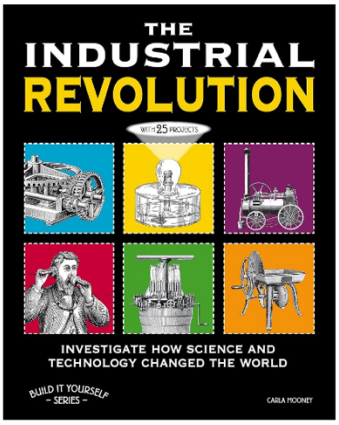
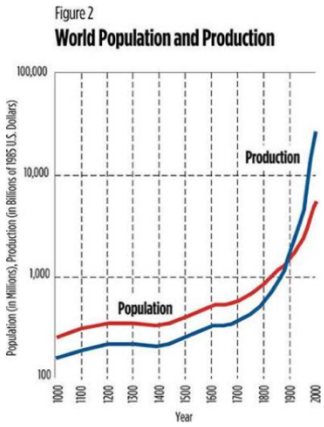
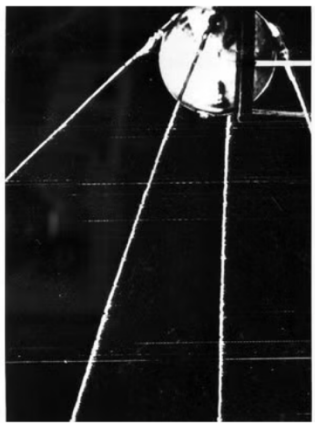
SCIENCE, GROWTH AND DEVELOPMENT UNDER GLOBAL MODERNITY















Ph.D. Programme *Global History and Governance,*

Scuola Superiore Meridionale, Naples

Autumn Semester, 2026/2027

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Office hour: by appointment

Description:

The course explores the entanglement of science, technology and economic growth from the nineteenth century to the present, tracing how states, experts and citizens have imagined and managed progress. Beginning with the debates over why sustained growth first emerged in Europe, and why industrialisation opened a divergence between the West and the rest of the world, the course examines how governments mobilised scientific research and technological innovation as instruments of national strength, welfare and modernity.

Through case studies spanning imperial powers, socialist regimes, liberal democracies, developmental states and postcolonial societies, we investigate the institutions, ideologies and policy tools that linked scientific advance to economic planning and global competition. Topics include the rise of research bureaucracies and technocracy before 1945; postwar "growthmanship" and the global diffusion of planning; the developmental ambitions of newly independent nations; the crisis of growth in the 1970s; and twenty-first-century debates over degrowth, ecomodernism and techno-optimism.

The course combines primary sources with recent historical and political-economic scholarship, encouraging students to think comparatively about the politics of innovation and the moral economies of progress. By the end of the seminar, participants will be able to situate contemporary science and technology policy within a long history of attempts to reconcile knowledge, power and prosperity.

The course consists of 10 sessions, each lasting 3 hours; it is seminar-style and requires active and consistent participation from students, who will be asked to analyse texts and to discuss the topics of the lessons based on a reading list provided by the instructor.

Students wishing to take part in the course are encouraged to write to the instructor to sign up for updates.

Learning objectives:

- Understand the historical evolution of the concept of economic growth and its relationship to science and technology from the nineteenth century to the present.
- Comprehend technoscience as a knowledge system and instrument embedded in social relations and involved in the conservation and transformation of social projects.
- Identify the main models and instruments of science and technology policy, in both industrialised and developing countries.
- Recognise the ideological frameworks of growth — liberal, socialist, developmentalist and neoliberal — and their transformations over time.
- Comprehend the role of scientific institutions and experts in processes of economic planning and modernisation.
- Analyse the ecological and material constraints on growth and the debates they generated, from nineteenth-century fears of resource exhaustion to contemporary arguments over degrowth and green growth.
- Compare how models of growth and science policy circulated between world regions and political regimes, and how they were adapted or resisted.
- Critically analyse primary sources and historiographical arguments, and present, discuss and peer-review research in a seminar setting.

Key concepts and course threads:

The sessions follow a chronological order, but a set of recurring questions holds the course together; each session returns to them and students are encouraged to use them to connect readings across sessions. They rest on a preliminary distinction between three meanings of "growth": a material phenomenon (the sustained increase of output per head

that began around 1800); an ideal (improvement, progress and affluence as goals of political and economic life, articulated from the seventeenth century onwards); and a metric and policy target (GDP and growth rates as the yardstick of government, established from the 1940s). Much of the course concerns how these three meanings came together and came apart.

