

GUNNAR O. BABCOCK

Dept. of Microbiology
College of Agriculture & Life Sciences
Cornell University, Ithaca, NY

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EDUCATION

University at Albany, SUNY
PhD in Philosophy, 2021
MA in Philosophy, 2017

Sarah Lawrence College
BA in Liberal Arts, 2008

RESEARCH INTERESTS

Areas of Specialization
Philosophy of Science, Philosophy of Biology

Areas of Competency
Life Science Ethics, History and Philosophy of Science, Ancient Philosophy

APPOINTMENTS

Current:

Lecturer
Microbiology Dept., College of Agriculture & Life Sciences, Cornell University (July 2024 - current)

Secondary Appointments

Affiliate, Sage School of Philosophy, Cornell University (October 2024 – current)

Past:

Postdoctoral Associate
Dept. of Biology, Duke University (June 2020 – June 2024)

Lecturer

Cognitive Science Dept., Rensselaer Polytechnic Institute (Aug. 2022 – June 2023)

RESEARCH

Peer-Reviewed Journal Articles:

Levesley, N., McShea, D.W., Babcock, G., (2025). “Directionality and evolving systems”, *Journal of the Royal Society: Interface Focus*, 15(5): 20250018

Boyle, R.A., Moody, R.R., Babcock, G., McShea, D.W., Lenton, T.M., Alvarez-Carretero, S., Donoghue, P., (2025). “Quasi-Darwinian persistence-selection between simulated biogeochemical cycle-variants for their distinct effects on the Earth-system”, *Proceedings of the National Academy of Sciences*, 122(7)

Babcock, G., McShea, D.W., (2024). “Goal directedness and the field concept”, *Philosophy of Science*, 91(5): 1435-1444

McShea, D.W., Babcock, G., (2024). “Four false dichotomies in the study of teleology”, *Ratio*, 37(4): 358-372

Babcock, G., (2023). “Teleology and function in non-living nature”, *Synthese*, 201(4): 112-132

Babcock, G., McShea, D.W., (2023). “Resolving teleology’s false dilemma”, *Biological Journal of the Linnean Society*, 39(4): 415-432

Babcock, G., (2021). “Are Synthetic Genomes Parts of a Genetic Lineage?”, *British Journal for the Philosophy of Science*, 72(4): 995-1011

Babcock, G., McShea, D.W., (2021). “An externalist teleology”, *Synthese*, 199: 8755-8780

Babcock, G., (2020). “Asexual organisms, identity and vertical gene transfer”, *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences*, 81:101265

Peer-Reviewed Book Chapters:

Babcock, G., McShea, D.W., (2024). “Agency as internal control” In Fábregas-Tejeda, A., Baedke, J., Prieto, G.I. & Radick, G. (Eds.), *The Riddle of Organismal Agency: New Historical and Philosophical Reflections*, Routledge.

Book Reviews:

Babcock G., (2022). “Review of *Rethinking Evolution: The Revolution That’s Hiding in Plain Sight*, by Gene Levinson”, *The Quarterly Review of Biology*, 97(1): 52-3

Public Philosophy/Science:

“The fields that direct us” aired on NPR’s *The Academic Minute* (2025).

“Elusive but everywhere” [with Dan McShea], *Aeon Media*, November (2024).
<https://aeon.co/essays/a-new-field-theory-reveals-the-hidden-forces-that-guide-us>

“The split-body problem”, *Aeon Media*, March (2022). <https://aeon.co/essays/we-need-to-stop-thinking-about-sex-when-it-comes-to-reproduction>

In Progress:

“Microbiome, holobionts, and compatibilism” [under review, single author]

“Ends, goals, functions, and teleology” [in preparation, single author]

“Complexity requires more than “just the second law of thermodynamics”” [in preparation, co-author]

“Functional Landscapes” [in preparation, co-author]

Grants and Funding:

\$563,810 Co-Investigator (2025-28, 3-year project)
Grant title: *Does Earth’s habitability for life exist due to or in spite of Darwinian evolution by natural selection?* <https://www.templeton.org/grant/does-earths-habitability-for-life-exist-due-to-or-in-spite-of-darwinian-evolution-by-natural-selection>

\$246,053 Co-Project Leader, Dept. of Biology, Duke University (2.5-year project, 2022-24)
Grant title: *Purpose, Agency, and Field Theory* <https://www.templeton.org/grant/purpose-agency-and-field-theory>

Presentations/commentaries:

“Function and differential persistence” *Workshop on Functional Information and Field Theory*, Carnegie Institution for Science, Washington DC (invited presentation: 2025).

