Philosophy of Science Reading List

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This is James Read's reading list for the Finals paper on Philosophy of Science.

If you have any questions, comments, or suggestions, please email me at the above address.

Vacation Reading

Over the vacation, please read:

1. Bas C. van Fraassen, *The Scientific Image*, Oxford: Clarendon Press, 1980.
2. Thomas Kuhn, *The Structure of Scientific Revolutions*, third edition, Chicago: University of Chicago Press, 1996.

You might want to look also at the following general introductions to the Philosophy of Science:

1. Peter Godfrey-Smith, *Theory and Reality*, Chicago: University of Chicago Press, 2003.
2. James Ladyman, *Understanding Philosophy of Science*, London: Routledge, 2002.
3. Alan Chalmers, *What Is This Thing Called Science?*, 4th Edition, Open University Press, 2013.

1 Paradoxes of Theory Confirmation

What is the relation of the paradox of the ravens to Goodman's new riddle of induction? Ought they to be solved in the same way?

Goodman's paradox

1. Nelson Goodman, *Fact, Fiction, and Forecast*, Cambridge, MA: Harvard University Press, 1979. **Ch. 3**.
2. Richard G. Swinburne, "Grue", Analysis 28(4), pp. 123-8, 1968.
3. Frank Jackson, "Grue", Journal of Philosophy 72(5), pp. 113-131, 1975.
4. W. V. Quine, "Natural Kinds", in N. Rescher (ed.), *Essays in Honor of Carl G. Hempel*, pp. 1-23, Dordrecht, 1970.

The ravens paradox

1. Carl G. Hempel, "Studies in the Logic of Confirmation I", Mind 54(13), pp. 1-26, 1945.
2. Branden Fitelson and James Hawthorne, "How Bayesian Confirmation Theory Handles the Paradox of the Ravens", in E. Eells and J. H. Fetzer (eds.), *The Place of Probability in Science*, Boston Studies in the Philosophy of Science 284, pp. 247-275, 2010.

Further reading

1. Simon Blackburn, *Reason and Prediction*, Cambridge: Cambridge University Press, 1973. **Ch. 4**.
2. Richard G. Swinburne, "The Paradoxes of Confirmation: A Survey", American Philosophical Quarterly 8(4), pp. 318-330, 1971.

2 Laws of Nature

What is a law of nature?

Core reading

1. John W. Carroll, "Laws of Nature", in *The Stanford Encyclopedia of Philosophy*, 2016.
2. Bas van Fraassen, *Laws and Symmetry*, Oxford: Oxford University Press, 1989. **Chs. 2, 3, 5 (§§1-3)**.
3. D. M. Armstrong, *What is a Law of Nature?*, Cambridge: Cambridge University Press, 1983. **Ch. 6**.
4. Tim Maudlin, "A Modest Proposal Concerning Laws, Counterfactuals, and Explanations", **ch. 1** of *The Metaphysics Within Physics*, Oxford: Oxford University Press, 2007.

Further reading

1. Bas van Fraassen, *Laws and Symmetry*, Oxford: Oxford University Press, 1989. **Ch. 8**.
2. Tim Maudlin, "Why Be Humean?", **ch. 2** of *The Metaphysics Within Physics*, Oxford: Oxford University Press, 2007.
3. Jonathan Cohen and Craig Callender, "A Better Best System Account of Lawhood", Philosophical Studies 145, pp. 1-34, 2009.
4. David Lewis, "Humean Supervenience Debugged", Mind 103(412), pp. 473-490, 1994.
5. David Lewis, "New Work for a Theory of Universals", Journal of Philosophy 61, pp. 343-377, 1983.
6. Fred Dretske, "Laws of Nature", Philosophy of Science 44, pp. 248-68, 1977.
7. Nancy Cartwright, "Fundamentalism vs. the Patchwork of Laws", Proceedings of the Aristotelian Society 94, pp. 279-292, 1994.

3 Objective Probabilities

What are objective probabilities?

Core reading

1. Antony Eagle (ed.), *Philosophy of Probability: Contemporary Readings*, London: Routledge, 2010. **Chs. 21 and 26.**
2. Alan Hájek, "Interpretations of Probability", *The Stanford Encyclopedia of Philosophy*, 2011.
3. Carl Hoefer, "The Third Way on Objective Probability: A Sceptic's Guide to Objective Chance", Mind 116(463), pp. 549-596, 2007.

