

Spring 2026

ANTH3321 / 5321 Topics in Anthropology: Genes, AI, and Human Futures

Teacher: [Prof. TAM Man Kei](#)

Every Thursday

Lecture: 10:30am - 12:15pm (Venue: UCA_312)

MA tutorial: 12:30 - 1:15pm (Venue: UCA_312)

UG tutorial: 1:30 - 2:15pm (Venue: UCA_102)

The Human Genomes Project has reconfigured humans as genomes encoded by DNA sequences, creating new forms of knowledge and research fields. In the postgenomic era, AI driven by big data is transforming the study of biological life. As life sciences and biotechnologies become strategic fields of economic and political investment, how are our concepts and practices of health being reshaped at the intersection of states, capitalism, and technologies? Likewise, when life scientists blur the boundary of humans as individual organisms by viewing the body as a symbiotic system inhabited by a multitude of microbes, how should we approach human-microbe interconnections and their implications for our future?

This course covers the following topics. Tentatively, two field trips will be organized.

* Required readings for ANTH3321 and ANTH5321 students

Required readings for ANTH5321 students

^ Extended readings

Part I- The Post-genomic era and AI-driven technologies

Week 1 (8 January) Introduction: HGP and its aftermath

- What do our genes tell us about our humanity?
- How are genes studied through AI and big data in the post-genomic era?
- Why are anthropologists interested in genomes and the science and the related technologies?

*Stevens, Hallam, and Sarah S. Richardson. 2020. "Beyond the Genome." and Keller, Evelyn Fox. 2020. "The Postgenomic Genome." In *Postgenomics*, with Hallam Stevens and Sarah S. Richardson. Duke University Press.

*Raffaetà, R., Santanera, G., & Esposito, F. (2023). Special Issue Editorial Introduction: Entangling Data while Entangling Disciplines: Discussing the Future of Anthropological Collaborations with Data Scientists. *Anthropology in Action*, 30(3), 1-8.

#Yong, Ed. 2016. Chapter 2 in *I Contain Multitudes: The Microbes within Us and a Grand View of Life*. The Bodley Head.

#Dominguez-Bello, Maria Gloria. 2016. "A Microbial Anthropologist in the Jungle." *Cell* 167 (3): 588–94.

Week 2 (15 January) Science as social practices, laboratory as an ethnographic site

- What is a laboratory to social scientists?
- How does the lab transform into an ethnographic site?

*Latour, Bruno. 1979. Chapter 1 and 2 in *Laboratory Life: The Social Construction of Scientific Facts*. With Steve Woolgar. Sage Library of Social Research ; v. 80. Sage Publications.

#Raffaetà, Roberta. 2023. Chapter 4 in *Metagenomic Futures: How Microbiome Research Is Reconfiguring Health and What It Means to Be Human*. Routledge.

^Sturdy, Steve. 1991. "The Germs of a New Enlightenment." *Studies in History and Philosophy of Science Part A* 22 (1): 163–73.

^Fortun, Mike. 2020. "What Toll Pursuit: Affective Assemblages in Genomics and Postgenomics." In *Postgenomics*, with Hallam Stevens and Sarah S. Richardson. Duke University Press.

Week 3 (22 January) Study of life in the postgenomic era, data-centric biology

- What is data, and how is data curated to become knowledge?
- Data biology and the political economy of its production

*Stevens, Hallam. 2013. Chapter 1 to 3 in *Life out of Sequence: A Data-Driven History of Bioinformatics*. The University of Chicago Press.

#Leonelli, Sabina. 2016. Chapter 3 in *Data-Centric Biology: A Philosophical Study*. 1st ed. Vol. 57734. University of Chicago Press.

^Scaglioni, Marta. 2025. "Negotiated Categories: The Co-Construction of the Tunisian Population in Human Microbiome Science and Its Historical Entanglements." *Medical Anthropology* 44 (7): 620–35.

^Amato, Katherine R., and Roberta Raffaetà. 2023. "Afterword – Crafting Data, Crafting Worlds Across Disciplines." *Anthropology in Action*. *Anthropology in Action* 30 (3): 59–65.

Week 4 (29 January) Guest lecture by Dr. Ye PENG, Research Assistant Professor, JC School of Public Health and Primary Care

*Stevens, Hallam. 2013. Chapter 4 and 5 in *Life out of Sequence: A Data-Driven History of Bioinformatics*. The University of Chicago Press.

