (23 May–20 August 2011)

- Kendig (PI) for the project "Classification and Complementary Science". The project investigates the descriptions, recorded depictions, and classifications of the water flea (now known as *Daphnia*) by the early naturalists Jan Swammerdam and Jacob Christian Schäffer. It integrates historical and philosophical analyses of classification with biological practices in the lab. It does so by taking seriously Hasok Chang's suggestion that philosophy of science can complement specialist science by generating scientific knowledge in the form of critical philosophical scrutiny through the testing of experiments and techniques recovered from the history of science. Two undergraduate students (one biochemistry and one philosophy) participated in the SRI project. This was one of seven competitive faculty SRI research grants that were awarded in 2011. [http://www.acube.org/wp-content/uploads/2017/11/2012\\_2.pdf](http://www.acube.org/wp-content/uploads/2017/11/2012_2.pdf)

Wellcome Trust: Arts Award £15,875

"Unlikely Objects: Products of Superseded Science" (15 March 2010–27 June 2011)

- Kendig (Named collaborator) in the project "Unlikely Objects" (Principal Investigator Thomas Thwaites). The project imagines products from an alternative present, investigating what might have been produced in a counterfactual history of science. The project asks historians, philosophers of science, and scientists themselves to imagine what might have been. These speculative realities are presented through a series of objects exhibited in a public space. [http://www.wellcome.ac.uk/stellent/groups/corporatesite/@msh\\_grants/documents/web\\_document/wtp052970.pdf](http://www.wellcome.ac.uk/stellent/groups/corporatesite/@msh_grants/documents/web_document/wtp052970.pdf)

### **Presentations (peer-reviewed unless indicated otherwise)**

"Growing Knowledge: Epistemic Objects in Agricultural Extension Work" (co-authored with Julia Bursten). The 27<sup>th</sup> Biennial Meeting of the Philosophy of Science Association. Baltimore, Maryland. 11-14 November 2021. <https://psa2020.philsci.org/program-schedule/sponsor-lounge/program/100/participation-in-science>

"Indigenous ecological kinds and kincentric kinding practices". Culture & Ontology: Empirical, Ethical & Political Consequences (workshop organized by Andrew Buskell). Department of History and Philosophy of Science. University of Cambridge, United Kingdom. 2-5 August 2021. (invited)

"Ontology and values anchor indigenous and grey nomenclatures: a case study in lichen naming practices among the Sámi, Sherpa, Scots, and Okanagan". &HPS8: From Unification to Pluralism. International Conference on Integrated History and Philosophy of Science. Virginia Tech, Blacksburg, VA. 15-17 July 2020. Vol. 1 No. 1 (2021): Integrated HPS Conference Proceedings: <https://scholarworks.iu.edu/journals/index.php/ihps/article/view/32695>

"Philosophy of Ethnolichenological Naming Practices". Organized session on Philosophy of Ethnobiology (with Charbel El-Hani, Vitor Renck, David Ludwig, Abigail Nieves Delgado, and Paride Bollettin). 43<sup>rd</sup> Annual Conference of the Society of Ethnobiology, cohosted with the Paiute Tribe of Southern Utah. Utah. 12-14 May 2021. <https://ethnobiology.org/conference/abstracts/42/philosophy-ethnolichenological-naming-practices>

"Philosophy of Agricultural Extension" (co-authored with Julia Bursten). Food Values Research Group's Seminar Series. University of Adelaide. Adelaide, Australia. 23 February 2021. (invited) <https://arts.adelaide.edu.au/humanities/food-values/news/list/2021/01/30/seminar-february-2021> Video recording available at: <https://universityofadelaide.app.box.com/s/f3j508kf0qctud3gn7pp8qfuyvftn46j>

'Ontology as ecology: kind-making in ethnobiology" Department of Science and Technology Studies, University College London Seminar Series. London, United Kingdom. 4 November 2020. <https://www.ucl.ac.uk/sts/sts-events> (invited).

"Growing Knowledge: Epistemic Objects in Agricultural Extension Work" (co-authored with Julia Bursten). Biological Engineering Collaboratory (BEC) Seminars 2020. London School of Economics, London, United Kingdom. 4 September 2020. <https://www.bioengcoll.org/bec-seminars-2020.html> (invited). Video recording available at: <https://youtu.be/5rEfyKEfRes>

"Why you should care about how kinds and parts are made" Philosophy of Biology at the Mountains (POBAMz) University of Utah, Salt Lake City, Utah. 23, 25 & 29 June 2020. <https://sites.google.com/view/pobam2020/home?authuser=0> (invited).

"The Role of Agricultural Extension in the Construction and Communication of Scientific Knowledge" (co-authored with Julia Bursten). Doing Science in a Pluralistic Society. University of Dayton, Dayton, Ohio. 17 and 24 April 2020. <https://udayton.edu/artssciences/academics/philosophy/science-and-values/schedule-of-events.php>

"Philosophy of Ethnobotany: Philosophical investigations on non-Linnaean and indigenous lichen nomenclatures". University Interdisciplinarity Colloquium. East Lansing, Michigan. 28 February 2020. (invited). Video recording available at: <https://c4i.msu.edu/2021/03/29/philosophical-investigations-in-ethnobotany/>

"Kinding kinds and individuating individuals". In the Colloquium: Identity, Individuality and Kinds in Biology (with Anne Pringle, Derek Skillings, and Alfred Tauber). Boston Colloquium for Philosophy of Science. Boston University, Boston, Massachusetts. 15 November 2019. (invited). Video recording available at: <http://www.bu.edu/cphs/colloquium/>

"Messy metaphysics: the individuation of parts in lichenology." Part of the Symposium of the Joint Commission of the International Union of history and Philosophy of Science and Technology: "Messy science" (Chair and organizer, with Jutta Schickore, Jordi Cat, and Bettina Dietz). 16<sup>th</sup> International congress on Logic, Methodology and Philosophy of Science and Technology. Czech Technical University, Prague, Czech Republic. 5-10 August 2019. <http://clmpst2019.flu.cas.cz>