Frequentism

1. Richard von Mises, *Probability, Statistics and Truth*. New York: Dover, 1957. **Pp. 8-29 and 81-103.** (Reprinted in Eagle 2010: ch. 22.)
2. Alan Hájek, "'Mises Redux'-Redux: Fifteen Arguments Against Finite Frequentism", Erkenntnis 45, pp. 209-227, 1997. (Reprinted in Eagle 2010: ch. 24.)

Propensity theories

1. Karl Popper, "A Propensity Interpretation of Probability", British Journal for the Philosophy of Science 10, pp. 25-42, 1959. (Reprinted in Eagle 2010: ch. 28.)
2. Paul W. Humphreys, "Why Propensities Cannot be Probabilities", Philosophical Review 94, pp. 557-70, 1985. (Reprinted in Eagle 2010: ch. 30.)
3. Donald Gillies, "Varieties of Propensity", British Journal for the Philosophy of Science 51, pp. 807-35, 2000.
4. Antony Eagle, "Twenty-One Arguments Against Propensity Analyses of Probability", Erkenntnis 60, pp. 371-416, 2004.

Lewis papers

1. David Lewis, "A Subjectivist's Guide to Objective Chance", in *Philosophical Papers vol. 2*, Oxford: Oxford University Press, 1980. (Reprinted in Eagle 2010: ch. 27.)
2. David Lewis, "Humean Supervenience Debugged", Mind 103(412), pp. 473-490, 1994.

Further reading

1. David Wallace, *The Emergent Multiverse*, Oxford: Oxford University Press, 2012. **Ch. 4.**
2. Simon Saunders, "What is Probability?", in A. Elitzur, S. Dolev and N. Kolenda (eds.), *Quo Vadis Quantum Mechanics?*, New York: Springer, 2005.
3. Barry Loewer, "David Lewis' Humean Theory of Objective Chance", Philosophy of Science 71, pp. 1115-1125, 2004. (Reprinted in Eagle 2010: ch. 31.)
4. Carl Hoefer, *Chance in the World*, Oxford: Oxford University Press, 2019.
5. D. H. Mellor, *The Matter of Chance*, Cambridge: Cambridge University Press, 1971.

4 Falsificationism

Does falsificationism provide a convincing demarcation criterion between science and non-science?

Core reading

1. Alan Chalmers, *What Is This Thing Called Science?*, fourth edition, London: Hackett, 2013. **Chs. 5-7**.
2. Peter Godfrey-Smith, *Theory and Reality: An Introduction to the Philosophy of Science*, Chicago, IL: Chicago University Press, 2003. **Ch. 4**.
3. Karl Popper, *Conjectures and Refutations: The Growth of Scientific Knowledge*, New York, NY: Basic Books, 1962. **Chs. 1 and 11**.
4. Imre Lakatos, "Falsification and the Methodology of Scientific Research Programmes", in I. Lakatos and A. Musgrave (eds.), *Criticism and the Growth of Knowledge*, Cambridge: Cambridge University Press, 1970.

Further reading

1. Karl Popper, *The Logic of Scientific Discovery* London: Routledge, 1959. **Chs. 1-6**.
2. S. O. Hansson, "Falsificationism Falsified", Foundations of Science 11, 2006. **Pp. 275-286**.
3. Larry Laudan, "The Demise of the Demarcation Problem", in R. S. Cohan and L. Laudan (eds.), *Physics, Philosophy, and Psychoanalysis*, Dordrecht: Reidel, 1983. **Pp. 111-127**.
4. William H. Newton-Smith, *The Rationality of Science*, London: Routledge, 1981. **Chs. III-IV**.
5. Imre Lakatos, "History of Science and its Rational Reconstructions", PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association, vol. 1970, pp. 91-136, 1970.

5 Kuhn's Picture of Scientific Practice

What is Kuhn's picture of scientific practice—and in particular of theory change? Should one be worried by the (alleged) incommensurability of scientific theories?

The Text

1. Thomas Kuhn, *The Structure of Scientific Revolutions*, third edition, Chicago: University of Chicago Press, 1996.

Background

1. Peter Godfrey-Smith, *Theory and Reality*, Chicago: University of Chicago Press, 2003. **Chs. 5-6**.
2. James Ladyman, *Understanding Philosophy of Science*, London: Routledge, 2002. **Ch. 4**.