- Sources of innovation: is technical change driven by knowledge and culture, by relative prices and energy, by power relations or by institutions? (Sessions 1, 5, 9, 10)
- Autonomy and direction: should science govern itself, or serve goals set by the state, the economy or society? (Sessions 2, 4, 8, 10)
- Catching up: can latecomers skip stages of development, and who directs the process — markets, states or parties? (Sessions 1, 3, 6, 7, 10)
- Limits: is growth bounded by energy, resources and the environment, and can it be decoupled from them? (Sessions 1, 3, 8, 9, 10)
- Measurement: what do states count — output, productivity, R&D spending, scientists — and how does counting shape what they govern? (Sessions 3, 5, 9, 10)

Readings:

Each session will be organised around reading, analysing and discussing selected essays and articles. Each participant will have to read the mandatory readings and choose additional reading from a list. Magistrale students need only to read the mandatory reading. Participants should announce their choice at the previous session, so that each participant will read a different essay and there will be more variety of discussion. Students are invited to propose their own options. Each session also lists guiding questions to orient reading and discussion.

The reading materials will be available online via the Unina digital library or on paper at university libraries or provided by the instructor. Contact the instructor to get access to the shared folder.

Course assessment:

- Regular attendance: 10%;
- Presentation and discussion of course readings: 35% *(Please note: each participant will have to intervene at least once in each session);*
- Final essay and discussion: 55%

Presentations of the chosen readings should last about ten minutes and set out the text's argument, its sources and method, its relation to the mandatory readings and its contribution to the course threads.

Final exam:

The final exam will consist of writing and discussing a final essay on a specific topic to be agreed with Dr Costa by the beginning of January, 5,000 to 8,000 words for PhD students and 3,000 to 6,000 words for Magistrale students. The paper should be delivered by mid-February and the papers will be discussed at the end of February, on a date to be agreed with the students.

Use 12-point font for the main text and 11-point for block quotations; use italics only for emphasis, foreign words and the titles of periodicals and books, not for quotations; choose typeface among Times New Roman, Garamond, Palatino Linotype; double-space; employ first-line indentation for each paragraph. For citation style refer to The Chicago Manual of Style 18th Edition Notes and Bibliography: https://www.chicagomanualofstyle.org/tools_citationguide.html. The use of Zotero is strongly encouraged.

The final exam will proceed as follows. Each student will receive beforehand a paper written by another student, which they will have to summarise and critique. The author of

the paper will have the opportunity to respond to criticism and explain how they would integrate the comments in a revised version. Finally, the teacher and other students will offer comments.

Sessions:

1. Wednesday 4 November, 14-17, Room 3
2. Wednesday 11 November, 14-17, Room 3
3. Wednesday 18 November, 14-17, Room 3
4. Wednesday 25 November, 14-17, Room 3
5. Tuesday 1 December, 14-17, Room 2
6. Wednesday 9 December, 14-17, Room 3
7. Wednesday 16 December, 14-17, Room 3
8. Wednesday 13 January, 14-17, Room 3
9. Wednesday 20 January, 14-17, Room 3
10. Wednesday 27 January, 14-17, Room 3

Classroom:

Aula 3, third floor, SSM, Largo San Marcellino 10, 80138 Napoli

Sessions

1. The Origins of Growth, Industrialisation and Western Divergence

Wednesday 4 November 14-17, Room 3

Topics: From episodic expansion to systematic growth; Industrialisation and the Great Divergence; Energy, fossil fuels and the origins of the Anthropocene; The birth of pro-growth ideologies; Improvement, progress and productivity before the invention of modern "economic growth"; The relationship between science, useful knowledge and industrialisation.

Guiding questions: Why did sustained growth begin in Western Europe — because of useful knowledge, relative prices and cheap energy, colonial resources, or power over labour? When did growth become an explicit goal rather than an unintended outcome? What did nineteenth-century thinkers expect the end of growth to look like?

Primary sources — pick one:

- Friedrich List, *The National System of Political Economy* (1841), Chapter 11, 12, 17 and 26
- J.S. Mill, *Principles of Political Economy* (1848), Book IV, Chapter 1–3 and 6
- Karl Marx and Friedrich Engels, *Manifesto of the Communist Party*, Part I Bourgeois and Proletarians; Karl Marx, *Capital*, Vol. I, Chapter 15, Section 1 and 2
- Jevons, William Stanley. *The Coal Question: An Inquiry Concerning the Progress of the Nation, and the Probable Exhaustion of Our Coal-Mines*. Macmillan, 1865, Preface, Introduction and Chapter 7 "Of the Economy of Fuel"

Literature — mandatory:

- Mokyr, Joel. *A Culture of Growth: The Origins of the Modern Economy*. Princeton University Press, 2018, Preface and Chapter 1

- Charbonnier, Pierre. *Affluence and Freedom: An Environmental History of Political Ideas*. With Andrew Brown. Polity Press, 2021, Chapter 1

Literature — pick one:

- Malm, Andreas. *Fossil Capital: The Rise of Steam-Power and the Roots of Global Warming*. Verso, 2016, Chapter 1, 2 and 12
- Schmelzer, Matthias, Andrea Vetter, and Aaron Vansintjan. *The Future Is Degrowth: A Guide to a World beyond Capitalism*. Verso, 2022, Chapter 2.
- Allen, Robert C. *The British Industrial Revolution in Global Perspective*. Cambridge University Press, 2009, Chapter 1
- Pomeranz, Kenneth. *The Great Divergence: China, Europe, and the Making of the Modern World Economy*. Princeton University Press, 2000, Introduction and Chapter 6
- Parthasarathi, Prasannan. *Why Europe Grew Rich and Asia Did Not: Global Economic Divergence, 1600–1850*. Cambridge University Press, 2011, Introduction and one chapter

2. From Gentlemen Scientists to the Science–Industry–State Nexus

Wednesday 11 November 14-17, Room 3

Topics: Professionalisation of science; Research universities and laboratories; The Pasteur Institute and Kaiser Wilhelm Society; The emergence of industrial research; Technical education and national competitiveness; Empire, warfare and scientific expertise; State support and the prehistory of modern science policy; Scientific autonomy versus socially directed research.

Guiding questions: Why did states begin to fund research and what did they expect in return? How did research universities, industrial laboratories and state institutes divide

the labour of producing knowledge? How did empire and war shape the uses of scientific expertise, and what room did they leave for scientific autonomy?

Primary sources — pick one:

- Humboldt, Wilhelm von. 'On the Spirit and the Organisational Framework of Intellectual Institutions in Berlin' [1809–10]. *Minerva* 8, no. 2 (1970): 242–50.
- Babbage, Charles. *Reflections on the Decline of Science in England, and on Some of Its Causes*. B. Fellowes, 1830, Chapter 1 and 2
- Pasteur, Louis. *Quelques réflexions sur la science en france*. Gauthier-Villars, 1871, 25-40
- Das "Harnack-Prinzip" in der Denkschrift von 1909 – bis heute geistige Grundlage der MPG — https://www.archiv-berlin.mpg.de/198631/Harnack-Prinzip

Literature — mandatory:

- Pestre, Dominique. 'Science, Political Power and the State'. In *Companion to Science in the Twentieth Century*, edited by John Krige and Dominique Pestre. Routledge, 2003, 61-75.
- Travis, Anthony S., Willem J. Hornix, Robert Bud, and Ernst Homburg. 'The Emergence of Research Laboratories in the Dyestuffs Industry, 1870–1900'. *The British Journal for the History of Science* 25, no. 1 (1992): 91–111.

Literature — pick one:

- Weindling, Paul. 'Scientific Elites and Laboratory Organisation in Fin de Siècle Paris and Berlin: The Pasteur Institute and Robert Koch's Institute for Infectious Diseases Compared'. In *The Laboratory Revolution in Medicine*, edited by Andrew Cunningham and Perry Williams. Cambridge University Press, 1992, 170-188.

- Friedrich, Bretislav, and Jeremiah James. 'From Berlin-Dahlem to the Fronts of World War I: The Role of Fritz Haber and His Kaiser Wilhelm Institute in German Chemical Warfare'. In *One Hundred Years of Chemical Warfare: Research, Deployment, Consequences*, edited by Bretislav Friedrich, Dieter Hoffmann, Jürgen Renn, Florian Schmaltz, and Martin Wolf. Springer International Publishing, 2017. https://doi.org/10.1007/978-3-319-51664-6_3, 25-44.
- Shapin, Steven. 'Who Is the Industrial Scientist? Commentary from Academic Sociology and from the Shop-Floor in the United States, ca. 1900-ca. 1970'. In *The Science-Industry Nexus: History, Policy, Implications*, edited by Karl Grandin, Nina Wormbs, and Sven Widmalm. Science History Publications, 2004.
- Fox, Robert, and Anna Guagnini, eds. *Education, Technology, and Industrial Performance in Europe, 1850-1939*. Cambridge University Press ; Èditions de la Maison des Sciences de l'Homme, 1993, one chapter on a national case.
- Headrick, Daniel R. *The Tools of Empire: Technology and European Imperialism in the Nineteenth Century*. Oxford University Press, 1981, Introduction and Conclusion
- Morris-Suzuki, Tessa. *The Technological Transformation of Japan: From the Seventeenth to the Twenty-First Century*. Cambridge University Press, 1994, chapter 4