"Informal and formal lichen naming practices". Organized session: Organism naming practices in and out of biology\* (Organized by Sabina Leonelli and Beckett Sterner). Biennial conference of the International Society for History, Philosophy and Social Studies of Biology. Norsk Teknisk Museum and University of Oslo, Norway. 7-12 July 2019. <https://ishpssb2019.tekniskmuseum.no>

Panel discussant. Book workshop on Uljana Feest's forthcoming "Operationism and the Epistemology of Discovery in Psychology" (with Hasok Chang, Philip Haueis, Dana Tulodziecki, David Colaco and Corinne Bloch-Mullins). Institut für Philosophie, Leibniz Universität Hannover. 5-6 July 2019. (invited) <https://www.philos.uni-hannover.de/feest.html?&L=1>

"Sortal thinking in lichenology: An examination of the taxonomic value of provisional identifications." Department of History and Philosophy of Science and Medicine Colloquium Series. Indiana University-Bloomington. Bloomington, Indiana. 21 February 2019 (invited). <https://hpsc.indiana.edu/news-events/colloquium-series/catherine-kendig.html>

"Specificities." Symposium: Causal and Informational Specificity in Biology: Unchallenged Assumptions and Neglected Dimensions (with Janella Baxter, Oli Lean, Alan Love, and María J. Ferreira Ruiz). The 26th Biennial Meeting of the Philosophy of Science Association. Seattle, Washington. 1-4 November 2018. <https://psa2018.philsci.org/en/74-program/program-schedule/program/97/causal-and-informational-specificity-in-biology>

"Normative aspects of part-making and kind-making in synthetic biology." Poster session. The 26th Biennial Meeting of the Philosophy of Science Association. Seattle, Washington. 1-4 November 2018. <https://psa2018.philsci.org/en/user-profile/abstract/public/480/7-normative-aspects-of-part-making-and-kind-making-in-synthetic-biology>

"Ontology engineering in synthetic biology." Varieties of Experiment and Measurement in Technoscience: The Case of Synthetic Biology. Interdisciplinary Workshop and Summer School. Hosted by Technische Universität Darmstadt and CompuGene. Darmstadt, Germany. 3-7 September 2018 (invited). <https://www.philsci.org/images/Flyer.pdf>

"What are we doing when we describe something as being a part in a biological parts repository?" The 7<sup>th</sup> Biennial Conference of the international Society for Philosophy of Science in Practice. University of Ghent. Ghent, Belgium. 29 June-2 July 2018. <http://www.spsp2018.ugent.be/wp-content/uploads/2018/06/SPSP-FinalProgram.pdf>

"Specificities." Symposium: Causal and Informational Specificity in Biological Practice: Unchallenged Assumptions and Neglected Dimensions [Specificity in Biological Practice] (with Janella Baxter, Oli Lean, Alan Love, and María J. Ferreira Ruiz). The 7<sup>th</sup> Biennial Conference of the International Society for Philosophy of Science in Practice. University of Ghent. Ghent, Belgium. 29 June-2 July 2018. <http://www.spsp2018.ugent.be/wp-content/uploads/2018/06/SPSP-FinalProgram.pdf>

"Does the holobiont idea challenge the concept of 'individual'?" Presented as part of the panel: "Holobiont" (with Anne Pringle and David Baum). Unmasking Common Principles Governing the Microbiome. Madison Microbiome Meeting. Hosted by the University of Wisconsin-Madison and Wisconsin Institute for Discovery. Discovery Building, H.F. DeLuca Forum. Madison, Wisconsin. 25-26 April 2018 (invited). <https://uwmadison.app.box.com/s/j372pruz24gchwe4st5q6ieluskq4wh1>

"How do we count holobionts? And why is this (at least in part) a philosophical problem?" BEACON: An NSF Center for the Study of Evolution in Action 2017 Congress. Michigan State University. East Lansing, Michigan. 2-4 August 2017. <https://drive.google.com/file/d/0B1LuKK7wDvSmaTQ3dmRnMOIENDg/view>

"Extended agency and normativity through shared intentionality." Organized Session: Author Meets Critics: Rob Wilson's *The Eugenic Mind Project*." (with Robert A. Wilson, Alan Love, and Judy Johns Schloegel). Biennial conference of the International Society for History, Philosophy and Social Studies of Biology & Associação Brasileira de Filosofia e História da Biologia. Biosciences Institute, University of São Paulo, São Paulo, Brazil. 16-21 July 2017. <http://ishpssb2017.abfnib.org/livros-online/Conference-program-ISHPSSB-2017.pdf>

"Individuation, identity, and sortals in biological taxonomy." Organized Session: The History and Philosophy of Taxonomy as an Information Science (organized by Joeri Witteveen and Staffan Müller-Wille). Biennial conference of the International Society for History, Philosophy and Social Studies of Biology & Associação Brasileira de Filosofia e História da Biologia. Biosciences Institute, University of São Paulo, São Paulo, Brazil. 16-21 July 2017. <http://ishpssb2017.abfnib.org/livros-online/Book-abstracts-ISHPSSB-2017.pdf>

"Naming and tracking parts and wholes in biology." Kolloquium Philosophie und Wissenschaftsreflexion, Institut für Philosophie, Leibniz Universität Hannover, Germany. 27 June 2017 (invited). [https://www.philos.uni-hannover.de/fileadmin/institut\\_fuer\\_philosophie/Kolloquium\\_Vortragsreihe/Kolloquium\\_SoSe2017\\_Flyer\\_200617\\_2.pdf](https://www.philos.uni-hannover.de/fileadmin/institut_fuer_philosophie/Kolloquium_Vortragsreihe/Kolloquium_SoSe2017_Flyer_200617_2.pdf)

"Individuation and identity: towards a practice-based metaphysics for homology". Invited Speaker for the Workshop funded by Templeton Project: "From Biological Practice to Scientific Metaphysics (Grant 50191) and DFG Research Group "Causation and Explanation" (Grant 1063), entitled: "Can Biological Practice Inform Metaphysics?" University of Cologne, Germany. 15-16 June 2017 (invited). <http://biological-practice-to-metaphysics.org/events/workshop-can-biological-practice-inform-metaphysics-cologne-june-15-16-2017>

"How can we homologize holobionts, and whose lineage matters?" Cambridge Philosophy of Science (CamPoS) Seminar series. University of Cambridge, UK. 10 May 2017 (invited). <http://www.hps.cam.ac.uk/news-events/seminars-reading-groups/campos>