Incommensurability

1. Hilary Putnam, *Mind, Language and Reality: Philosophical Papers, Volume 2*, Cambridge: Cambridge University Press, 1975. **Ch. 12**. ("The Meaning of Meaning".)
2. Arthur Fine, "How to Compare Theories: Reference and Change," Noûs, pp. 17-32, 1975.
3. Ian Hacking, *Representing and Intervening: Introductory Topics in the Philosophy of Natural Science*, Cambridge: Cambridge University Press, 1983. **Ch. 5-6**.

Further reading

1. Michael Friedman, *Dynamics of Reason*, Stanford, CA: CNLI, 2001.
2. Vasso P. Kindi, "Kuhn's *The Structure of Scientific Revolutions* Revisited", Journal for General Philosophy of Science 26, pp. 75-92, 1995.
3. Dudley Shapere, "Meaning and Scientific Change", in I. Hacking (ed.), *Scientific Revolutions*, Oxford: Oxford University Press, pp. 28-59, 1981.
4. Donald Davidson, "On the Very Idea of a Conceptual Scheme", Proceedings and Addresses of the American Philosophical Association 47, pp. 5-20, 1973.
5. Hartry Field, "Theory Change and the Indeterminacy of Reference", Journal of Philosophy 70(14), pp. 462-481, 1973.
6. Imre Lakatos, "Falsification and the Methodology of Scientific Research Programmes", **ch. 1** of *The Methodology of Scientific Research Programmes*, Cambridge: Cambridge University Press, 1978.

6 Feyerabend's Epistemological Anarchism

Is Feyerabend's epistemological anarchism cogent? Is it plausible?

The text

1. Paul Feyerabend, *Against Method*, 3rd edition, Verso, 1993.

Core reading

1. Alan Chalmers, *What Is This Thing Called Science?*, 4th Edition, Open University Press, 2013. **Chs. 10-11.**
2. Peter Godfrey-Smith, *Theory and Reality*, Chicago, IL: University of Chicago Press, 2003. **Ch. 7.**
3. Rom Harré, "For Method: A Response to Feyerabend", New Ideas in Psychology 3, pp. 13-17, 1985.
4. Hilary Putnam, "Two Conceptions of Rationality", in *Reason, Truth and History*, Cambridge: Cambridge University Press, 1981. **Ch. 5.**
5. Paul Feyerabend, "Putnam on Incommensurability", British Journal for the Philosophy of Science 38, pp. 75-81, 1987.

Further reading

1. Ronald N. Giere, "Feyerabend's Perspectivism", Studies in History and Philosophy of Science 57, pp. 137-141, 2016.
2. Paul Feyerabend, *Problems of Empiricism: Philosophical Papers, Vol. 2*, Cambridge: Cambridge University Press, 1981. **Ch. 1.**
3. Larry Laudan, "For Method: Or, Against Feyerabend", Boston Studies in the Philosophy of Science 116, pp. 299-317, 1989.
4. John Worrall, "Against Too Much Method (Review of Against Method by P. K. Feyerabend)", Erkenntnis 13, pp. 279-295, 1978.
5. William H. Newton-Smith, *The Rationality of Science*, London: Routledge, 2002. **Ch. 6.**

7 Bayesianism

Explain the Bayesian view of how evidence supports a scientific theory. Is the view viable?

Core reading

1. Antony Eagle (ed.), *Philosophy of Probability: Contemporary Readings*, London: Routledge, 2010. **Pp. 1-24, 27-47, 209-21**.
2. Peter Godfrey-Smith, *Theory and Reality*, Chicago: University of Chicago Press, 2003. **Chs. 3-4, 14**.
3. Colin Howson and Peter Urbach, *Scientific Reasoning: The Bayesian Approach* Chicago, IL: Open Court, 1993. **Ch. 7**.
4. Clark Glymour, "Why I am Not a Bayesian", in *Theory and Evidence*, Princeton: Princeton University Press, 1980.

Further reading

1. Alan Chalmers, *What is This Thing Called Science?*, 4th edition, Open University Press, 2013. **Ch. 12**.
2. William Talbott, "Bayesian Epistemology", in E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*, 2008.
3. Paul Horwich, "Wittgensteinian Bayesianism", Midwest Studies in Philosophy 18, pp. 62-77, 1993.
4. John Earman, *Bayes or Bust?: A Critical Examination of Bayesian Confirmation Theory*, Cambridge, MA: MIT Press, 1992.

