

Technological Change and Social Development

Bogdan G. Popescu

Course Information

Course Number: P1012.601

Course Title: Technological Change and Social Development

Time: Tue/Fri: 13:00-15:00

Location: 2003

Instructor Details

Instructor: Bogdan Popescu

Office: Santa FE E-Mail: bgpopescu@tec.mx Office Hours: By appointment

Course Schedule

Week	Date	Topic
1	2/9/25	Introduction and course overview
1	2/12/25	How to Read and Present Academic Papers
2	2/16/25	Technology and Markets: Polany
2	2/19/25	Presentations
3	2/23/25	Ancient Societies. Boix and Allen
3	2/26/25	Presentations
4	3/2/25	Agricultural Revolution
4	3/5/25	Presentations
5	3/9/25	Printing Press
5	3/12/25	Presentations
7	3/23/26	Review for Exam
7	3/26/26	Exam
8	4/6/26	Industrial Revolution
8	4/9/26	Presentations
9	4/13/26	How Technologies Emerge, Evolve, and Transform Society
9	4/16/26	Presentations
10	4/20/26	Catchup
11	4/27/26	Technology Labor and Automation
11	4/30/26	Presentations
13	5/11/26	AI, State Control, Privacy, and Human Rights

Week	Date	Topic
13	5/14/26	Presentations
14	5/18/26	AI, Economic Growth and Inequality
14	5/21/26	Presentations
15	5/25/26	AI and IR
15	5/28/26	Presentations
16	6/1/26	Review for Exam
16	6/4/26	Exam
17	6/8/26	Final Thoughts

Course Description

This course examines the dynamic relationship between technological innovation and social transformation, emphasizing the ways in which technology both shapes and is influenced by institutions and societal structures. Drawing on theoretical perspectives and debates in political science and economics, we will address three central questions: 1) How does technological change affect social organization and economic development? 2) Why do technological advances so often fail to produce equitable outcomes? 3) To what extent can technological trajectories be guided or governed? Students will engage critically with the political, economic, and ethical dimensions of technological change, evaluating how societies might direct innovation toward more inclusive, just, and sustainable forms of development.

Learning Outcomes

Upon successful completion of this course the students will be able to:

- Explain key concepts and theories linking technological change to social, political, and economic development.
- Compare major theoretical perspectives on how technology shapes institutions, inequality, and growth.
- Apply course theories to real-world cases, assessing the social and political consequences of specific technologies.
- Critically evaluate empirical claims about technological change, identifying assumptions, evidence, and limitations.
- Communicate clear, well-structured arguments about technology and development in written exams, oral presentations, and class discussion.

Textbook and/or Resource Materials

No textbook required

Assessment

There are three components to the final grade for this class:

- Contributions to Class 33%
- Mid-term 33%

- Final exam 33%

Contributions to Class

The contributions to class are the average of:

- presentation
- physical presence
- class participation
- questions submitted every week
- quality of questions

The mid-term and final exams are closed-book. They will test the improvement of students' knowledge of the theories and facts developed in the course, and independent critical thinking. Both the mid-term and final exams represent 33% of the grade.

A major exam (midterm or final) cannot be made up without the permission of the Dean's Office. The Dean's Office will grant such permission only when the absence was caused by a serious impediment, such as a documented illness, hospitalization or death in the immediate family (in which you must attend the funeral) or other situations of similar gravity. Absences due to other meaningful conflicts, such as job interviews, family celebrations, travel difficulties, student misunderstandings or personal convenience, will not be excused. Students who will be absent from a major exam must notify the Dean's Office prior to that exam. Absences from class due to the observance of a religious holiday will normally be excused. Individual students who will have to miss class to observe a religious holiday should notify the instructor by the end of the Add/Drop period to make prior arrangements for making up any work that will be missed.

Presentations

Each student will deliver a 15 minute presentation on a topic assigned in advance. Presentations should include a clear introduction, main points, and conclusion. Use visual aids (e.g., slides) effectively, ensuring text is legible and visuals are relevant. Practice beforehand to stay within the time limit and maintain a confident, professional tone. Be prepared to answer 2-3 questions from peers or the instructor during and after the presentation. Remember to cite your sources and avoid reading verbatim from slides or notes.

In addition to summarizing the key arguments or findings, your presentation should include critical analysis of the material. Highlight what the author does not address, the limitations of their research, or potential problems in their analysis or methodology. Think about how the research could be improved, expanded, or connected to broader themes discussed in class, and incorporate these insights into your presentation.