3. Science, Technocracy and Planning in the Age of Mass Politics, 1914–1945

Wednesday 18 November 14-17, Room 3

Topics: The First World War and the mobilisation of science; Taylorism, Fordism and scientific management; Technocracy; Soviet planning and industrialisation; Fascist autarky and technological modernism; New Deal expertise; Science at the service of reformist and utopian political projects; Crisis, scarcity and Malthusianism

Guiding questions: Why did war, depression and mass politics make planning attractive to liberal, fascist and communist regimes alike? What did 'technocracy' promise, and to whom? Did autarky and planning accelerate technological development or distort it?

Primary sources — pick one:

- Stalin, "The Results of the First Five-Year Plan" (1933)
- Howard Scott, *Technocracy. Science vs Chaos* (1933)
- Hitler's Confidential Memo on Autarky (August 1936)
- Franklin Delano Roosevelt, "Radio Message to 8th Pan American Scientific Congress" (speech file 1281), May 10, 1940, http://www.fdrlibrary.marist.edu/_resources/images/msf/msf01323; Franklin Delano Roosevelt, "FDR addresses NIH" 1940 https://www.fdrlibrary.org/nih-footage
- John M. Keynes, "Economic Possibilities for Our Grandchildren" (1930)

Literature — mandatory:

- Eley, Geoff. *The Modernist Wish: A History of Europe, 1914-1939*. Cambridge University Press, 2026, chapter 10.

Literature — pick one:

- Tooze, Adam. *The Wages of Destruction: The Making and Breaking of the Nazi Economy*. Allen Lane, 2006, chapter "1936: Four Years to War".
- Link, Stefan J. *Forging Global Fordism: Nazi Germany, Soviet Russia, and the Contest over the Industrial Order*. Princeton University Press, 2020, chapter 2
- Hart, David M. *Forged Consensus: Science, Technology, and Economic Policy in the United States, 1921-1953*. Princeton University Press, 1998, Chapter 1, 2, 3 or 4
- Graham, Loren R. *Science in Russia and the Soviet Union*: A Short History. Cambridge university press, 1993, Introduction, Chapter 4, 5 or 6

- Maiocchi, Roberto. *Gli scienziati del Duce: Il ruolo dei ricercatori e del CNR nella politica autarchica del fascismo*. Carocci, 2003, one chapter
- Edgerton, David. *England and the Aeroplane: Militarism, Modernity and Machines*. Rev. ed. Penguin, 2013., Chapter 1, 2 or 3

4. Big Science and the Construction of the Postwar Science State

Wednesday 25 November 14-17, Room 3

Topics: Manhattan Project and "Big Science"; Vannevar Bush and the politics of scientific autonomy; The emergence of permanent state-funded research systems; Military patronage; Nuclear energy and "Atoms for Peace"; Sputnik, the space race and scientific manpower; Scientific internationalism and national competition; Reconstruction of European science; The Cold War university

Guiding questions: Should science be planned for social ends (Bernal) or left to set its own agenda (Bush, Polanyi)? How did military patronage shape the content, and not only the scale, of postwar science? How did the United States use science to build hegemony in Europe, and how did the Soviet Union organise its own big science?

Primary sources — pick one:

- Bernal, J.D. *The Social Function of Science*. Routledge, 1939, Chapter I (1-12); Chapter XVI (408-416)
- Vannevar Bush, *Science, the Endless Frontier* (1945), 1-22
- Dwight D. Eisenhower, "Atoms for Peace" Speech, December 8, 1953; Dwight D. Eisenhower, "Farewell Address", 1961.
- Polanyi, Michael. 'The Republic of Science: Its Political and Economic Theory'. *Minerva* 1, no. 1 (1962): 54–73. https://doi.org/10.1007/BF01101453.

Literature — mandatory:

- Oreskes, Naomi, and John Krige, eds. *Science and Technology in the Global Cold War*. The MIT Press, 2014, Introduction.
- Krige, John. *American Hegemony and the Postwar Reconstruction of Science in Europe*. MIT Press, 2014, Chapter 1.