"Individuating, comparing, and identifying: how biological practices reconfigure ontological categories." 2016-2017 Visiting Speaker Series. Oakland University, Detroit, MI, USA. 23 March 2017 (invited). [https://oakland.edu/Assets/Oakland/phil/files-and-documents/Series%20Flyer%20\(Winter\).pdf](https://oakland.edu/Assets/Oakland/phil/files-and-documents/Series%20Flyer%20(Winter).pdf)

"Comparing and individuating the same parts: towards a practice-based metaphysics for homology." Lunchtime Colloquium Series. Center for Philosophy of Science, University of Pittsburgh, PA, USA. 24 January 2017 (invited). [http://www.pitt.edu/~pittcntr/Events/All/Lunchtime\\_talks/lunchtime\\_2016-17/abstracts/jan\\_17\\_details.html](http://www.pitt.edu/~pittcntr/Events/All/Lunchtime_talks/lunchtime_2016-17/abstracts/jan_17_details.html)

"Fuzzy Practice: Homologizing Liminal Comparative Parts." 6<sup>th</sup> Biennial Conference of the International Society for Philosophy of Science in Practice (SPSP). Session: Philosophy of Biology: Ontological and Epistemological Issues. Rowan University, Glassboro, NJ, USA. 17-20 June 2016. [http://www.philosophy-science-practice.org/user\\_media/cms\\_page\\_media/21/SPSP2016%20draft%20May%2026.pdf](http://www.philosophy-science-practice.org/user_media/cms_page_media/21/SPSP2016%20draft%20May%2026.pdf)

"Re-engineering Kinds." POBAM (Philosophy of Biology at Madison) Biennial workshop, University of Wisconsin, Madison, WI. 20-21 May 2016. <https://sites.google.com/site/uwpobam/program>

"Ontologizing Practices and Engineering Kinds." Divisional Program. Colloquium: Ontology of Science (Commentator Matthew J. Brown). American Philosophical Association, Pacific Division Meeting, The Westin St. Francis, San Francisco, CA, USA. 30 March-3 April 2016. [http://c.ymcdn.com/sites/www.apaonline.org/resource/resmgr/Pacific2016/P2016\\_Meeting\\_Program\\_web.pdf](http://c.ymcdn.com/sites/www.apaonline.org/resource/resmgr/Pacific2016/P2016_Meeting_Program_web.pdf)

"Homologizing and other kindng practices." Biennial Conference of the International Society for the History, Philosophy, and Social Studies of Biology. Université du Québec à Montréal, Québec, Canada. 5-10 July 2015. [http://ishpssb2015.uqam.ca/upload/files/ishpssb\\_booklet.pdf](http://ishpssb2015.uqam.ca/upload/files/ishpssb_booklet.pdf)

"Homologizing activities: the making and tracking of parts and kinds" Poster presentation. American Philosophical Association, Pacific Division Meeting, The Westin Bayshore, Vancouver, British Columbia, Canada. 1-4 April 2015. [http://c.ymcdn.com/sites/www.apaonline.org/resource/resmgr/Pacific2015/APA\\_P2015\\_Program\\_print.pdf](http://c.ymcdn.com/sites/www.apaonline.org/resource/resmgr/Pacific2015/APA_P2015_Program_print.pdf)

"Knowing by doing: experiential learning approaches to ELSI in synthetic biology, biotechnology, and history and philosophy of science". The Keynote Speaker for the Genomics Leadership Initiative Conference: Teaching the Ethical, Legal, and Social Implications (ELSI) of Genomics and Medicine to College Students: Best Practices. Juniata College, PA, USA. Funded by HHMI. 31 January 2015 (invited). [http://www.juniata.edu/projects/hhmi/documents/10\\_GLI\\_Newsletter.pdf](http://www.juniata.edu/projects/hhmi/documents/10_GLI_Newsletter.pdf)

"Scientifically informed, practice-based discussions of the philosophy and ethics of synthetic biology". Genome Consortium for Active Teaching (GCAT) Synthetic Biology workshop. Invited by the co-PIs A. Malcolm Campbell (Davidson College-biology), Todd Eckdahl (MWSU-biology), Laurie Heyer (Davidson College-mathematics), and Jeff Poet (MWSU-mathematics) to present and contribute as a fifth instructor to provide training to interdisciplinary teams of undergraduate faculty on synthetic biology. The 5<sup>th</sup> Annual GCAT SynBio workshop is funded by HHMI and a grant awarded by the National Science Foundation <http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=1127271> University of Maryland, Baltimore County, Meyerhoff Chemistry Building, Baltimore, MD, USA. 24-27 June 2014.

"Species in four dimensions." (respondent: Winfried Peters, IPFW Biology). PhiloSTEM-6: 6<sup>th</sup> Midwest Conference in Philosophy of Science, Technology, Engineering and Mathematics. Indiana University-Purdue University, Fort Wayne, IN, USA 12 April 2014. <https://philevents.org/event/fileDownload/12065?fileId=765>

"Homology, Redux: Revisiting Pre-Darwinian Debates within Comparative Biology." Linda Hall Library of Science, Engineering, & Technology Fellows Lecture Series. Linda Hall Library, Kansas City, MO, USA. 24 July 2013. Webcast of Public Lecture available at <https://vimeo.com/71171754> and <http://www.lindahall.org/event/homology-redux-revisiting-pre-darwinian-debates-within-comparative-biology/>

"How synthetic biology reconfigures biological understanding and ethical categories." Genome Consortium for Active Teaching (GCAT) Synthetic Biology workshop. Invited by the co-PIs A. Malcolm Campbell (Davidson College-biology), Todd Eckdahl (MWSU-biology), Laurie Heyer (Davidson College-mathematics), and Jeff Poet (MWSU-mathematics) to present and contribute as a fifth instructor to provide training to interdisciplinary teams of undergraduate faculty on synthetic biology. The 4<sup>th</sup> Annual GCAT SynBio workshop is funded by HHMI and a grant awarded by the National Science Foundation <http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=1127271> Howard Hughes Medical Institute, Janelia Farm Research Campus, Ashburn, VA, USA 25-28 June 2013.