You can find below an example of a good presentation together with an explanation for why it is good:

- [Presentation Example](#)

Rubric for Presentations

Criteria	Weak	Points	Satisfactory	Points	Strong	Points
Content Knowledge	Limited understanding of the reading, may not accurately summarize key points.	10	Adequate understanding of the reading, provides a basic summary of key points.	20	Comprehensive understanding of the reading, presents a nuanced and detailed summary of key points.	29
Critical Analysis	Fails to offer meaningful analysis or insights. Limited connection to broader concepts.	10	Offers some analysis, but lacks depth and may not connect insights to broader themes.	10	Provides a sophisticated and insightful analysis, linking key points to broader theoretical or empirical frameworks.	15
Organization	Presentation lacks structure, making it difficult to follow. Ideas are disjointed.	10	Somewhat organized, but transitions between ideas are weak. Some difficulty in following the presentation.	10	Well-organized presentation with clear transitions between sections, making it easy to follow and understand.	15
Clarity of Expression	Uses unclear language or terminology. Communication may be challenging for the audience.	10	Communication is generally clear, but some jargon or complex sentences may hinder understanding.	10	Communicates ideas effectively, using clear language and appropriate terminology. Easy for the audience to follow.	15

Criteria	Weak	Points	Satisfactory	Points	Strong	Points
Engagement with Audience	Minimal engagement with the audience. Lack of eye contact and enthusiasm.	5	Some engagement with the audience, but may struggle to maintain interest. Limited eye contact and enthusiasm.	9	Actively engages with the audience, maintains eye contact, and demonstrates enthusiasm for the topic. Captivates the audience's interest.	10
Visual Aids (if applicable)	No or poorly designed visual aids that do not enhance understanding.	5	Basic visual aids that partially enhance understanding.	7	Well-designed and effective visual aids that significantly contribute to the clarity and impact of the presentation.	8
Time Management	Presentation significantly exceeds or falls short of the allocated time.	5	Presentation is within the acceptable time range but lacks balance between summarizing and analyzing.	7	Effectively manages time, presenting a well-balanced combination of summarization and critical analysis within the allocated time.	8
Total Points		55		73		100

Attendance

Students are required to attend classes following the University's policies. Students with more than three unexcused absences are assumed to have withdrawn from the course. Students with a justified reason not to attend class have to send me an email explaining why they cannot attend ahead of class.

Academic Honesty

As stated in the university catalog, any student who commits an act of academic dishonesty will receive a failing grade on the work in which the dishonesty occurred. In addition, acts of academic dishonesty, irrespective of the weight of the assignment, may result in the student receiving a failing grade in the course. Instances of academic dishonesty will be reported to the Dean of Academic Affairs. A student reported twice for academic dishonesty is subject to summary dismissal from the University. In such a case, the Academic Council will then make a recommendation to the President, who will make the final decision.

Students with Learning Difficulties and other Disabilities

The University does not discriminate based on disability. Students with approved accommodations must inform their professors at the beginning of the term. Please see the website for the complete policy.

1 The Big Picture

Lecture

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Lecture - Reading Academic Papers

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Lecture - Academic Presentations

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Reading

Diamond, Jared (1987). "The Worst Mistake in the History of the Human Race." *Discover Magazine*, May 1987, pp. 64-66.

Bijker, Wiebe E., Thomas P. Hughes, and Trevor Pinch (1987). "The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology" (Introduction chapter only, pp. 1-16). MIT Press.

Winner, Langdon (1980). "Do Artifacts Have Politics?" *Daedalus*, 109(1), pp. 121-136.

2 Technology and Social Change

Lecture

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Reading

Polanyi, K. (1944). *The great transformation: The political and economic origins of our time*. Farrar & Rinehart. Read Ch. 4: "Societies and Economic Systems" and Ch. 6: "The Self-Regulating Market and the Fictitious Commodities". **Presentation by Mariane A. M.**

Polanyi, K. (1957). The economy as instituted process. In K. Polanyi, C. Arensberg, & H. Pearson (Eds.), *Trade and market in the early empires* (pp. 243–270). Free Press. **Presentation by Alexandra A. N.**

Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology*, 91(3), 481–510. **Presentation by Miguel C. V.**