8 Syntactic and Semantic Conceptions of Scientific Theories

Characterise the syntactic and semantic conceptions of scientific theories. Is one to be preferred over the other? If so, which one, and why?

Core reading

1. Rasmus Grønfeldt Winther, "The Structure of Scientific Theories", in E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*, 2015.
2. Bas van Fraassen, *The Scientific Image*, Oxford: Oxford University Press, 1980. **Ch. 3**.
3. Hans Halvorson, "What Scientific Theories Could Not Be", Philosophy of Science 79, pp. 183-206, 2012.
4. Bas van Fraassen, "One or Two Gentle Remarks about Hans Halvorson's Critique of the Semantic View", Philosophy of Science 81, pp. 276-283, 2014.
5. Sebastian Lutz, "What Was the Syntax-Semantics Debate in the Philosophy of Science About?", Philosophy and Phenomenological Research, 2015.

Further reading

1. Clark Glymour, "Theoretical Equivalence and the Semantic View of Theories", Philosophy of Science 80, pp. 286-297, 2013.
2. Hans Halvorson, "The Semantic View, If Plausible, Is Syntactic", Philosophy of Science 80, pp. 475-478, 2013.
3. Sebastian Lutz, "On a Straw Man in the Philosophy of Science: A Defense of the Received View", Journal of the International Society for the History of Philosophy of Science 2, pp. 77-119, 2012.

9 Scientific Realism

What is scientific realism? Evaluate the no-miracles argument in favour of this position. How does scientific realism fare in light of the threat of underdetermination, and the pessimistic meta-induction?

Background

1. Bas van Fraassen, *The Scientific Image*, Oxford: Oxford University Press, 1980. **Ch. 2**.

Inference to the Best Explanation and the No-Miracles Argument

1. James Ladyman, *Understanding Philosophy of Science*, London: Routledge, 2002. **§§7.2, 8.1.4**.
2. Arthur Fine, "The Natural Ontological Attitude", in J. Leplin (ed.), *Scientific Realism*, Berkeley: University of California Press, pp. 83-107, 1984.
3. Stathis Psillos, *Scientific Realism: How Science Tracks Truth*, London: Routledge, 1999. **Ch. 4**.
4. Hilary Putnam, *Mathematics, Matter and Method*, Cambridge: Cambridge University Press, 1975. **Pg. 73**.

Underdetermination of Theory by Evidence

1. W. V. Quine, "On Empirically Equivalent Systems of the World", Erkenntnis 9, pp. 313-328, 1975.
2. James Ladyman, *Understanding Philosophy of Science*, London: Routledge, 2002. **§6.1, 8.2**.
3. Stathis Psillos, *Scientific Realism: How Science Tracks Truth*, London: Routledge, 1999. **Ch. 8**.
4. Roger Jones, "Realism About What?", Philosophy of Science 58, pp. 185-202, 1991.
5. Alan Musgrave, "Discussion: Realism About What?", Philosophy of Science 59, pp. 691-697, 1992.

The Pessimistic Meta-Induction

1. Larry Laudan, "A Confutation of Convergent Realism", Philosophy of Science 48(1), pp. 19-49, 1981.
2. James Ladyman, *Understanding Philosophy of Science*, London: Routledge, 2002. **§8.1.3**.

3. Stathis Psillos, *Scientific Realism: How Science Tracks Truth*, London: Routledge, 1999. **Ch. 5**.
4. Clyde L. Hardin and Alexander Rosenberg, "In Defense of Convergent Realism", Philosophy of Science 49, pp. 604-615, 1982.
5. Larry Laudan, "Discussion: Realism Without the Real", Philosophy of Science 51, pp. 156-162, 1984.

Further reading

1. P. D. Magnus and Craig Callender, "Realist Ennui and the Base Rate Fallacy", Philosophy of Science 71(3), pp. 320-338, 2004.
2. Leah Henderson, "The No-Miracles Argument and the Base Rate Fallacy", forthcoming in Synthese, 2015.
3. Juha T. Saatsi, "On the Pessimistic Induction and Two Fallacies", Philosophy of Science 72, pp. 1088-1098, 2005.
4. Peter J. Lewis, "Why the Pessimistic Induction Is a Fallacy", Synthese 129(3), pp. 371-380, 2001.
5. P. K. Stanford, *Exceeding Our Grasp*, Oxford: Oxford University Press, 2006. **Ch. 1**.
6. Anjan Chakravartty, "What You Don't Know Can't Hurt You: Realism and the Unconceived", Philosophical Studies 137(1), pp. 149-158, 2008.
7. P. D. Magnus, "Inductions, Red Herrings, and the Best Explanation for the Mixed Record of Science", British Journal for the Philosophy of Science 61(4), pp. 803-819, 2010.