“Complexity and process ontology”, *Complexity, Reduction, and Emergence*, University of Colorado, Boulder, CO (refereed abstract: 2025).

“AI in teaching”, Center for Teaching Innovation, Cornell University (invited presentation: 2025).

External Commentator, *Workshop on Information, Selection, and Evolution (WISE)*, Carnegie Institution for Science, Washington DC (2024).

External Commentator, *Agency, Directionality, and Function: Final Summit Meeting*, University of Minnesota, Minneapolis, MN (2024).

External Commentator, *Horizons for Scientific Progress Workshop*, Atlanta, GA (2024).

“Self-organization or directionality? A critique of the organizational approach” *Philosophy and Biology Shop Talks*, UNC at Greensboro, NC, (refereed abstract: 2024).

“Functions without goals?” *Eighth Annual Conference of the Society for the Metaphysics of Science*, Halifax, NS, Canada (refereed paper: 2023).

Commentator: “Biological Mistake Theory and the Question of Function”, *Eighth Annual Conference of the Society for the Metaphysics of Science*, Halifax, NS, Canada, (2023).

“Reproductive symbiosis?” *Philosophy and Biology Shop Talks*, UNC at Greensboro, NC, (refereed abstract: 2023).

“What do we mean by ‘teleology’?” *Consortium in History and Philosophy of Biology*, Institut d’Histoire et de Philosophie des Sciences et des Techniques, Paris, France, (invited presentation: 2023).

“Agency in teleological systems”, [with Dan McShea] *The Place of the Organism in Biology and Medicine, 10th Ruhr University Bochum Workshop on the History and Philosophy of the Life Sciences*, remote (invited presentation: 2022).

“Beyond mechanisms: a field theoretic approach to explanations in biology, neuroscience, and elsewhere”, presented for the Cognitive Science Dept., Rensselaer Polytechnic Institute, Troy NY, (invited presentation: 2022).

“Field Goals: Three points about how teleology is structured”, [with Daniel McShea] *28th Biannual Meeting of the Philosophy of Science Association*, Pittsburgh, Pennsylvania, (refereed paper: 2022).

“New developments in the field theoretic approach to teleology”, *The Evolution of Complexity Conference*, The Milner Centre for Evolution, University of Bath, Bath, England, (invited presentation: 2022).

“Notions of ecosystem health”, presented for the Dept. of Science, Technology and Society, South Dakota School of Mines, Rapid City, SD, (invited presentation: 2022).

“Fission and genetic lineage pluralism”, *27th Biannual Meeting of the Philosophy of Science Association*, Baltimore, Maryland, (refereed paper: 2021).

“Species’ temporal parts”, *Sixth Annual Conference of the Society for the Metaphysics of Science*, remote conference, (refereed paper: 2021).

“An externalist teleology” [with Daniel McShea], *Linnean Society of London*, “*Evolution ‘On Purpose’: Teleonomy in Living Systems*”, remote conference, (invited presentation: 2021).

“Can you own a species?”, Bentley University, Waltham, MA., (invited presentation: 2020).

“Individuality and Binary Fission”, *What is an Individual Organism?*, Jagiellonian University, Krakow, Poland, (refereed abstract: 2019).

“Asexual Organisms, Identity and Vertical Gene Transfer”, University at Albany, Albany, NY, (refereed paper: 2019).

“Environmental Engineering: Value in Art & Nature” Hartwick College, Oneonta, NY, (invited presentation: 2018)

“Pacifism, Morality, and Martial Arts” presented for the University at Albany chapter of Minorities and Philosophy, Albany, NY, (invited presentation: 2018).

“Synthetic Yeast & Historical Lineages”, *University of Calgary Graduate Philosophy Conference*, University of Calgary, Calgary, AB, Canada, (refereed paper: 2018).

“Discordance in the Species Category”, *Species in the Age of Discordance* at University of Utah, Salt Lake City, Utah, (refereed poster: 2017).

“Environmental Engineering and Human Intentionality”, *First Annual Bovay Workshop on Engineering and Applied Ethics*, Texas A&M, College Station, TX., (refereed paper: 2016).