"Philosophical investigations of diverse methods in synthetic biology." Genome Consortium for Active Teaching (GCAT) Synthetic Biology workshop. Invited by the co-PIs to present and contribute as a fifth instructor to provide training to interdisciplinary teams of undergraduate faculty on synthetic biology. The 3<sup>rd</sup> Annual GCAT SynBio workshop is funded by HHMI and a grant awarded by the National Science Foundation <http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=1127271> Howard Hughes Medical Institute, Janelia Farm Research Campus, Ashburn, VA, USA 18-22 June 2012.

"Conceiving racial identities as situated and multi-relational." California Roundtable for Philosophy and Race, hosted in 2011 by University of Massachusetts, Boston, MA, USA. 23–24 September 2011. <http://www.caroundtable.webs.com/>

"Classification and complementary science: critical observations of *Daphnia pulex*." Symposium: Investigating practical impacts of descriptive categories (with Emma Tobin and Brendan Clarke). Biennial Conference of the international Society for Philosophy of Science in Practice (SPSP). University of Exeter, UK. 22–24 June 2011. <http://spsp.webfactional.com/media/docs/SPSP2011Book.pdf>

"Investigating philosophical and ethical issues specific to the construction of DNA-based devices and systems in synthetic biology." 2<sup>nd</sup> Annual Genomic Consortium for Active Teaching (GCAT) Synthetic Biology Workshop. International workshop funded by the National Science Foundation (NSF) <http://www.bio.davidson.edu/projects/gcat/gcat.html>, St. Joseph, MO, USA. 16–18 June 2011. (invited)

"Problems of Demarcation: How can we distinguish science from non-science or pseudoscience?" Panel title: "Pseudoscience vs. Science: What's the Difference?" with Jerrold Barnett (Psychology) and Richard Toomey (Chemistry). Hosted by Northwest Missouri State University and the International Honor Society in Philosophy (Phi Sigma Tau), Maryville, MO, USA. 15 April 2011. (invited)

"Ecological Realism and Natural Kinds." Biennial Workshop of the Missouri Philosophers of Science/ St. Louis Area Philosophy of Science Association, University of Missouri, Columbia MO, USA, 11–12 March 2011. <http://philosophy.missouri.edu/activities/mops.html> (invited)

"Origins of an integrated organism-environment conception of species." Integrating Complexity: Environment and History. Conference organized by the Department of Philosophy, Joseph L. Rotman Institute and the International Society for History, Philosophy, and Social Studies of Biology. University of Western Ontario, Canada. 7–10 October 2010. <http://www.iceh.uwo.ca/program.pdf>

"Pluralism in investigative inquiry: lessons from Buffon and Peirce." (With Chiara Ambrosio) 'What is HPS for?' Fifth Annual UK Workshop on Integrated History and Philosophy of Science, (Universities of Cambridge, Durham, Exeter, Leeds, and UCL), ESRC Centre for Genomics in Society, University of Exeter, UK, 28–29 June 2010. <http://www.genomicsnetwork.ac.uk/egenis/events/pastevents/workshops/title,23542,en.html>

"Piecing together biological kinds: an historico-ecological conception of species." Department of Science and Technology Studies 2009–2010 Seminar series, University College London, UK, 26 October 2009. (invited)

"An Organism-centred view of Species: a neo-Buffonian alternative to Mayr's *Biological Species Concept*." Biennial conference of the European Philosophy of Science Association, Vrije Universiteit in Amsterdam, The Netherlands, 21–24 October 2009. [http://www.epsa.ac.at/2009/EPSA09\\_sessions\\_nocrops.pdf](http://www.epsa.ac.at/2009/EPSA09_sessions_nocrops.pdf)

"Organism and Niche Construction." University of Exeter Annual Postgraduate Conference, University of Exeter, Exeter, UK, June 2008.

"Why should microbial taxonomy be interesting to philosophers of biology?" Presented as part of the roundtable: Making Microbes Visible to the Philosophy of Biology (with John Dupré, Carol Cleland, Steve Hughes, Pamela Lyon, Maureen O'Malley). Biennial conference of the International Society for the History, Philosophy and Social Studies of Biology, University of Exeter, UK, August 2007. [http://ishpssb.org/wp-content/uploads/2012/06/ISHPSSB2007Programme\\_000.pdf](http://ishpssb.org/wp-content/uploads/2012/06/ISHPSSB2007Programme_000.pdf)

"The Ontology of Race." Biennial conference of the International Society for the History, Philosophy and Social Studies of Biology, University of Exeter, UK, August 2007. [http://ishpssb.org/wp-content/uploads/2012/06/ISHPSSB2007Programme\\_000.pdf](http://ishpssb.org/wp-content/uploads/2012/06/ISHPSSB2007Programme_000.pdf)

"Are there Natural Kinds (or even Natural Units) in Biology?" ESRC Genomics and Society Seminar series, University of Exeter, UK, November 2006. (invited)

"Reconstruction of the Concept of Homology for Genomics." Pittsburgh-London Colloquium on Philosophy of Biology and Neuroscience, University of London, UK, September 2001. (invited)

"The Explanatory Role of Homology in Comparative Genomics." British Society for Philosophy of Science Annual Conference, University of York, UK. July 2001.

"How Does the Study of Homological Relationships within Comparative Genomics Provide Explanation and Understanding of Genomes?" 12<sup>th</sup> Biennial conference of the International Society for Philosophy and Technology, Nature and Technology, University of Aberdeen, UK. July 2001.

"New Motivation for Species Pluralism." British Society for the Philosophy of Science Annual Conference, University of Sheffield, UK. July 2000.

"Anomalies of Bacterial Taxonomy." 26<sup>th</sup> Annual International Philosophy of Science Conference (in conjunction with the journal *International Studies in the Philosophy of Science*), Inter-University Centre, Dubrovnik, Croatia. 10-15 April 2000.