Literature — pick one:

- Engel, Jonathan. *Transforming American Science: Universities, the Government, and the Cold War*. Routledge, 2023, pick one chapter.
- Oreskes, Naomi, and John Krige, eds. *Science and Technology in the Global Cold War*. The MIT Press, 2014, pick one national case or disciplinary case.
- Holloway, David. *Stalin and the Bomb: The Soviet Union and Atomic Energy, 1939–1956*. Yale University Press, 1994, chapter 7, 8, 9 or 10
- Kojevnikov, Alexei. 'The Phenomenon of Soviet Science'. *Osiris* 23, no. 1 (2008): 115–35. https://doi.org/10.1086/591871.
- Pollock, Ethan. *Stalin and the Soviet Science Wars*. Princeton University Press, 2006, chapter 3 or 7

5. Growthmanship, Productivity and the Scientific-Technological Revolution

Tuesday 1 December 14-17 Room 2

Topics: GDP and the establishment of economic growth as a primary political goal; Productivity and the postwar political economy; National economic planning; The OECD and the internationalisation of growth targets; R&D statistics and the measurement of national scientific capacity; The emergence of "science policy" as a distinct policy field; Basic versus applied research; The linear model of innovation; Soviet theories of the scientific-technological revolution; Science, technological change and welfare; Competing socialist and social-democratic approaches to scientific research

Guiding questions: When and why did growth become the primary yardstick of government, and what did GDP make visible or invisible? How did 'science policy' emerge as a distinct field, and what model of innovation did it assume? How did capitalist, social-democratic and socialist states differ in linking science to productivity?

Primary sources — pick one:

- Party executive of the Social Democratic Labour Party of Sweden, *Framstegens politik*. AB Framtidden, 1956, 5-21
- *OECD Observer*, 1963, 2, 'Policies for growth and price stability', 'Atomic energy for Europe's future needs', 'A policy for science'
- 'Science, economic growth and government policy.' *Minerva* 2, no. 2 (1964): 232–42. http://www.jstor.org/stable/41822010.
- N. S. Khrushchev, *Report of the Central Committee of the CPSU to the 22nd Congress of the Communist Party of the Soviet Union Delivered by N. S. Khrushchev*, October 17, 1961, 22-24, 113-127
- Amaldi, Edoardo. 'La cultura scientifica nella società moderna'. In *Ricerca scientifica e sviluppo economico*, edited by Comitato Nazionale per l'Energia Nucleare, Fausto Borrelli, and Pietro Longo, L'organizzazione, la spesa e il finanziamento della ricerca. Comitato Nazionale Energia Nucleare, 1963.
- Harold Wilson, Labour's Plan for Science, Speech to the Labour Party Annual Conference, Scarborough, 1 October 1963 (the "white heat" speech)

Literature — mandatory:

- Schmelzer, Matthias. 'The Growth Paradigm: History, Hegemony, and the Contested Making of Economic Growthmanship'. *Ecological Economics* 118 (October 2015): 262–71. https://doi.org/10.1016/j.ecolecon.2015.07.029.
- Godin, Benoît. "The Linear Model of Innovation: The Historical Construction of an Analytical Framework." *Science, Technology, & Human Values* 31, no. 6 (2006): 639–667.

Literature — pick one:

- Guth, Stefan. 'One Future Only. The Soviet Union in the Age of the Scientific-Technical Revolution'. *Journal of Modern European History* 13, no. 3 (2015): 355–76. https://doi.org/10.17104/1611-8944-2015-3-355
- Feygin, Yakov. *Building a Ruin: The Cold War Politics of Soviet Economic Reform*. Harvard University Press, 2024. https://doi.org/10.4159/9780674296664, chapter 1 (14-40) or chapter 3 (62-93)
- Schmelzer, Matthias. *The Hegemony of Growth: The OECD and the Making of the Economic Growth Paradigm*. Cambridge University Press, 2017, Chapter 4 and 5.
- Lepenies, Philipp. *The Power of a Single Number: A Political History of GDP*. Columbia University Press, 2016, one chapter

6. Modernisation, Decolonisation and Technoscientific Development

Wednesday 9 December 14-17, Room 3

Topics: Modernisation theory; Development economics; Rostow and stages of growth; Postcolonial economic planning; Nehruvian science and development; Dams, heavy industry and nuclear technology; Nkrumah and technological sovereignty; Socialist approaches to development; Latin American structuralism and dependency theory; The Green Revolution; Western and Soviet technical assistance; Development aid and scientific cooperation; Non-alignment; the New International Economic Order; Westernisation and alternative modernities

Guiding questions: Was development a Western export or did postcolonial and Latin American thinkers produce their own theories of growth? Why were large technological projects — dams, reactors, steel mills — so central to postcolonial statehood?

How did Cold War competition between Western and Soviet aid shape the science and technology that new states received?

