Literature on Ethical Science

Covering: Ethics in life sciences, nuclear, chemical, cyber, data, lethal autonomous weapons, dual use, and climate change

Prepared by Dr Russell Moul for SYP's Project on Ethical Science (here)

Field	Journal articles, books, reports, webpages etc.
General ethics (of science)	• *'Science and ethics'* - Maurizio Iaccarino, European Molecular Biology Organisation (2001): https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1084045/pdf/kve191.pdf • *'On Being A Scientist: A Guide To Responsible Conduct in Research'* - Committee of Science, Engineering, and Public Policy, (Washington: The National Academies Press, 2009). • *'Doing Global Science: A Guide to Responsible Conduct in the Global Research Enterprise'* - Interacademic Partnership (Princeton: Princeton University Press, 2016) • *'Responsible Science'* (Journal) - https://www.sgr.org.uk/publications/responsible-science
Biological and Life Sciences	• *'Synthetic biology: ethical ramifications* 2009' - Paul Rabinow and Gaymon Bennett,Systems and Synthetic Biology 3 (2009) • *'Ethical Perspectives on Synthetic Biology'* - Bernadette Bensaude Vincent, 'Ethical Perspectives on Synthetic Biology', Biological Theory volume 8 (2013) • *'Synthetic biology: Recent progress, biosafety and biosecurity concerns, and possible solutions'* - Fangzhong Wanga and Weiwen Zhang, Journal of Biosafety and Biosecurity 1 (2019) • *'Preventing Biological Threats: What You Can Do*' (2 Handbooks), University of Bradford: https://www.bradford.ac.uk/news/archive/2016/preventing-biological-threats-what-you-can-do.php

	• *'Tianjin Biosecurity Guidelines for Codes of conduct for scientists: Promoting responsible science and strengthening biosecruity governance'* - Leifan Wang, Jie Song and Weiwan Zhang, , *Journal of Biosafety and Biosecurity 3* (2021): 82-83. • '*Responsible life sciences research for global health security: a guidance document',* World Health Organization, (2010)
Nuclear	• *'The Ethics Issues of Nuclear Energy: Hard Lessons Learned from Chernobyl and Fukushima'* - Hui Xiang and Yi Zhu, Online Journal of Health Ethics 7 (2011): 1-10. • *'Re-examining the Ethics of Nuclear Technology'* - Andrei Andrianov, Victor Kanke, Ilya Kuptsov and Viktor Murogov, Science and Engineering Ethics 21 (2015): 999-1018. • *'The Ethics of Nuclear Energy',* Taebi, Behnam, and Sabine Roeser, eds. (Cambridge: Cambridge University Press, 2015). • *'An Uncomfortable Responsibility: Ethics and Nuclear Waste'* - Mats Andren, *The European Legacy 17* (2012): 72-82.
Cyber	• *'Three Ethical Challenges of Applications of Artificial Intelligence in Cybersecurity'* - Mariarosaria Taddeo, Minds and Machines 29 (2019) • *'The Ethics of Cybersecurity'* - Christen, Gordijn and Loi (ed.) (Springer Nature, 2020) • *'Artificial Intelligence and Problems of Ensuring Cyber Security'* - Khisamova, Begishev, Sidorenko and Elina, International Journal of Cyber Criminology 13 (2019).
Chemical	• *'Ethics in Science: The Unique Consequences of* Chemistry' - Jeffrey Kovac, *Accountability in Research 22 (*2015): 312-329. • *'Education for Peace: New Pathways for Securing Chemical Disarmament'* - OPCW, 22-23 September 2014

Data	• *"Data Ethics'* - The Alan Turing Institute - https://www.turing.ac.uk/research/data-ethics • *'A Guide for Ethical Data Science: A collaboration between the Royal Statistical Society (RSS) and the Institute and Faculty of Actuaries (IFoA)'* - Royal Statistical Society (2019) • *'Big data and the emerging ethical challenges'* - Mohammed Saqr, *International Journal of Health Science 11* (2017): 1-2.
Lethal Autonomous Weapons	• *'Ethics and autonomous weapon systems: An ethical basis for human control?'* - ICRC, (April 2018) https://www.icrc.org/en/document/ethics-and-autonomous-weapon-systems-ethical-basis-human-control • *'Civil society perspectives on the Convention on Certain Conventional Weapons (CCW)'s Group Governmental Experts on Lethal Autonomous Weapon Systems'* (2021): https://reachingcriticalwill.org/images/documents/Disarmament-fora/ccw/2021/gge/reports/CCWR9.7.pdf • *'Autonomous Killer Robots are Probably Good News'* - Vincent C. Müller, in (ed.) Drones and Responsibility (Routledge, 2016) • *'The Weaponization of Increasingly Autonomous Technologies: Considering Ethics and Social Values'* - UNIDIR, (2015) • *'The Problem with Killer Robots'* - Nathan Gabriel Wood, Journal of Military Ethics 19 (2020) • *'The Strategic Robot Problem'* - Heather M. Roff, Journal of Military Ethics (2014)
Dual Use	• *'Governance of Dual Use Research in the Life Sciences: Advancing Global Consensus on Research Oversight'* - Proceedings of a Workshop - The National Academy of Science, Engineering and Medicine, (National Academies Press, 2018). https://www.nap.edu/catalog/25154/governance-of-dual-use-research-in-the-life-sciences-advancing

	• *'Innovation, Dual Use, and Security: Managing The Risks of Emerging Biological and Chemical Technologies',* Jonathan B. Tucker (ed.), (Cambridge, Massachusetts and London: The MIT Press, 2012). • *'Ethical and Philosophical Consideration of the Dual-Use Dilemma in the Biological Sciences'* - Seumas Miller and Michael J. Selgelid, (Springer, 2018)
Climate Change	• *'The ethical principles of climate change'* - UNESCO https://en.unesco.org/news/ethical-principles-climate-change