### **Awards and Honors**

- Finalist. 2019 Interdisciplinary Prize candidate. Biennial Prize for an Organized Session at the International Society for History, Philosophy and Social Studies of Biology. For the session: "Organism naming practices in and out of biology" (with Sabina Leonelli, Beckett Sterner, Staffan Müller-Wille, Rachel Ankeny, Joeri Witteveen, and Robert Montoya). Biennial conference of the International Society for History, Philosophy and Social Studies of Biology. Norsk Teknisk Museum and University of Oslo, Norway. 12 July 2019. <https://ishpssb2019.tekniskmuseum.no>
- 2018 Faculty Research Fellowship. College of Arts and Letters, Michigan State University (\$7000).
- 2017 College Fund for International Travel (CFIT) Award (\$1000). CFIT Cycle III Competition. College of Arts and Letters, Michigan State University.
- 2014 Governor's Award for Excellence in Education from the State of Missouri. One recipient for this state-wide award is selected from each of the 15 state universities in Missouri for each calendar year in recognition of challenging and motivating Missouri students to reach their maximum potential. 2 April 2014.
- 2014 Faculty Compass Award. One of 20 faculty members named by the 2014 inductees of the Missouri Lambda Chapter of Alpha Chi National Honors Society as their most influential professor. 11 November 2014.
- 2013 Faculty Compass Award. One of 29 faculty members named by the 2013 inductees of the Missouri Lambda Chapter of Alpha Chi National Honors Society as their most influential professor. 5 November 2013.
- James V. Mehl Outstanding Faculty Scholarship Award. Award Recipient for 2012. Missouri Western State University Foundation. One recipient for this university-wide award is selected from the faculty each calendar year in recognition of outstanding academic research. 30 April 2013.
- Honorable Mention for The American Philosophical Association (APA) 2012 Article Prize for "Race as a Physiosocial Phenomenon", *History and Philosophy of the Life Sciences* 33:2, 191–222. The

APA 2012 Article Prize was awarded for the best article published in the previous two years (2010 and 2011). <http://www.apaonline.org/general/custom.asp?page=article> September 2012.

- Missouri Western State University Foundation Appreciation Dinner "Discovering Gold in our Students". University event recognizing faculty/student contributions to undergraduate research and scholarship. One faculty member and student researcher selected to represent the Department of History, Philosophy, and Geography. Honor received due to the success of the project "History and Philosophy of Science in Practice" with Joshua Swindler, 10 April 2012, Fulkerson Center.
- Missouri Western State University Research Development Awards
  - College of Liberal Arts & Sciences Faculty Development Award (AY 2015-2016) \$1600
  - MWSU Foundation Faculty Development Award (AY 2014-2015) \$500
  - College of Liberal Arts & Sciences Faculty Development Award (AY 2014-2015) \$800
  - College of Liberal Arts & Sciences Faculty Development Award (AY2013-2014) \$842
  - College of Liberal Arts & Sciences Faculty Development Award (AY2012-2013) \$1000
  - College of Liberal Arts & Sciences Faculty Development Award (AY2011-2012) \$1,829
  - College of Liberal Arts & Sciences Faculty Development Award (AY2010-2011) \$1,300

### **Post-Graduate Certificate in Learning and Teaching in Higher Education (PGCLTHE)**

Associate of the U.K. Higher Education Academy

Awarded: 18 September 2009

The U.K. Higher Education Academy Post-Graduate Certificate in Learning and Teaching in Higher Education is a post-graduate qualification.

### **Major Professional Service**

Elected member of the Nominating Committee (with Julia Bursten and Matt Haber). Philosophy of Science Association Governance. Serving a two-year term from 1 January 2022 - 31 December 2023. [https://philsci.org/news\\_manager.php?page=24045](https://philsci.org/news_manager.php?page=24045)

National Science Foundation (NSF) Panelist. Proposal Review Panel. National Science Foundation Headquarters, Alexandria, VA. Spring 2020, Fall 2020, Fall 2021. <https://www.nsf.gov/events/advisory.jsp>

Organizing Committee, (with S. Leonelli, J. Biddle, A. Love, J. Rouse, J. Bursten, E. Weber, T. Grüne-Yanoff, C. Ambrosio, and M. Lund), International Society for Philosophy of Science in Practice. 8 September 2021-present. <https://www.philosophy-science-practice.org/about/organizing-committee>

Guest Editor, (with Joeri Witteveen) for the Special issue: 'History and Philosophy of Taxonomy as an Information Science.' *History and Philosophy of the Life Sciences*. 11 October 2017-September 2020. [https://link.springer.com/journal/40656/topicalCollection/AC\\_290ad8219f429574da1fb28f09fb98ab/page/1](https://link.springer.com/journal/40656/topicalCollection/AC_290ad8219f429574da1fb28f09fb98ab/page/1)

Co-Chair, Local Organizing Committee (with Kevin Elliott and Sean Valles). International Society for Philosophy of Science in Practice. 8<sup>th</sup> Biennial Conference. Michigan State University. East Lansing, MI. 7-9 July 2021. (Cancelled and converted to Conference Proceedings due to COVID-19). <http://www.philosophy-science-practice.org/events/spsp2020-east-lansing> and <https://www.spsp2020.org>

Program Committee. 5<sup>th</sup> Conference of the Consortium for Socially Relevant Philosophy of/in Science and Engineering (SRPoiSE). Michigan State University. East Lansing, MI. 5-7 July 2021. (Cancelled due to COVID-19). <http://srpoise.org/events-2/>

Program Committee. &HPS8: From Unification to Pluralism. International Conference on Integrated History and Philosophy of Science. Virginia Tech, Blacksburg, VA. 15-17 July 2020. Conference Proceedings available: <https://scholarworks.iu.edu/journals/index.php/ihps/article/view/32695>

Editorial Board, *History and Philosophy of the Life Sciences*. 1 January 2019-1 March 2020. <https://www.springer.com/philosophy/epistemology+and+philosophy+of+science/journal/40656/PSE?detailsPage=editorialBoard>

Member, The Biological Engineering Collaboratory. 3 September 2019- present. <https://www.bioengcoll.org>

Board Representative. Socially Relevant Philosophy of/in Science and Engineering (SRPoISE). 20 March 2019-present. <http://srpoise.org/about/people/>

Elected Committee member, International Committee for Integrated History and Philosophy of Science. <http://integratedhps.org/en/> 1 October 2018-present.