Primary sources — pick one:

- Rostow, Walt Whitman. *The Stages of Economic Growth: A Non-Communist Manifesto*. 3rd ed. Cambridge University Press, 1990, Chapter 2 and 5
- Nehru, Jawaharlal. *The Discovery of India*. Oxford University Press, 1989, 395-415; 505-515; Government of India. *Scientific Policy Resolution*. No. 131/CF/57, 4 March 1958.
- Kwame Nkrumah's full speech at the laying of foundation stone for the construction of Ghana Atomic Reactor at Kwabenya, on 25 November 1964, https://medium.com/kwame-nkrumahs-works/kwame-nkrumahs-full-speech-at-the-laying-of-foundation-stone-for-the-construction-of-ghana-atomic-8e5c2a4d6705; Julius Nyerere, *The Arusha Declaration and TANU's Policy on Socialism and Self-Reliance*, 1967
- King, Alexander, and Aklilu Lemma. 'Science and Technology for Development'. In *Issues of Development: Towards a New Role for Science and Technology*, edited by Maurice Goldsmith and Alexander King. *International Symposium on Science and Technology for Development*, Oxford New York. Pergamon Press, 1979, 7-31
- Prebisch, Raúl. *The Economic Development of Latin America and Its Principal Problems. United Nations*, Department of Economic Affairs, 1950, chapters 1 and 2

Literature — mandatory:

- Unger, Corinna R., Iris Borowy, and Corinne A. Pernet. 'The History of Development: A Critical Overview'. In *The Routledge Handbook on the History of Development*, edited by Corinna R. Unger, Iris Borowy, and Corinne A. Pernet. Routledge, 2022

- Lewis, Su Lin, and Nana Osei-Opare, eds. *Socialism, Internationalism, and Development in the Third World: Envisioning Modernity in the Era of Decolonization*. Bloomsbury Academic, 2024, Introduction.

Literature — Pick one:

- Engerman, David C. *The Price of Aid: The Economic Cold War in India*. Harvard University Press, 2018, pick a chapter.
- Iandolo, Alessandro. 'Socialist Approaches to Development.' In *The Routledge Handbook on the History of Development*, 2022.
- Osseo-Asare, Abena Dove. *Atomic Junction: Nuclear Power in Africa after Independence*. Cambridge University Press, 2019, Introduction and one chapter
- Cullather, Nick. *The Hungry World: America's Cold War Battle against Poverty in Asia*. Harvard University Press, 2010, one chapter
- Fajardo, Margarita. *The World That Latin America Created: The United Nations Economic Commission for Latin America in the Development Era*. Harvard University Press, 2022, Introduction and one chapter
- Gilman, Nils. 'The New International Economic Order: A Reintroduction'. *Humanity* 6, no. 1 (2015): 1–16.

7. Developmental States and the Asian Challenge

Wednesday 16 December 14-17, Room 3

Topics: Japan and the developmental-state model; MITI and industrial policy; South Korea and Taiwan; Singapore; Export-oriented industrialisation; Technology transfer and technological learning; Education, R&D and human capital; State-owned enterprise and national champions; Authoritarian developmentalism; Deng Xiaoping and Reform and Opening; Special Economic Zones; China and technological catch-up; Development beyond Western liberal models.

Guiding questions: What did East Asian states do that orthodox economics said they should not and why did it work? How did latecomers move from importing technology to generating it? Was the developmental state a model others could copy, or the product of specific Cold War conditions?

Primary sources – pick one:

- Hayato Ikeda, Policy Speech to the 36th Diet, 21 October 1960 (https://worldjpn.net/documents/texts/pm/19601021.SWJ.html)
- Park Chung Hee, "New Year's Press Conference", 12 January 1973
- Deng Xiaoping's Speeches on Science and Technology
- Lee Kuan Yew. *From Third World to First: The Singapore Story 1965-2000:Memoirs of Lee Kuan Yew Vol. 2*. Marshall Cavendish, 2012, Chapter 4

Literature — mandatory:

- Chang, Ha-Joon. *Kicking Away the Ladder: Development Strategy in Historical Perspective*. Anthem Press, 2002, Chapter 2
- Gerschenkron, Alexander. 'Economic Backwardness in Historical Perspective'. In *Economic Backwardness in Historical Perspective: A Book of Essays*. The Belknap Press of Harvard University Press, 1962, 5–30.