10 Constructive Empiricism

What is constructive empiricism, and is it defensible? Should one be worried by the hermeneutic circle? Is constructive empiricism committed to objective modality?

Core reading

1. Bas van Fraassen, *The Scientific Image*, Oxford: Clarendon Press, 1980. **Ch. 2**.
2. James Ladyman, *Understanding Philosophy of Science*, London: Routledge, 2002. **§6.2**.
3. Bradley Monton and Chad Mohler, "Constructive Empiricism", in E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*, 2012.
4. Gideon Rosen, "What Is Constructive Empiricism?", Philosophical Studies 74, pp. 143-178, 1994.
5. Bas van Fraassen, "Gideon Rosen on Constructive Empiricism", Philosophical Studies 74, pp. 179-192, 1994.
6. Valerie Gray Hardcastle, "The Image of Observables", British Journal for the Philosophy of Science 45, pp. 585-597, 1994.

Objective modality

1. James Ladyman, "What's Really Wrong with Constructive Empiricism? Van Fraassen and the Metaphysics of Modality", British Journal for the Philosophy of Science 51, pp. 837-856, 2000.
2. Bradley Monton and Bas van Fraassen, "Constructive Empiricism and Modal Nominalism", British Journal for the Philosophy of Science 54, pp. 405-422, 2003.
3. James Ladyman, "Constructive Empiricism and Modal Metaphysics: A Reply to Monton and van Fraassen", British Journal for the Philosophy of Science 55, pp. 755-765, 2004.
4. F. A. Muller, "The Deep Black Sea: Observability and Modality Afloat", British Journal for the Philosophy of Science 56, pp. 61-99, 2005.

Further reading

1. James Bogen, "Theory and Observation in Science", in E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*, 2017.
2. Stathis Psillos, *Scientific Realism: How Science Tracks Truth*, London: Routledge, 1999. **Ch. 9**.
3. Paul Teller, "Whither Constructive Empiricism?", Philosophical Studies 106, pp. 123-150, 2001.

4. Paul Horwich, “On the Nature and Norms of Theoretical Commitment”, Philosophy of Science 58(1), pp. 1-14, 1991.

5. Paul Churchland, “The Ontological Status of Observables: In Praise of the Superempirical Virtues”, in P. Churchland and C. Hooker (eds.), *Images of Science*, Chicago: University of Chicago Press, 1985.

11 Structural Realism

Is there a coherent and defensible form of structural realism, and if so, what is it? What is the connection between structural realism and constructive empiricism?

Core reading

1. John Worrall, "Structural Realism: The Best of Both Worlds?", Dialectica 43, pp. 99-124, 1989.
2. James Ladyman, "Structural Realism", in E. N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*, 2014.
3. David Wallace, "Stating Structural Realism: Mathematics-First Approaches to Physics and Metaphysics", Philosophical Perspectives, 2023.
4. Bas van Fraassen, "Structure: Its Shadow and Substance", British Journal for the Philosophy of Science 57, pp. 275-307, 2006.

More on Wallace's 'math-first' structural realism

1. David Wallace, "Real Patterns in Physics and Beyond", 2024.
2. David Wallace, "Learning to Represent: Mathematics-first Accounts of Representation and their Relation to Natural Language", 2024.
3. Eleanor Knox and David Wallace, "Functionalism Fit for Physics", 2023.
4. Caspar Jacobs, "Stating Maths-First Realism, or: How to Say Things with Models", 2024.
5. Aboutorab Yaghmaie, "An Epistemic Augmentation to the Math-First Approach to Physical Theories", Episteme, 2025.

