

Catherine Elizabeth Kendig

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<http://www.philosophy.msu.edu/people/faculty/catherinekendig/>
Email: kendig@msu.edu
Citizenship: U.S.

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

AOC: Philosophy of Science in Practice (especially of Synthetic Biology), Ethics of New and Emerging Technologies, Philosophy of Race

Employment

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

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)

Visiting Research Fellowships/Positions

Visiting Research Fellow, Center for Philosophy of Science
University of Pittsburgh (Spring Term 2017)

Visiting Researcher, Institut für Philosophie
Leibniz Universität Hannover (May-June 2016 and June-July 2017)

Research Fellow, Project: "Homology, redux: Revisiting Richard Owen's analogy/homology distinction"
Linda Hall Library of Science, Engineering & Technology, Kansas City (Summer 2013)

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 and 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

Peer-Reviewed Scholarship

Edited volume (new essays)

Kendig, Catherine (editor) (2016) *Natural Kinds and Classification in Scientific Practice*. Abingdon and New York: Routledge, 1-247. <https://www.routledge.com/products/9781848935402>

Reviewed by Muhammad Ali Khalidi (2017) *British Journal for the Philosophy of Science Review of Books*: <https://bjpsbooks.wordpress.com/2017/07/04/catherine-kendig-natural-kinds-and-classification-in-scientific-practice/>

Articles / Book Chapters/ Essay Reviews

Kendig, Catherine and Bryan Bartley (forthcoming). "Synthetic Kinds: Kind-Making in Synthetic Biology." In Julia Bursten (ed) *Perspectives on Classification in Synthetic Sciences: Unnatural Kinds*. New York: Taylor and Francis.

Kendig, Catherine (forthcoming) "Grounding knowledge and normative valuation on agent-based action and scientific commitment". In Hauke Riesch (ed) *Crossing the Divides*. Dordrecht: Springer.

Kendig, Catherine and Eckdahl, Todd T. (2017) "Reengineering metaphysics: modularity, parthood, and evolvability in metabolic engineering". *Special issue: Ontologies of living beings (eds A.M. Ferner and Thomas Pradeu) Philosophy, Theory, and Practice in Biology* 9(8): 1-21. <http://quod.lib.umich.edu/p/ptb/6959004.0009.008?view=text;rgn=main>

Kendig, Catherine (2016) "Homologizing as kinding". In *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 *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. http://link.springer.com/article/10.1007/s11948-015-9654-0?wt_mc=email.event.1.SEM.ArticleAuthorOnlineFirst

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

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

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%2Fs1191-013-9596-3>

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]

https://www.academia.edu/12491292/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_files_7513_6692_2474_Bioscene_December_2012_FINAL.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 (forthcoming). Review of *Biological Individuality*, Scott Lidgard and Lynn K. Nyhart (eds). *HOPOS: The Journal of the International Society for the History of Philosophy of Science*.

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)

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

"How synthetic biology reconfigures biological and bioethical categories"

- Principal investigator for "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

National Science Foundation Standard Grant: \$269,700

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

- 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 as a fifth instructor to 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 ethics 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)

- Principal Investigator 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.

Wellcome Trust: Arts Award £15,875

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

- 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

Presentations (peer-reviewed unless indicated otherwise)

"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/0B1LuKK7wDvSmaTQ3dmRnM0IENDg/view>

"Extended agency and normativity through shared intentionality." Organized Session: Author Meets Critics: Rob Wilson's *The Eugenic Mind Project*. With Rob 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.abfhib.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.abfhib.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

"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](http://biological-practice-to-metaphysics.org/events/workshop-)

"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

"Fuzzy Practice: Homologizing Liminality Comparative Parts." 6th 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

"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

"Homologizing and other kinding 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

"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

"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

"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 5th 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: 6th 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 4th 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 3rd 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." 2nd 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

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

"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

"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?" 12th 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." 26th 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

- 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.

Professional Service

Chair for the Center for Philosophy of Science Workshop, Scientific Knowledge Under Pluralism session: Matthew Baxendale and P.D. Magnus, Pluralism about natural kinds, University of Pittsburgh, PA, 31 March 2017. http://www.pitt.edu/~pittcntr/Events/All/Conferences/others/other_conf_2016-17/03-31-17_pluralism/pluralism-details.html

Chair for the APA Central Division meeting colloquium session: Jannai Shields, "The Failure of the Ineliminability Argument for Causal Role Functions" Hilton at the Ball Park Hotel, St. Louis, Missouri, 20 February 2015.

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.

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:

Biology & Philosophy

British Journal for the Philosophy of Science

International Studies in the Philosophy of Science

Philosophy of Science

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

Science as Culture

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

Cambridge University Press

National Science Foundation (Science, Technology, and Society Program Grant Proposals)

Public Service Activities

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

Ethics Consultation Committee, member (invited). Consultation member for Healthcare Treatment Decisions. Jan 2013-present. 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. 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–present. 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–present. 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

- MSU College Curriculum Committee (CCC), Fall 2017.
- MSU Review panel for the Humanities Research grant applications for the Humanities and Arts Research Program (HARP) (invited). Reviewing a total of three HARP competitions in 2017-2018.
- MSU BEACON Center for the Study of Evolution in Action, reviewer. Annual research budget request applications AY2016-2017.
- MSU 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

- 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 (Autumn 2016, 2017, Spring 2018)

PHL380 Nature of Science (Autumn 2017)

PHL480 Philosophy of Science (Autumn 2016)

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:

Florence Gaudoin (UCL): "What can language acquisition reveal about Nativism?" (HPSCM001)

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

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

2010–2011:

Joshua Swindler (MWSU) Philosophy: "History and Philosophy of Science in Practice" (PHL450-05)

J. Austin Anderson (MWSU) Biochemistry: "Early Microscopy of the Dutch Naturalists" (SRI)

2014-2015

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

2015-2016

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

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

Gordon Wells (MWSU) "Understanding music and musical identities: co-constructing practices of personal identity" (PHL450-02 Philosophical Anthropology).

Caleb Hazelwood (MWSU) Philosophy/ Biology: "An Ethical Case for Continued Embryological Gene-Editing Research and Regulations on its Clinical Applications" *Awarded 1st prize for The Institute of Biological Engineering 2015-2016 Bioethics Essay Contest for undergraduate and graduate students. April 7-9, 2016 Marriott, Greenville, SC.

2016-2017

Jessica Richardson (MSU-Philosophy PhD): "Researching Objectivity" (PHL490)

Professional Affiliations

American Philosophical Association; European Philosophy of Science Association; British Society for the Philosophy of Science; Philosophy of Science Association; 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