

Matthew J. Maxwell

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AOS

Philosophy of Science (biology, historical sciences)

AOC

Philosophy of Artificial Intelligence, Bioethics, Epistemology (Social and Formal), Logic

Education

Ph.D. Philosophy 2027 (expected)

University of Wisconsin-Madison

University of Rochester (no degree taken) 2018–2020

M.A., Philosophy 2018

Simon Fraser University

B.A., Philosophy 2015

Iowa State University

Dissertation

Philosophical Aspects of Genetic Load (Expected defense date: May 2027)

Committee: Elliott Sober (co-chair), Aja Watkins (co-chair), Hayley Clatterbuck, Clinto Castro

Publications

"Comparing the strengths of two causes of an effect — zeroing-out, adding-in, and the need for baselines"

Synthese, Forthcoming <https://doi.org/10.1007/s11229-025-05435-3> (with Elliott Sober)

"Fitness, Mutational Load, and Eugenics"

Philosophy of Science, 2025 <https://doi.org/10.1017/psa.2025.10137>

"Gradualism, Natural Selection, and the Randomness of Mutation — Fisher, Kimura, and Orr, Connecting the Dots"

Biology & Philosophy, 2023 <https://doi.org/10.1007/s10539-023-09904-2> (with Elliott Sober)

Under Review

"When Does Drift Dominate Selection? A Zeroing-Out Criterion"

Journal name omitted. (with Elliott Sober)

When selection and drift both causally influence an allele's fixation in a population, which cause had the greater influence? We develop a zeroing-out criterion, according to which you can determine which had a stronger influence by comparing the probabilities of fixation under a selection-only and drift-only condition.

In Progress

"Is Population Structure Arbitrary? STRUCTURE-Like Algorithms and the Search for Disease-Linked Loci." Draft available upon request.

The algorithms STRUCTURE and ADMIXTURE are commonly used to discover population structure, but have been severely criticized. In this paper I argue that for the purpose of finding disease-linked loci, these algorithms do not face the same concerns that they do for other purposes.

"Measuring Fitness: Generality and Other Desiderata." Draft available on request

I argue that there are four desiderata for an account of fitness—generality, ubiquity, uniqueness, and realism. It is not, however, possible to satisfy all four of these desiderata together, thus theorists of fitness must make a choice.

"Fishing for Evidence: Distinguishing Evidence from Observation in Observation Selection Effects." Draft available upon request

Discussions of observation selection effects have ignored the distinction between observation and evidence. Evidence for a hypothesis, I argue, is distinct from the observation of that evidence. Unobservability of evidence does not entail that the evidence does not obtain. What is required for an OSE is that evidence is guaranteed, not that counter-evidence is unobservable.

"What Kind of Law is the Zero-Force Evolutionary Law: Lessons from the Genetic Load Research Program." In preparation.

I argue that Brandon and McShea's (2010) Zero-Force Evolutionary Law is in conflict with the genetic load research program and that this would have hindered advances in genetics, including Kimura's neutral theory, had the ZFEL gestalt shift been taken seriously.

"Precision in the Art of Navigation: a study of significant figures in Norie's *Epitome of Practical Navigation*." Draft available on request

I use the John W. Norie's 1805 *A New and Complete Epitome of Navigation* to as a case study of significant figures. Significant figures, or significant digits, are not conventional rules for rounding, a statistical concept, or a measure of error. Rather they are a report of the level of resolution of the measurement procedure and play a distinctive role in the measurement, calculation, and reporting of measured values. As such they instantiate Grice's conversational maxims of quantity and quality.

Book Reviews

- Veigl and Currie (eds), *Methods in the philosophy of science: a user's guide* (2026)
Metascience, 2026 <https://doi.org/10.1007/s11016-026-01146-8> with Aja Watkins and Andrew Zeppa
- Noah A. Rosenberg, *Mathematical Properties of Population-Genetic Statistics: Quadratic Forms Most Beautiful* (2025)
Acta Biotheoretica, 2026 <https://doi.org/10.1007/s10441-026-09517-8>

Professional Presentations

- "Is Population Structure Arbitrary? STRUCTURE-Like Algorithms and the Search for Disease-Linked Loci"
Society for Philosophy of Science in Practice, University of Cambridge July 2026
- "Must Population Structure be Arbitrary?"
Philosophy and Biology Shop Talks, Westfield, North Carolina June 2026
- "What Kind of Law Is the Zero-Force Evolutionary Law? Lessons From the Genetic Load Research Project"
International Society for the History, Philosophy and Social Studies of Biology, Porto, Portugal July 2025
- "Measuring Fitness: Generality and Other Desiderata"
Canadian Society for the History and Philosophy of Science, Toronto May 2025
- "Fitness, Mutational Load, and Eugenics"
Philosophy of Science Association, New Orleans November 2024
- "The Evidential Significance of Model Disagreement"
Society for Philosophy of Science in Practice, University of South Carolina May 2024
- "The Evidential Significance of Model Disagreement"
Unity & Disunity in Science, University of Notre Dame (poster) April 2024
- "Prospects for a counterfactual account of junk DNA"
International Society for the History Philosophy and Social Studies of Biology Biennial Meeting, University of Toronto July 2023
- "Precision in the Art of Navigation: a study of significant figures in Norie's *Epitome of Practical Navigation*"
Canadian Society for the History and Philosophy of Science, Toronto May 2023
- "The Evidence-Observation Distinction in Observation Selection Effects"
Philosophy of Science Association, Baltimore November 2021
- "Gradualism, Mutation, and Natural Selection—Darwin, Fisher, and Kimura"