Further reading

1. James Ladyman, "What is Structural Realism?", Studies in History and Philosophy of Science 29, pp. 409-424, 1998.
2. Steven French, *Science: Key Concepts in Philosophy*, London: Continuum, 2007. **Pp. 117-120**.
3. Stathis Psillos, *Scientific Realism: How Science Tracks Truth*, London: Routledge, 1999. **Ch. 7**.
4. James Ladyman and Don Ross, *Every Thing Must Go: Metaphysics Naturalized*, Oxford: Oxford University Press, 2007. **§§2.3-2.5**.
5. Bas van Fraassen, "Structuralism(s) About Science: Some Common Problems", Proceedings of the Aristotelian Society Supplementary Volume LXXXI, pp. 45-61, 2007.

6. Peter M. Ainsworth, "Newman's Objection", British Journal for the Philosophy of Science 60, pp. 135-171, 2009.

7. Tim Button and Sean Walsh, *Philosophy and Model Theory*, Oxford: Oxford University Press, 2018. **Ch. 3**.

8. William Demopoulos and Michael Friedman, "Critical Notice: Bertrand Russell's *The Analysis of Matter*: Its Historical Context and Contemporary Interest", Philosophy of Science 52, pp. 621-639, 1985.

9. Steven French, *The Structure of the World: Metaphysics and Representation*, Oxford: Oxford University Press, 2014.

12 Scientific Explanation

What is a scientific explanation?

Core reading

1. James Ladyman, *Understanding Philosophy of Science*, London: Routledge, 2002. **§7.1**.
2. Carl Hempel and Paul Oppenheim, "Studies in the Logic of Explanation", Philosophy of Science 15, pp. 135-175, 1948.
3. Bas van Fraassen, *The Scientific Image*, Oxford: Oxford University Press, 1980. **Ch. 5**.
4. Peter Godfrey-Smith, *Theory and Reality*, Chicago: University of Chicago Press, 2003. **Ch. 13**.
5. David Lewis, "Causal Explanation", in *Philosophical Papers, vol. 2* Oxford: Oxford University Press, 1986.
6. Michael Friedman, "Explanation and Scientific Understanding", Journal of Philosophy 71(1), pp. 5-19, 1974.

Further reading

1. Wesley C. Salmon, "Why Ask, "Why?"?", in *Causality and Explanation*, Oxford: Oxford University Press, 1998.
2. Isaac Wilhelm, "Typical: A Theory of Typicality and Typicality Explanation", British Journal for the Philosophy of Science, 2019.
3. Alexander Reutlinger and Juha Saatsi (eds.), *Explanation Beyond Causation: Philosophical Perspectives on Non-causal Explanations*, Oxford: Oxford University Press, 2018.

13 Values in Science

Must the scientist (*qua* scientist) make value judgements?

Core reading

1. Heather E. Douglas, *Science, Policy, and the Value-Free Ideal*, Pittsburgh: University of Pittsburgh Press, 2009. **Ch. 5.**
2. Isaac Levi, "Must the Scientist Make Value Judgments?", Journal of Philosophy 57, pp. 345-357, 1960.
3. Ernest Nagel, *The Structure of Science: Problems in the Logic of Scientific Explanation*, London: Routledge, 1961. **Pp. 485–502.**
4. Hilary Putnam, *The Collapse of the Fact/Value Dichotomy and Other Essays*, Cambridge, MA: Harvard University Press, 2002. **Ch. 2.**

Further reading

1. Richard C. Jeffrey, "Valuation and Acceptance of Scientific Hypotheses", Philosophy of Science 33, pp. 237-246, 1956.
2. Larry Laudan, "The Epistemic, the Cognitive, and the Social", in P. Machamer and G. Wolters (eds.), *Science, Values, and Objectivity*, Pittsburgh: University of Pittsburgh Press, 2004. **Pp. 14-23.**
3. Helen Longino, *Science as Social Knowledge: Values and Objectivity in Scientific Inquiry*, Princeton, NJ: Princeton University Press, 1990. **Ch. 4.**
4. Ernan McMullin, "Values in Science", PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association, Vol. 1982, Volume Two: Symposia and Invited Papers, pp. 3-28, 1982.
5. Richard Rudner, "The Scientist qua Scientist Makes Value Judgments", Philosophy of Science 20, pp. 1-6, 1953.

14 Scientific Polarisation and False Beliefs

How do false beliefs spread? Is the spreading of false beliefs a problem for scientific practice?