Haidt, J. (2024). *The anxious generation: How the great rewiring of childhood is causing an epidemic of mental illness*. Penguin Press. Read Ch. 1: “The Surge of Suffering” and Ch. 5: “The Four Foundational Harms.” **Presentation by Fernando C. S.**

3 Ancient Societies and Technology

Lecture

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Reading

Boix, C. (2015). Political order and inequality. Cambridge University Press. Read Ch. 1: “Tabula Rasa”. **Presentation by Leonardo C. R.**

Acemoglu, D., & Robinson, J. A. (2012). Why nations fail: The origins of power, prosperity, and poverty. Crown. Read Ch. 2: “Theories That Don’t Work” and Ch. 3: “The Making of Prosperity and Poverty”. **Presentation by Eduardo C. V.**

North, D. C. (1990). Institutions, institutional change, and economic performance. Cambridge University Press. Read Ch. 1–3 (pp. 3–26). **Presentation by Oscar G. Z.**

Allen, R. C. (2009). The British industrial revolution in global perspective. Cambridge University Press. Read Ch. 1: “The Industrial Revolution and the Pre-Industrial Economy” and Ch. 2: “The High Wage Economy of Pre-Industrial Britain”. **Presentation by Regina G. H.**

4 Agricultural Revolution

Lecture

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Reading

Diamond, J. (1997). Guns, germs, and steel: The fates of human societies. W. W. Norton. Read Ch. 5: “History’s Haves and Have-Nots” and Ch. 6: “To Farm or Not to Farm”. **Presentation by Natalia G. B.**

Bellwood, P. (2005). First farmers: The origins of agricultural societies. Blackwell. Read Ch. 1: “The Early Farming Dispersal Hypothesis in Perspective” and Ch. 2: “The Origins and Dispersals of Agriculture.” **Presentation by José G. L.**

Scott, J. C. (2017). Against the grain: A deep history of the earliest states. Yale University Press. Read Ch. 1: “The Domestication of Fire, Plants, Animals, and...Us” and Ch. 2: “Landscaping the World: The Domus Complex”. **Presentation by Marcos H. S.**

North, D. C. (1990). Institutions, institutional change and economic performance. Cambridge University Press. Read Ch. 5: “Informal Constraints,” and Ch. 6: “Formal Constraints”. **Presentation by Paulo M. T.**

5 The Political Economy of the Printing Press

Lecture

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Reading

Eisenstein, E. L. (1979). *The printing press as an agent of change*. Cambridge University Press. Read Ch. 1: “The Unacknowledged Revolution”. **Presentation by Julia M. O.**

Dittmar, J. E. (2011). Information technology and economic change: The impact of the printing press. *Quarterly Journal of Economics*, 126(3), 1133–1172. **Presentation by Rodrigo M. A.**

Rubin, J. (2014). Printing and Protestants: An empirical test of the role of printing in the Reformation. *Review of Economics and Statistics*, 96(2), 270–286. **Presentation by Emiliano M. O.**

Becker, S. O., & Woessmann, L. (2009). Was Weber wrong? A human capital theory of Protestant economic history. *Quarterly Journal of Economics*, 124(2), 531–596. **Presentation by Andrés M. O.**

7 Exam Review

Lecture

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8 Industrial Revolution

Lecture

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Reading

Allen, R. C. (2009). Engels’ pause: Technical change, capital accumulation, and inequality in the British Industrial Revolution. *Explorations in Economic History*, 46(4), 418–435. **Presentation by José O. A.**

Crafts, N. F. R. (1985). *British economic growth during the Industrial Revolution*. Oxford University Press. Read Ch. 2: “Estimates of Economic Growth” and Ch. 4: “Sources of Economic Growth”. **Presentation by Francisco O. G.**

Mokyr, J. (2002). *The gifts of Athena: Historical origins of the knowledge economy*. Princeton University Press. Read Ch. 1: “Technology and the Problem of Human Knowledge” and Ch. 3: “The Industrial Revolution and Beyond”. **Presentation by Natalia P. G.**

Bresnahan, T. F., & Trajtenberg, M. (1995). General purpose technologies: “Engines of growth”? *Journal of Econometrics*, 65(1), 83–108. **Presentation by Cristian P. T.**

9 How Technologies Emerge, Evolve, and Transform Society

Lecture

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Reading

Schumpeter, J. A. (1942). *Capitalism, socialism and democracy*. Harper & Brothers. Read Ch. 7: “The Process of Creative Destruction” and Ch. 8: “Monopolistic Practices”. **Presentation by Manuel P. V.**