International Society for the History, Philosophy and Social Studies of Biology, Cold Spring Harbor Laboratory, with Elliott Sober
July 2021

"Bayesian Sensitivity and the Law"

Western Canadian Philosophical Association, University of Lethbridge October 2019

"Ockham, Miracles, and Causal Regularity"

Johns Hopkins University Philosophy Graduate Student Conference, Johns Hopkins University
October 2019

"Bridging Accuracy and Epistemic Merit"

Pitt-CMU Graduate Student Philosophy Conference, Carnegie Mellon University
March 2019

"Smart Shopping for Inductive Methods"

Western Canadian Philosophical Association, University of Alberta October 2016

"Blocking the Path of Inquiry: Fine and Peirce on Acceptance"

Science and Values in Peirce and Dewey, University of Waterloo April 2016

Honors and Awards

Marcus G. and Blanche L. Singer Graduate Fellowship 2026

Awarded to a dissertator who expect to complete their dissertation the following year.

Mary B. Hesse Graduate Student Essay Award, Honorable Mention 2024

Runner-up for the best single-authored paper submitted by a graduate student as a contributed paper for the *Philosophy of Science Association* conference.

William H. Hay Summer Fellowship 2024

For excellence in a summer research project.

University of Wisconsin Residence Hall Honored Instructor 2024

Nominations are made by residents to honor instructors who have impacted them positively.

University of Rochester Outstanding Essay Award 2019

Awarded for the best essay written by a graduate student in philosophy.

Simon Fraser University Philosophy Graduate Research Paper Award 2016

Awarded for the best essay written by a graduate student in philosophy.

Teaching

Full Responsibility

Introductory AI & Data Ethics (UW - Madison)

Contemporary moral issues in AI and data ethics, including technical concepts, privacy, automation, and algorithms in medicine and law.

Introduction to Philosophy (×3 UW - Madison)

Introduction to classic and contemporary debates in philosophy, including metaphysics, epistemology, political philosophy, and ethics.

Ethics in Business (UW - Madison)

Contemporary moral issues in the workplace, including workplace governance, exploitation, whistle-blowing, and the future of work.

Introductory Ethics (UW - Madison)

Introduction to ethical theory, including major ethical theories, reasons to be moral, and moral luck.

Philosophy and the Sciences (UW - Madison)

Introduction to philosophy of science, including the scientific method, the problem of induction, the demarcation problem, and the value-free ideal.

Contemporary Moral Issues (UW - Madison)

Contemporary moral issues including charity and altruism, the duty to obey the law, democracy, AI, and oppression.

Teaching Assistant

Contemporary Moral Issues (UW - Madison)

Introduction to Philosophy (×2 UW - Madison)

Ethics in Business (UW - Madison)

Environmental Justice (University of Rochester)

Moral Problems (University of Rochester)

Philosophy of Artificial Intelligence (University of Rochester)

Philosophy of Science (Simon Fraser University)

Knowledge and Reality (×5 Simon Fraser University)

Moral Problems (×2 Simon Fraser University)

Research Assistantship

Project Assistant to Clinton Castro (UW)

Assisted Dr. Castro in developing an AI Ethics graduate seminar and assisted in his research on ethical issues regarding AI and children and liberal arguments for public libraries by finding and reviewing relevant academic literature.

Project Assistant to Elliott Sober (UW)

Assisted Dr. Sober in proofreading *The Philosophy of Evolutionary Theory* (Cambridge University Press, 2024), ensuring accuracy and clarity prior to publication, and assisted his research on gradualism in evolution and mathematical population genetics by finding and reviewing relevant academic literature.

Philosophy of Science Experiential Learning Program (SFU)

Assisted in developing a program to involve undergraduate students at Simon Fraser University in hands-on programming in the philosophy of science.

Solid Pathways Initiative with Sam Black (SFU)

Assisted in developing a critical thinking curriculum for Indigenous high school students in British Columbia by reviewing relevant classroom materials and exercises.

Service

Evolution Seminar Series Co-Chair 2025–present

Organized and hosted weekly seminars, including inviting speakers, organizing dinners, and handling AV gear for the J. F. Crow Institute for the Study of Evolution (Wisconsin Evolution).

Wisconsin Evolution Coordination Committee 2025–present

Helped to govern the J. F. Crow Institute for the Study of Evolution (Wisconsin Evolution), including meetings to organize budgets, speakers, journal clubs, and outreach activities.

Philosophy of Biology at Madison (PoBaM) 2026

Assisted Aja Watkins, Marina DiMarco, and Matt Haber in organizing and running the PoBaM conference.

Journal Referee 2026

Biology & Philosophy

New TA Training Facilitator 2024–2025

Facilitated the New TA Training Workshop for the University of Wisconsin - Madison Philosophy Department.

UW-Madison GAP - Director of Professional Service 2022–2023

Oversaw Graduate Association of Philosophy funds, yearly elections, ensured compliance

with bylaws, attended department meetings, acted as the voice of graduate students to faculty, and reported back to constituents. In addition I oversaw the creation of a diversity and inclusion office.

SFU Graduate Student Society - Philosophy Caucus Representative 2015–2018

Oversaw budgetary and other matters of the Society and represented Philosophy grad students to the organization.

SFU Philosophy Teaching Assistant Handbook Co-Author 2018

Assisted in writing the SFU Philosophy Department's TA handbook, including chapters on the first day in the classroom and TAing philosophy of science.

SFU GRE Study Group Facilitator 2017

Organized and led workshops for philosophy students studying for the GRE.

FASS Forward Pilot Program 2017

Provided assistance to at-risk students through one-on-one meetings and mentoring in their first term at Simon Fraser University.

References

Available upon request.