^Ankeny, Rachel A., and Sabina Leonelli. 2020. "Valuing Data in Postgenomic Biology: How Data Donation and Curation Practices Challenge the Scientific Publication System." And Stevens, Hallam. 2020. "Networks: Representations and Tools in Postgenomics." In *Postgenomics*, with Hallam Stevens and Sarah S. Richardson. Duke University Press.

Part II- Human, microbes, and environment

Week 5 (5 February) Human-microbes relationship

- What does it mean to be human?

- How is our evolving relationship with micro-organisms redefining the concept of health?

*Dupré, John. 2020. "The Polygenomic Organism." In *Postgenomics*, with Hallam Stevens and Sarah S. Richardson. Duke University Press.

*Raffaetà, Roberta. 2023. Chapter 2 and 3 in *Metagenomic Futures: How Microbiome Research Is Reconfiguring Health and What It Means to Be Human*. Routledge.

#Lorimer, Jamie. 2019. "Hookworms Make Us Human: The Microbiome, Eco-immunology, and a Probiotic Turn in Western Health Care." *Medical Anthropology Quarterly* 33 (1): 60–79.

^Gilbert, Scott F. 2014. "A Holobiont Birth Narrative: The Epigenetic Transmission of the Human Microbiome." *Frontiers in Genetics* 5 (August).

^Hadhazy, Adam. n.d. 'Think Twice: How the Gut's 'Second Brain' Influences Mood and Well-Being'. *Scientific American*. <https://www.scientificamerican.com/article/gut-second-brain/>.

Week 6 (12 February) Early-life microbiome, epigenetics, and the burden on mothers

*Benezra, Amber. 2021. "Microbial Kin: Relations of Environment and Time." *Medical Anthropology Quarterly* 35 (4): 511–28.

*Richardson, Sarah S. 2020. "Maternal Bodies in the Postgenomic Order: Gender and the Explanatory Landscape of Epigenetics." In *Postgenomics*, with Hallam Stevens and Sarah S. Richardson. Duke University Press.

#Pentecost, Michelle, and Maurizio Meloni. 2020. "'It's Never Too Early': Preconception Care and Postgenomic Models of Life." *Frontiers in Sociology* 5: 21-.

^Lappé, Martine. 2016. "The Maternal Body as Environment in Autism Science." *Social Studies of Science* 46 (5): 675–700.

^Singh, Ilina, and Nikolas Rose. 2009. "Biomarkers in Psychiatry." *Nature* 460 (7252): 202–7.

Week 7 (26 February) "One Health": pandemics and anti-microbial resistance (AMR)

*Barchetta, Lucilla, and Roberta Raffaetà. 2024. "Data as Environment, Environment as Data: One Health in Collaborative Data-Intensive Science." *Big Data & Society* 11 (2): 20539517241234275.

*Landecker, Hannah. 2016. "Antibiotic Resistance and the Biology of History." *Body & Society* 22 (4): 19–52.

#Fearnley, Lyle. 2020. "Viral Sovereignty or Sequence Etiquette? Asian Science, Open Data, and Knowledge Control in Global Virus Surveillance." *East Asian Science, Technology and Society* 14(3): 479–505.

^Baer, Hans A., and Merrill Singer. 2023. "Planetary Health: Capitalism, Ecology and Eco-Socialism." *Capitalism Nature Socialism* 34 (4): 20–38.

^Superbugs That Resist Antibiotics Can Evolve in 11 Days | I Contain Multitudes <https://www.youtube.com/watch?v=QUfyq8KMzyc>

Week 8 (12 March) “One Health”: malnutrition, obesity, and care in a globalized world

- *Benezra, Amber. 2016. “Datafying Microbes: Malnutrition at the Intersection of Genomics and Global Health.” *BioSocieties* 11 (3): 334–51.
- *Kelty, Christopher and Hannah Landecker. 2019. “Outside In: Microbiomes, Epigenomes, Visceral Sensing, and Metabolic Ethics.” In *After Practice: Thinking through Matter(s) and Meaning Relationally*, edited by J. Niewohner (pp. 53–65). Berlin: Panama Verlag.
- #Ticktin, Miriam Iris. 2019. “From the Human to the Planetary.” *Medicine Anthropology Theory* 6 (3).