Arthur, W. B. (2009). *The nature of technology: What it is and how it evolves*. Free Press. Read Ch. 6: “The Origin of Technologies” and Ch. 9: “The Mechanisms of Evolution”. **Presentation by Emilio P. P.**

David, P. A. (1985). Clio and the economics of QWERTY. *American Economic Review*, 75(2), 332–337. **Presentation by Juan R. O.**

Mokyr, J. (2002). *The gifts of Athena: Historical origins of the knowledge economy*. Princeton University Press. Read Ch. 6: “The Political Economy of Knowledge” and Ch. 7: “Institutions, Knowledge, and Economic Growth”. **Presentation by Ana R. O.**

11 Technology, Labor & Automation

Lecture

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Reading

Acemoglu, D., & Restrepo, P. (2019). Automation and new tasks: How technology displaces and reinstates labor. *Journal of Economic Perspectives*, 33(2), 3–30. **Presentation by Emiliano R. S.**

Acemoglu, D., & Restrepo, P. (2020). Robots and jobs: Evidence from U.S. labor markets. *Journal of Political Economy*, 128(6), 2188–2244. **Presentation by Katia R. O.**

Frey, C. B., & Osborne, M. A. (2017). The future of employment: How susceptible are jobs to computerisation? *Technological Forecasting and Social Change*, 114, 254–280. **Presentation by Héctor S. T.**

Goldin, C., & Katz, L. F. (2008). *The race between education and technology*. Harvard University Press. Read Ch. 3: “Skill-Biased Technological Change” and Ch. 8: “The Race between Education and Technology.” **Presentation by Emilio S. R.**

13 AI, State Control, Privacy, and Human Rights

Lecture

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Reading

Scott, J. C. (1998). Seeing like a state: How certain schemes to improve the human condition have failed. Yale University Press. Read Ch. 1: “Nature and Space” and Ch. 3: “Authoritarian High Modernism”. **Presentation by Santiago S. M.**

Acemoglu, D., & Robinson, J. A. (2012). Why nations fail: The origins of power, prosperity, and poverty. Crown Business. Read Ch. 12: “The Vicious Circle” and Ch. 13: “Why Nations Fail Today.” **Presentation by Ranferi T.**

Cohen, J. E. (2019). Turning privacy inside out. *Theoretical Inquiries in Law*, 20(1), 1–31. **Presentation by Ignacio V. R.**

Buolamwini, J., & Gebru, T. (2018). Gender shades: Intersectional accuracy disparities in commercial gender classification. *Proceedings of Machine Learning Research*, 81, 77–91. **Presentation by Alejandro Z. R.**

14 AI, Economic Growth, and Inequality

Lecture

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Reading

Acemoglu, D., & Restrepo, P. (2022). Tasks, automation, and the rise in U.S. wage inequality. *Econometrica*, 90(5), 1973–2016.

Acemoglu, D., & Johnson, S. (2023). *Power and Progress: Our Thousand-Year Struggle Over Technology and Prosperity*. PublicAffairs. Read Ch. 8: “Digital Damage” and Ch. 9: “Artificial Struggle.”

Autor, D. H. (2015). Why are there still so many jobs? The history and future of workplace automation. *Journal of Economic Perspectives*, 29(3), 3–30.

Brynjolfsson, E., Li, D., & Raymond, L. R. (2023). *Generative AI at Work* (NBER Working Paper No. 31161). National Bureau of Economic Research.

15 Artificial Intelligence and International Relations

Lecture

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Reading

Ndzendze, B., & Marwala, T. (2023). *Artificial intelligence and international relations theories*. Palgrave Macmillan. Read Ch. 1: “Introduction” and Ch. 5: “Realism.”

Acemoglu, D., & Johnson, S. (2023). *Power and progress: Our thousand-year struggle over technology and prosperity*. PublicAffairs. Read Ch. 10: “Democracy Breaks” and Ch. 11: “Redirecting Technology.”

Frey, C. B. (2019). *The technology trap: Capital, labor, and power in the age of automation*. Princeton University Press. Read Ch. 11: “The Politics of Polarization” and Ch. 13: “The Road to Riches”.

Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. W. W. Norton & Company. Read Ch. 9: “The Spread” and Ch. 11: “Implications of the Bounty and the Spread.”

16 Exam Review

Lecture

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17 Final Thoughts

Lecture

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Transferrable Skills

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