Literature — pick one:

- Johnson, Chalmers A. *MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925-1975*. Stanford University Press, 1982, chapter 1 and 6.
- Koh, Winston T.H., and Poh Kam Wong. 'Competing at the Frontier: The Changing Role of Technology Policy in Singapore's Economic Strategy'. *Technological Forecasting and Social Change* 72, no. 3 (2005): 255–85. https://doi.org/10.1016/j.techfore.2004.08.006.
- Naughton, Barry. *The Chinese Economy: Adaptation and Growth*. 2nd ed. The MIT Press, 2018, Chapters 7 and 15

- Kim, Linsu. *Imitation to Innovation: The Dynamics of Korea's Technological Learning*. Harvard Business School Press, 1997, Chapter 1 and one chapter
- Wade, Robert. *Governing the Market: Economic Theory and the Role of Government in East Asian Industrialization*. Princeton University Press, 2004, Introduction and Chapter 7

8. The Crisis of Progress: Limits, Environmentalism and Radical Science, 1968–1980
Wednesday 13 January 14-17, Room 3

Topics: The environmental turn; Population control and neo-Malthusianism; The Limits to Growth; Stockholm 1972; Energy crisis and resource scarcity; Nuclear controversy; Pollution and technological risk; The crisis of technocracy; Counter-expertise; Science for the People and the Radical Science Movement; Critiques of the neutrality of science; Quality of life versus production; Socialist, social democratic and communist responses to environmental limits; Reduced expectations after the postwar boom.

Guiding questions: Did the 1970s end the growth consensus or only the postwar boom? Were limits a physical fact, a political construction or both? How did the Left — communist, social democratic and New Left — respond to the critique of growth and to the critique of science itself?

Primary sources — mandatory:

- Meadows, Donella H., Dennis L. Meadows, Jørgen Randers, and William W. Behrens III. *The Limits to Growth: A Report for The Club of Rome's Project on the Predicament of Mankind*. Universe Books, 1972, Introduction

Primary sources — pick one:

- Commoner, Barry. *The Closing Circle: Nature, Man, and Technology*. 1971; Dover Publications, Inc, 2020, pick one chapter.

- Schmalzer, Sigrid, Daniel S. Chard, and Alyssa Botelho, eds. *Science for the People: Documents from America's Movement of Radical Scientists*. University of Massachusetts Press, 2018, Document 1.4 (31-36), Document 4.3 (94-98), Document 9.4 (213-216).
- Valéry Giscard d'Estaing, *La mise en oeuvre du programme de développement économique et d'aide aux investissements* (1975)
- Jim Callaghan, *We used to think you could spend your way out of recession* (LPACR 1976)
- Jimmy Carter, *Crisis of Confidence* (Malaise Speech) 1979
- Olof Palme, 'Statement by Prime Minister Olof Palme in the Plenary Meeting', UN Conference on the Human Environment, Stockholm, 6 June 1972
- Enrico Berlinguer, *Austerità occasione per trasformare l'Italia*. Editori Riuniti, 1977 (speeches of 15 January 1977)

Literature — mandatory:

- Macekura, Stephen. *Of Limits and Growth: The Rise of Global Sustainable Development in the Twentieth Century*. Cambridge University Press, 2015, Introduction, Chapter 4

Literature — pick one:

- Gross, Stephen G. *Energy and Power: Germany in the Age of Oil, Atoms, and Climate Change*. Oxford University Press, 2023, Introduction and Chapter 6
- Kirchhof, Astrid Mignon, and John Robert McNeill, eds. *Nature and the Iron Curtain: Environmental Policy and Social Movements in Communist and Capitalist Countries, 1945-1990*. University of Pittsburgh Press, 2019, Introduction and one case study
- Maier, Charles S. '"Malaise": The Crisis of Capitalism in the 1970s'. In *The Shock of the Global: The 1970s in Perspective*, edited by Niall Ferguson, Charles

S. Maier, Erez Manela, and Daniel J. Sargent. The Belknap Press of Harvard University Press, 2010, 25–48.

- Sörlin, Sverker, and Eric Paglia. *Stockholm and the Rise of Global Environmental Governance: The Human Environment*. Cambridge University Press, 2025, Conclusion.
- De Groot, Michael. *Disruption: The Global Economic Shocks of the 1970s and the End of the Cold War*. Cornell University Press, 2024, Introduction

9. From Progress to Innovation, Risk and Sustainable Development, 1980–2000

Wednesday 20 January 14-17, Room 3

Topics: The aftermath of the growth crisis; From "science policy" to "innovation policy"; Competitiveness; Biotechnology and information technology; National innovation systems; Commercialisation of university research; The entrepreneurial university; Neoliberal reform of scientific institutions; Chernobyl; Risk society; Environmental expertise; Brundtland and "sustainable development"; Ecological modernisation; Rio 1992; The knowledge economy.

Guiding questions: How did 'innovation' replace 'science' and 'progress' as the keyword of policy, and what did that mean for universities? Did sustainable development reconcile growth and environment, or postpone the conflict? How did the end of the Cold War reshape the geography of science and growth?