Awards:

University at Albany Philosophy Graduate Essay Award (2019).

Recipient of *Zimmerman Prize for Excellence in Philosophical Work*, Sarah Lawrence College (2008).

PROFESSIONAL SERVICE

Journal Editor:

Guest Editor for the *Proceedings of the National Academy of Sciences* (2025-6).

Journal/Book Referee:

2026: *The Journal of Theoretical Biology*; *Foundations for Interdisciplinarity in the Life Sciences*, Springer Book series; *BioScience*; *Studies in the History and Philosophy of Science*

2025: *Studies in the History and Philosophy of Science*; *Humanities and Social Sciences Communications*; *Journal of the Royal Society Interface Focus*; *Foundations of Science*

2024: *Frontiers in Bioengineering and Biotechnology*; *British Journal for the Philosophy of Science*; *Biological Theory*; *Philosophical Quarterly*; *Erkenntnis*; *Journal for General Philosophy of Science*; *Discover Life*
2023: *Theoria*; *Organon F*; *Philosophy, Theory, and Practice in Biology*
2022: *Synthese*; *Acta Biotheoretica*; *Biological Journal of the Linnean Society*; *BioSystems*
2021: *Evolutionary Biology*

Grant Referee:

John Templeton Foundation (2024).

Organizational Service:

Member of the Cornell Responsible Conduct of Research Committee (2025-current).
Judge: 22nd Annual Eastern Section Junior Science and Humanities Symposium, (2023).
Vice President of University at Albany Philosophical Assn. (2017-8, 2018-9).
Graduate Student Representative for University at Albany Philosophical Assn. (2017-8, 2018-9).
Minorities and Philosophy Club presentations/meetings (2013-2017).
Grant Reviewer, SUNY Graduate Student Association (2016-7).
Review Coordinator, Albany Graduate Student Conference (2016-7).

Conference Organizer:

Primary Organizer: “On Purpose Conference”, Duke University, Durham, NC, (2024).
Organizer: “Philosophy of Biology” 13th Annual University at Albany Graduate Conference, Albany, NY, (2021).

TEACHING EXPERIENCE

Cornell University

Ethics in Life Sciences (Spring/Fall 2025, Spring 2026)

Duke University

Life’s Purpose [cross-registered in biology, part of “transformative ideas” program] (Fall 2024)
Life’s Purpose [graduate/undergraduate seminar course, cross-registered in biology] (Fall 2023)
Independent Study/Senior thesis, “Mistakes in biology” (Fall 2023, Spring 2024)

Rensselaer Polytechnic Institute

Philosophy of Biology (Fall 2022, Spring 2023)
Moral Dilemmas [two sections] (Spring 2023)
Great Ideas in Philosophy [two sections] (Fall 2022)
Independent Study, “Teleology and entropy” (Fall 2022)

Bard Early College, Hudson Valley

First Year Seminar, “The Examined Life” (Spring/Fall 2021)

Bard College at Simon's Rock

- Philosophical Problems (Fall 2021)
- First Year Seminar, "The Examined Life" (Fall 2021)
- Writing and Thinking Workshop (Summer 2021)

Hartwick College

- Plato on Eros, Poetry, and Philosophy [upper division] (Spring 2019, Spring 2020)
- Propaganda and Democracy [cross-registered as political science course] (Fall 2020)
- Puzzles & Paradoxes: Philosophy and Science Fiction (Fall 2019)
- Just the Facts!: Experimental Philosophy [cross-registered as psychology course] (Fall 2019)
- Environmental Ethics (Spring 2019)
- Happiness (Fall 2018, Spring 2020, Fall 2020)
- Bioethics (Fall 2018)

Marist College

- Philosophical Perspectives [two sections] (Fall 2019)

University at Albany, State University of New York

- Moral Dilemmas (Spring 2018)
- Philosophical Problems (Fall 2017)

Matanuska-Susitna College, University of Alaska

- Introduction to Logic (Fall/Spring 2011-2)
- Introduction to Philosophy (Spring/Fall 2012)

PROFESSIONAL MEMBERSHIPS

- Philosophy of Science Association, 2020 - present
- Society for the Metaphysics of Science, 2021 – present

REFERENCES

P.D. Magnus
Professor of Philosophy
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Daniel McShea
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Duke University
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