Part III- State and biocapital

Week 9 (19 March) Translational knowledge, academic capitalism, and scientific entrepreneurship

- *Rajan, Kaushik Sunder, and Sabina Leonelli. 2013. “Introduction: Biomedical Trans-Actions, Postgenomics, and Knowledge/Value.” *Public Culture* 25 (3 (71)): 463–75.
- *Ferrari, Luciano, Roberta Raffaetà, and Lorenzo Beltrame. 2024. “Capitalization and the Production of Value at the Nexus of Academia and Industry: The Case of a Microbiome Startup.” *New Genetics and Society* 43 (1): e2411863.
- #Ong, Aihwa. 2013. “A Milieu of Mutations: The Pluripotency and Fungibility of Life in Asia.” *East Asian Science, Technology and Society: An International Journal* 7 (1): 69–85.
- ^Ong, Aihwa. 2016. Chapter 9 in *Fungible Life: Experiment in the Asian city of life*. Durham, NC: Duke University Press.
- ^Stevens, Hallam. 2018. “Starting up Biology in China: Performances of Life at BGI.” *Osiris (Bruges)* 33 (1): 85–106.
- ^Pinel, Clémence. 2021. “Renting Valuable Assets: Knowledge and Value Production in Academic Science.” *Science, Technology, & Human Values* 46 (2): 275–97.

Week 10 (26 March) Biocapitalism: precision medicine, and Health-AI

- *Green, Sara, Barbara Prainsack, and Maya Sabatello. 2023. “Precision Medicine and the Problem of Structural Injustice.” *Medicine, Health Care, and Philosophy* 26 (3): 433–50.
- *Kotliar, Dan M., and Rafi Groszlik. 2023. “On the Contesting Conceptualisation of the Human Body: Between ‘Homo-Microbis’ and ‘Homo-Algorithmicus.’” *Body & Society* 29 (3): 81–108.
- #Fortun, Mike. 2012. “Genomics Scandals and Other Volatilities of Promising Available.” In *Lively Capital: Biotechnologies, Ethics, and Governance in Global Markets*, with Kaushik Sunder Rajan. Duke University Press.
- #Gjødtsbøl, Iben Mundbjerg. 2025. “Predictive Algorithms in Healthcare: Constituting ‘Artificial Intelligence’ (AI) as near Human.” *BioSocieties*, ahead of print, October 29.
- ^Zurawski, Erica, and Maya Hey. 2025. “Gut Healthism: The Penetrating Gaze and Depoliticising Forces of Direct-to-Consumer Microbiome Testing Kits.” *Sociology of Health & Illness* 47 (8): e701111-n/a.
- ^Helmreich, Stefan. 2008. “Species of Biocapital.” *Science as Culture* 17 (4): 463–78.

Week 11 (2 April) Biocapitalism: Western biomedicine and Traditional Chinese Medicine

- *Luk, Christine Y. L. 2016. "Biotech in Hong Kong: How Biologist-Entrepreneurs Pursued 'Hong Kong's Bioscience Dream.'" *East Asian Science, Technology and Society* 10 (3): 291–313.
- *Tam, Mankei and R. Raffaetà. The Mundane and the New Normal: Translating Microbiome Research to "Tell Hong Kong's Story Well"
- ^Scheid, Volker. 2014. "Convergent Lines of Descent: Symptoms, Patterns, Constellations, and the Emergent Interface of Systems Biology and Chinese Medicine." *East Asian Science, Technology and Society: An International Journal* 8 (1): 107–39.

Week 12 (9 April) AI-driven crisis: data centre and climate change

- *Suchman, Lucy. 2023. "The Uncontroversial 'Thingness' of AI." *Big Data & Society* 10 (2).
- *Masco Joseph. 2019. "Ubiquitous Surveillance." In *Life by Algorithms: How Roboprocesses Are Remaking Our World*, with Catherine Lowe Besteman and Hugh Gusterson. The University of Chicago Press.
- #Maguire, James, and Brit Ross Winthereik. 2021. "Digitalizing the State: Data Centres and the Power of Exchange." *Ethnos* 86 (3): 530–51.
- ^Allen, Barbara, Barbara Prainsack, and Lucy Suchman. 2025. "Re-Engaging Technoscience in and beyond Science and Technology Studies." *Tecnoscienza – Italian Journal of Science & Technology Studies* 16 (1): 87–107.

Week 13 (16 April) Conclusion