Research Contributor to the Nuffield Council on Bioethics International Report *Genome editing: an ethical review*. Nuffield Council on Bioethics 28 Bedford Square, London WC1B 3JS. Published September 2016. <http://nuffieldbioethics.org/project/genome-editing/ethical-review-published-september-2016>

Consultant, Linda Hall Library of Science, Engineering & Technology, Kansas City, MO. Invited by Tania Munz (VP for Research and Scholarship) to participate in the Library's National Endowment for the Humanities site visit. Reviewed and discussed the Library's residential history of science/ STS research fellowship program. 26 October 2016. <https://www.lindahall.org/fellowships/>

Respondent/commentator for presentation by Carolyn Jennings', "Attention and perceptual organization." PhiloSTEM-6: The 6th Midwest Conference in Philosophy of Science, Technology, Engineering and Mathematics. Indiana University-Purdue University, Fort Wayne, IN. 12 April, 2014. <https://philevents.org/event/fileDownload/12065?fileId=765>

Respondent /commentator for keynote presentation by Hasok Chang, "Philosophy of scientific practice: the challenge of the social". Crossing the Divides: A conference funded by the Wellcome Trust Biomedical Ethics Strategic Award supporting cross-disciplinary national and international networks in Philosophy and Sociology of Science and Bioethics, held at Brunel University, London. 13-14 May 2013.

#### **Referee for journals:**

*Biology & Philosophy*

*British Journal for the Philosophy of Science*

*European Journal for Philosophy of Science*

*History and Philosophy of the Life Sciences*

*International Studies in the Philosophy of Science*

*Philosophers' Imprint*

*Philosophical Review*

*Philosophy of Science*

*Review of Metaphysics*

*Science & Education: Contributions from History, Philosophy, and Sociology of Science and Mathematics*

*Science as Culture*

*Studies in History and Philosophy of Science Part A*

*Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences*

*Synthese*

*Theoria: An International Journal for Theory, History, and Foundations of Science*

#### **Referee for Research Foundations and University Publisher**

Konrad Lorenz Institute, Klosterneuburg, Austria

The Research Foundation - Flanders (Fonds Wetenschappelijk Onderzoek), Belgium

National Science Foundation (Science, Technology, and Society Program Grant Proposals), USA  
Cambridge University Press, Cambridge, UK

### **Broader Impact Activities**

"10-minute Introduction to Philosophy of Agricultural Extension Work". (co-presented with Julia Bursten). Biological Engineering Collaboratory. Published on 29 July 2020. <https://youtu.be/JIu5NZOR3dA>

"5-Minute Fellows: Catherine Kendig" YouTube talk on homology and synthetic biology for the Center for Philosophy of Science, University of Pittsburgh, PA. Published on Mar 27, 2017. <https://www.youtube.com/watch?v=6TBIWATbvzE>

Radio interview 9:30-10:00, July 7, 2014. Interviewed by Barry Birr, 680-KFEQ. Discussion focused on metaphysics of science, my research in classification and biochemistry, 2014 NSF-ROA research project in synthetic biology, and the engaged philosophy of STEM/ research-based approach to teaching and learning I use in my classes. 680-KFEQ, 4104 Country Lane, Saint Joseph, MO. Podcast available at: [http://www.680kfeq.com/play\\_window.php?audioType=Episode&audioId=6222898](http://www.680kfeq.com/play_window.php?audioType=Episode&audioId=6222898)

Webcast of Public Lecture: "Homology, Redux" for the Linda Hall Library of Science, Engineering, & Technology Fellows Lecture Series. Linda Hall Library, Kansas City, MO, USA. 24 July 2013. Available at <https://vimeo.com/71171754> and <http://www.lindahall.org/event/homology-redux-revisiting-pre-darwinian-debates-within-comparative-biology/>

Ethics Consultation Committee, member (invited). Consultation member for Healthcare Treatment Decisions. Jan 2013-2016. Heartland Health Regional Medical Center/ Mosaic Life Care which is part of the Mayo Clinic Care Network.

Genome Consortium for Active Teaching (GCAT) SynBio. Guided synthetic biology research teams from universities around the United States in discussions of the philosophical and ethical issues surrounding synthetic biology, suggested means of integrating discussion of these into their planned curricula for teaching synthetic biology and in individual synthetic biology undergraduate research projects. Invited by the co-PIs A. Malcolm Campbell (Davidson College-biology), Todd Eckdahl (MWSU-biology), Laurie Heyer (Davidson College-mathematics), and Jeff Poet (MWSU-mathematics) to contribute as a fifth instructor to provide training to interdisciplinary teams of undergraduate faculty on synthetic biology. The GCAT SynBio workshops are funded by a grant awarded by the National Science Foundation and <http://www.nsf.gov/awardsearch/showAward.do?AwardNumber=1127271> Howard Hughes Medical Institute, Janelia Farm Research Campus, Ashburn, VA <http://www.bio.davidson.edu/projects/gcat/GCATSynBio.html> Summers 2011, 2012, 2013, 2014. Funded by NSF grant # DBI-1127271.

Genome Consortium for Active Teaching (GCAT) SynBio. Set up a resource wiki portal to facilitate discussion of ethical and philosophical issues relating to specific synbio projects developed through the GCAT network (Davidson College and Missouri Western State University) [http://gcat.davidson.edu/mediawiki-1.15.0/index.php/Main\\_Page](http://gcat.davidson.edu/mediawiki-1.15.0/index.php/Main_Page). June 2013-present.

Synthetic Biology Network Research: MWSU and Davidson College. Engaged biology and mathematics students in weekly discussions of various philosophical and ethical considerations surrounding the synthetic biology research project to optimize a metabolic pathway in E. coli through directed and focused independent research. Summer 2012.

Ethics Committee board member (invited). Heartland Regional Medical Center, St. Joseph, MO. March 2011–2016. Review and amend the hospital's Advance Directive, Health Care Directive, and Durable Power of Attorney for Healthcare policies, procedures, and documentation the policies, procedures and

documentation. Heartland Health serves a 21-county area of northwest Missouri, northeast Kansas and southeast Nebraska. 15 hours/year.

Ethics Policy subcommittee member (invited). Heartland Regional Medical Center, St. Joseph, MO. March 2011–2016. Instrumental in crafting advance directives; durable power of attorney for health decisions; contributed to discussions on end of life issues including DNRs; palliative care initiatives; and the use of mobile technology, video and CCTV monitoring in health care at both the regional and state level. 18 hours/year.