Primary sources (pick one):

- Mikhail Gorbachev, televised address on Chernobyl, 14 May 1986.
- World Commission on Environment and Development. *Our Common Future* (Brundtland Report). 1987, Foreword (11-17), From One Earth to One World (18-38).

- Margaret Thatcher, speech to the UN General Assembly on the global environment, 1989.
- Ulrich Beck, *Risk Society: Towards a New Modernity* (Sage Publications, 1992), Introduction
- Lisbon European Council, Presidency Conclusions, 23–24 March 2000, Part I

Literature — mandatory:

- Berman, Elizabeth Popp. *Creating the Market University: How Academic Science Became an Economic Engine*. Princeton University Press, 2012, Chapters 1

Literature — pick one:

- Agar, Jon. *Science Policy under Thatcher*. UCL Press, 2019, Introduction and one chapter.
- Godin, Benoît. *Models of Innovation: The History of an Idea*. The MIT Press, 2017, 7, 8 or 9.
- Macekura, Stephen. *Of Limits and Growth: The Rise of Global Sustainable Development in the Twentieth Century*. Cambridge University Press, 2015, Chapter 6 or 7
- Bartel, Fritz. *The Triumph of Broken Promises: The End of the Cold War and the Rise of Neoliberalism*. Harvard University Press, 2022, Introduction.
- Andersson, Jenny. *The Library and the Workshop: Social Democracy and Capitalism in the Knowledge Age*. Stanford University Press, 2010, Introduction and one chapter

10. Twenty-First-Century Crossroads: Degrowth, Green Growth and the Return of Technological Optimism

Wednesday 27 January 14-17, Room 3

Topics: Long-term productivity slowdown and secular stagnation; Climate change and ecological constraints; Degrowth; Green growth; Green industrial policy; Mission-oriented innovation; Ecomodernism; Green New Deal; "Abundance"; AI and expectations of renewed productivity growth; China, industrial policy and green technologies; The return of technological optimism; Scarcity, distribution and the political legitimacy of growth.

Guiding questions: Is the productivity slowdown a lasting condition or a pause before an AI-driven boom? Can growth be decoupled from emissions and resource use fast enough, or must rich countries stop growing? Who should direct technological change — markets, missions or citizens — and who benefits from it?

Primary sources — pick one:

- Hickel, Jason. *Less Is More: How Degrowth Will Save the World*. William Heinemann, 2022, Chapter 2
- Klein, Ezra, and Derek Thompson. *Abundance*. Avid Reader Press, 2025, Introduction, Chapter 4
- Bastani, Aaron. *Fully Automated Luxury Communism: A Manifesto*. Verso, 2019, Chapter 2 and 3
- Latouche, Serge, and Didier Harpagès. *Il Tempo Della Decrescita. Introduzione Alla Frugalità Felice*. Elèuthera, 2017, one chapter.
- *The Ecomodernist manifesto*, https://www.ecomodernism.org/
- Andreessen, Marc. 'The Techno-Optimist Manifesto'. Andreessen Horowitz, 16 October 2023. https://a16z.com/the-techno-optimist-manifesto/
- Address by Mr. Mario Draghi at the presentation of the report on the Future of European competitiveness in the European Parliament

Literature — mandatory:

- Susskind, Daniel. *Growth: A History and a Reckoning*. The Belknap Press, 2024, Introduction and Conclusion
- Schmelzer, Matthias, Andrea Vetter, and Aaron Vansintjan. *The Future Is Degrowth: A Guide to a World beyond Capitalism*. Verso, 2022, Chapter 4

Literature — pick one:

- Mazzucato, Mariana. *The Entrepreneurial State: Debunking Public vs Private Sector Myths*. New edition. Penguin Publishing Group, 2024, Pick one chapter
- Muraca, Barbara, and Matthias Schmelzer. 'Sustainable Degrowth: Historical Roots of the Search for Alternatives to Growth in Three Regions'. In *History of the Future of Economic Growth: Historical Roots of Current Debates on Sustainable Degrowth*, edited by Iris Borowy and Matthias Schmelzer. Routledge, Taylor & Francis Group, 2017.
- Gordon, Robert J. *The Rise and Fall of American Growth: The U.S. Standard of Living since the Civil War*. Princeton University Press, 2016, Chapters 1 and 17
- Acemoglu, Daron, and Simon Johnson. *Power and Progress: Our Thousand-Year Struggle over Technology and Prosperity*. PublicAffairs, 2023, Prologue and Chapter 1
- Wang, Dan. *Breakneck: China's Quest to Engineer the Future*. W. W. Norton, 2025, Introduction and one chapter