Core reading

1. Cailin O'Connor and James Owen Weatherall, "False Beliefs and the Social Structure of Science: Some Models and Case Studies", in D. Allen and J. Howell (eds.), *Groupthink in Science : Greed, Pathological Altruism, Ideology, Competition, and Culture*, pp. 37-48, Berlin: Springer, 2020.
2. Cailin O'Conner and James Owen Weatherall, "Scientific Polarization", European Journal for Philosophy of Science 8, pp. 855-875, 2018.
3. James Owen Weatherall, Cailin O'Connor, and Justin P. Bruner, "How to Beat Science and Influence People: Policymakers and Propaganda in Epistemic Networks", British Journal for the Philosophy of Science 71, pp. 1157-1186, 2020.
4. Duncan Pritchard, "Epistemically Useful False Beliefs", Philosophical Explorations 20, pp. S4-S20, 2017.
5. Charles Mills,"White Ignorance", in S. Sullivan and N. Tuana (eds.), *Race and Epistemologies of Ignorance*, State University of New York Press, pp. 13-38, 2007.

Further reading

1. Cailin O'Conner and James Owen Weatherall, *The Misinformation Age: How False Beliefs Spread*, New Haven, CN: Yale University Press, 2019.
2. Sarita Rosenstock, Justin Bruner and Cailin O'Conner, "In Epistemic Networks, is Less Really More?", Philosophy of Science 84(2), pp. 234-252, 2016.
3. Jeffrey A. Barrett, Brian Skyrms and Aydin Mohseni, "Self-Assembling Networks", British Journal for the Philosophy of Science 70, pp. 301-325, 2019.
4. Kevin J. S. Zollman, "The Communication Structure of Epistemic Communities", Philosophy of Science 74(5), pp. 574-587, 2007.
5. Kevin J. S. Zollman, "The Epistemic Benefit of Transient Diversity", Erkenntnis 72(1), 2010.
6. Kevin J. S. Zollman, "Social Structure and the Effects of Conformity", Synthese 172(3), pp. 317-340, 2010.
7. Kevin J. S. Zollman, "Network Epistemology: Communication in Epistemic Communities", Philosophy Compass 8(1), pp. 15-27, 2013.
8. Venkatesh Bala and Sanjeev Goyal, "Learning from Neighbours", Review of Economic Studies 65(3), pp. 595-621, 1998.

15 The Replicability Crisis

Does modern science face a replicability crisis?

Core reading

1. Philip Kitcher, "The Division of Cognitive Labor", Journal of Philosophy 87(1), pp. 5-22, 1990.
2. Felipe Romero, "Philosophy of Science and the Replicability Crisis", Philosophy Compass 14(11), e12633, 2019.
3. Felipe Romero, "Novelty Versus Replicability: Virtues and Vices in the Reward System of Science", Philosophy of Science 84, pp. 1031-1043, 2017.
4. Michael Strevens, "The Role of the Priority Rule in Science", Journal of Philosophy 100(2), pp. 55-79, 2003.
5. Kevin J. S. Zollman, "The Credit Economy and the Economic Rationality of Science", Journal of Philosophy 115(1), pp. 5-33, 2018.
6. Remco Heesen, "Why the Reward Structure of Science Makes Reproducibility Problems Inevitable", Journal of Philosophy 115(12), pp. 661-674, 2018.
7. Remco Heesen, "The Credit Incentive to be a Maverick", Studies in History and Philosophy of Science 76, pp. 5-12, 2019.

Further reading

1. John P. Ioannidis, "Why Most Published Research Findings are False", PLoS Medicine 2(8), e124, 2005.
2. Felipe Romero, "Who Should Do Replication Labor?", Advances in Methods and Practices in Psychological Science 1(4), pp. 516-537, 2018.
3. Liam Kofi Bright, "On Fraud" Philosophical Studies 174(2), pp. 291-310, 2017.
4. Justin P. Bruner, "Policing Epistemic Communities", Episteme 10(4), pp. 403-416, 2013.
5. Remco Heesen, "Communism and the Incentive to Share in Science", Philosophy of Science, 84(4), 698-716, 2017.
6. Remco Heesen and Liam Kofi Bright, "Is Peer Review a Good Idea?", British Journal for the Philosophy of Science, 2020. (Forthcoming.)
7. Edouard Machery, "What is a Replication?", Philosophy of Science 87, pp. 545-567, 2020.
8. Cailin O'Connor, "The Natural Selection of Conservative Science", Studies in History and Philosophy of Science 76, pp. 24-29, 2019.