Contributor. "Arctic Visions" exhibition wiki, New Bedford Whaling Museum, 18 Johnny Cake Hill, New Bedford, MA <http://nbwm-digital.wikispaces.com/Away+then+Floats+the+Ice-Island> January 2012–present.

Summer Research Institute (SRI) Poster Presentation "History and Philosophy of Science in Practice", with Joshua Swindler (student researcher), September 14, 2011, Remington Hall, MWSU.

Invited Panelist for the 2011 Interdisciplinary Faculty Book review and campus discussion of Rebecca Skloot's *The Immortal Life of Henrietta Lacks* (2010). Sponsored by the Honors Program and Alpha Chi (National Academic Honor Society). Missouri Western State University, April 27, 2011.

Invited Panelist for "What does it mean to be a woman in America?" Part of the Center of Multicultural Education's social identity series: "What does it mean to be ...". Other segments have focused on what does it mean to be Black, Latino, Native American, LGBT, a man, and International. Missouri Western State University, November 2, 2010.

"Ethical and social implications of genetic testing," Presentation to the Ethics Business Committee, Heartland Regional Medical Center, October 19, 2010, St. Joseph, MO.

Ethics Education subcommittee member (invited), Heartland Regional Medical Center, St. Joseph, MO September 2010–March 2011.

Kendig, Catherine and Marco Liverani (2009) "David Attenborough's Darwin", Genomics Network. Available online at <http://www.genomicsnetwork.ac.uk/egenis/news/comment/title,8194,en.html>

### **University Service**

- Chair, Philosophy Chairperson Review Committee. 2021.
- Academic Specialist Search committee. Department of Philosophy. 2020
- Feminist Bioethics Search committee. Department of Philosophy. 2019-2020.
- Chair, MSU Review panel for grant applications for the Humanities and Arts Research Program (HARP) (invited). 2018-2019. There are 3 research competitions (2 competitions for HARP production grants and 1 competition for HARP Development grants).
- Search committee, Post-doctoral position with the MSU Center for Interdisciplinarity 2018.
- Advisory Board Member, MSU Center for Interdisciplinarity (C4I), Spring 2018-present.
- Committee member, MSU College Curriculum Committee (CCC), Fall 2017.
- MSU Review panel for grant applications for the Humanities and Arts Research Program (HARP) (invited). In 2017-2018, there were 3 research competitions (2 competitions for HARP production grants and 1 competition for HARP Development grants). The panel reviewed a total of 44 grant applications.
- MSU BEACON Center for the Study of Evolution in Action, research grant reviewer. Annual research budget request applications AY2016-2017. AY2018-2019.
- MSWU Program of Research Teaching and Applied Learning (PORTAL) Selection Committee. One of five members of an interdisciplinary committee chosen to review and select faculty project proposals to be awarded university and state research funding of \$3,500. AY2014–2016.

- Honors Faculty Committee (invited), MWSU Honors Program AY2012–2016.
- Honors Curriculum subcommittee (chair), MWSU Honors Program AY2012-2016.
- Assistant Faculty Sponsor (invited), Alpha Chi Honors Society (U.S. National Honor Society for undergraduate juniors and seniors in all academic disciplines). AY2012-2016.
- Faculty Advisor for the Philosophy Society (student elected position). Aided philosophy students in the process of founding a new philosophy society at MWSU, organized a student-led lecture series and reading group. AY2011–2016.
- Honors Executive Committee (invited), MWSU Honors Program. AY2011-2012.
- Program of Research Teaching and Applied Learning (PORTAL) selection committee member. One of six members of an interdisciplinary faculty committee chosen to review and select nine of the 23 submitted faculty research project proposals to be awarded a \$3,500 stipend plus expenses. Stipends funded with a total budget of \$40,000 allocated to PORTAL research. AY2011–2012.
- URSI/SRI Redesign committee. One of eight university faculty members selected to help reshape summer grant funding for faculty and undergraduate research projects. AY2011–2012.
- Moodle Early Adopters Team. One of eleven faculty selected to evaluate the Learning Management System to replace the university's current WebCT. Multiple LMS platforms other than WebCT were tested. Stipend of \$2,000 awarded by Western Institute. AY2011–2012.
- Freshman Honors Committee, AY2010–2011.

### **Department Service**

- Co-Director, Graduate Placement (with Christian Lotz), Department of Philosophy. 2021-2022.
- Advisory board, Socially Engaged Philosophy of Science (SEPOS). 2021-present.
- Elected Chair, Advisory Policy Committee. Department of Philosophy 2020-2021.
- PSA@MSU working group. Developing proposal for hosting Executive Office and Director of Philosophy of Science Association at MSU. (with Kevin Elliott, Michael O'Rourke, Heather Douglas, Ted Richards, Rob Pennock, Sean Valles) 2019-2020.
- Advisory Policy Committee, (elected) Department of Philosophy 2019-2021.
- Promotion, tenure, and reappointment Committee (Junior member). 2018-2019.
- Member. MSU Department of Philosophy, Department Awards Committee 2018-2019.
- Member. Selection Committee, Zerby Prize. Read and ranked submissions for best undergraduate paper. MSU Department of Philosophy, Spring 2018.
- Member. MSU Department of Philosophy, Graduate Committee, Spring 2018.
- Chair, Departmental committee for AY2011–2016, Western Excellence Awards (MWSU).
- Chair, Department of Philosophy & Religion Faculty Performance Review Committee. Fall 2013.
- Departmental liaison for B.S. Philosophy Degree. Appointed as departmental liaison to the faculties of Biology, Chemistry, Computer Science, Mathematics, Physics, Economics, Political Science, and Sociology for the purpose of constructing a specialized B.S. program of study throughout the proposal process. Initial proposal in 2011 was followed by preparation, submission, and eventual approval in 2013. The B.S. Philosophy Degree was voted on and approved by the Missouri Department of Higher Education Coordinating Board for Higher Education (CBHE) on April 4, 2013.
- B.S. Philosophy Degree. Initially proposed the addition of a Bachelor of Science in Philosophy, to be added to those offered by MWSU (CIP 38.0101). Spearheaded effort to design a new specialized research-focused degree, working with fellow philosophy faculty to complete the requisite applications to the State of Missouri.
- Chair, Philosophy Honors Convocation. Department faculty member responsible for planning, organizing, requesting, and securing LAS funds for the Philosophy Honors Convocation. Liaised with students' Philosophy Society to help host the event. May 2012.
- Departmental committee for AY2010–11 Western Excellence Awards (MWSU).
- Second marking and exam board, Department of Science and Technology Studies, UCL, AY2000–2001 and AY2009–2010.
- Interviewer. Interviewed candidates for university undergraduate admissions, Department of Science and Technology Studies, UCL AY2009–2010.

## **Courses Taught**

*At Michigan State University, AY2016-present. Teaching load 2:2*

PHL101 Introduction to Philosophy (1 section every semester)

PHL380 Nature of Science (Autumn or Spring)

PHL480 Philosophy of Science (Autumn or Spring)

PHL 880 Seminar in Philosophy of Science: Natural Kinds, Hybrid Beings, and Homology (Spring 2018)

*At Missouri Western State University, AY2010-2016. Teaching load 4:4*

HON195 Honors Philosophy and Science: a Philosophical Investigation of Scientific Reasoning (Autumn)

PHL230 Ethics: Current ethical issues in science and technology (2 sections every semester)

PHL/BIO/CHE308 History and Philosophy of the Natural Sciences (Spring)

PHL220 Symbolic Logic: Logic and Language (Spring)

PHL/BIO/HON353 Philosophy of Biology (Autumn: odd years)

HUM/BIO/ENG/PSC/PSY314 Technology and Society: Minds, Symbols & Machines (Autumn: even years)

*At University College London, AY2009–2010:*

HPSC3013 The 'New Genetics' and Society

HPSC2006 Ethics and Science

M008 Advanced Philosophy of Science

*At University of Exeter, Spring 2009:*

PHL1002B Knowledge and Reality II

## **Research Supervision**

2009–2010 UCL:

Florence Gaudoin (UCL) HPS-STC MSci: "What can language acquisition reveal about Nativism?" (HPSCM001, Masters in Science thesis)

Stephanie Ratcliffe (UCL) Philosophy MA: "An analysis of Bogen and Woodward's Data to Phenomena distinction" (HPSC3004, Masters thesis)

Victoria Mew (UCL) Anthropology MSc: "How does growing up separate from natural environments affect childhood development?" (ANTH3040, Masters thesis)

2010–2011 MWSU:

Joshua Swindler (MWSU) Philosophy BA: "History and Philosophy of Science in Practice" (PHL450-05, honors research project)

J. Austin Anderson (MWSU) Biochemistry BS: "Early Microscopy of the Dutch Naturalists" (Summer Research Institute project)

2014 MWSU

Sara Vitito (MWSU) Nursing BS: "Ebola: An investigation into epidemiology and ethics" (PHL230-80, honors project)

2015 MWSU

Connor Samenus (MWSU) Finance BS: "Ethical management of structured and unstructured data: what we can learn from Ashley Madison" (PHL230-80, honors project)

2015-2016 MWSU

Edward Miles (MWSU) Philosophy BS/ Biology BS: "What Protein Engineering Can Tell Us About Scientific Realism: A Case For "Interaction Realism" (HON450-80, Honors Capstone Thesis).

Gordon Wells (MWSU) Philosophy BA/Biology BS: "Understanding music and musical identities: co-constructing practices of personal identity" (PHL450-02 Philosophical Anthropology independent study).

Caleb Hazelwood (MWSU) Philosophy BS/ Biology BS: "An Ethical Case for Continued Embryological Gene-Editing Research and Regulations on its Clinical Applications" \*Awarded 1<sup>st</sup> prize for The Institute of Biological Engineering Bioethics Essay Contest for undergraduate and graduate students. April 7-9, 2016 Marriott, Greenville, SC.

2016-2017 MSU

Jessica Richardson (MSU) Philosophy PhD: "Researching Objectivity" (PHL490, Independent study)

### 2018 MSU

Brennan Baudeloque (MSU) Lyman Briggs BS: "AI and human intelligence as a coupled system in surgical robotics" (PHL101, honors project)

Sasha Morgan (MSU) Political Theory & Constitutional Democracy BS: "Kuhn and Marx on capitalism and the political economy" (PHL480, honors project)

Calabria Kalaj (MSU) Human Biology BS: "Objectivity in Medicine" Critique using Helen Longino's and Thomas Cunningham's views for a unified epistemology of medicine (PHL480, honors project)

### 2019 MSU

Elijah Whitman (MSU) Business BS: "The New Technological Revolution" The impact of AI on business. (PHL101, honors project)

Jared T. Hudson (MSU) Biochemistry & Molecular Biology BS: "Philosophical Analysis of Human Cadaver Dissection as it Pertains to Critiques of Hacking's Views on Fundamentals of Experimentation" (PHL380, honors project)

### 2020 MSU

William Griffith (MSU) Neuroscience BS: "Revisiting Paul and Patricia Churchland's "Could a Machine Think?" in light of Thomas Douglas' notion of biomedical enhancement and Sandra Harding's "Strong Objectivity" (PHL101, honors project)

### 2021 MSU

Jack Haas (MSU) Data Science BS: "Data Models and Their Philosophical Connections" (PHL480, honors project)

Jonathon Abdal (MSU) Philosophy PhD: Guidance Committee (with Heather Douglas, Kevin Elliott and Robyn Blum).

### **Professional Affiliations**

American Philosophical Association; European Philosophy of Science Association; British Society for the Philosophy of Science; Philosophy of Science Association; International Committee on Integrated History and Philosophy of Science, International Society for the History, Philosophy, and Social Studies of Biology; Society for Philosophy of Science in Practice; ESRC Genomics Network; U.K. Higher Education Academy; Council on Undergraduate Research, Genome Consortium for Active Learning; California Roundtable on Philosophy and Race; Union of Concerned Scientists; Socially Relevant Philosophy of/in Science and Engineering; The Biological Engineering Collaboratory; Socially Engaged Philosophy of Science Group; Society of Ethnobiology