

# HPSC0095 – Special Topics in Science, Technology and Society: Global Governance and Emerging Technologies Course Syllabus

2023-24 session | Dr Saheli Datta Burton, Lecturer (Teaching) in Science Policy | [saheli.burton@ucl.ac.uk](mailto:saheli.burton@ucl.ac.uk)

## Course description

Global governance is notoriously complex, contested, and contingent. This is especially the case for emerging technologies such as AI, 5G, IoT, Global Internet, GMOs, (bio)pharmaceuticals, gene editing etc. where the implications for society are as profound and entangled with our daily lives, as they are globally dispersed. For instance, what might global governance of AI look like, what does it entail and what are its implications? Through the lens of key controversies across various emerging technology areas, students in this module will critically explore issues of authority, legitimacy, contestation, deliberation and solidarity informed by theories and concepts from science and technology studies, science policy, international political economy, and international politics.

## Basic course information

Moodle Web site:	<a href="https://moodle.ucl.ac.uk/course/view.php?id=37558">https://moodle.ucl.ac.uk/course/view.php?id=37558</a>
Assessment:	Coursework 1 (40%): Article Appraisal (1500 words) Coursework 2 (60%): Essay (2000 words)
Timetable:	<a href="http://www.ucl.ac.uk/sts/hpsc">www.ucl.ac.uk/sts/hpsc</a>
Prerequisites:	No pre-requisites.
Course tutor(s):	Saheli Datta Burton
Contact:	<a href="mailto:Saheli.burton@ucl.ac.uk">Saheli.burton@ucl.ac.uk</a>
Office location:	B14
Office hours (online):	Walk-in Friday 4 to 5pm; Online by appointment

## Schedule

UCL Week	Week beginning	Topic	Seminar leader	Activity
6	6 Oct	Global Governance: <i>What it is, what it is not, why we need it and why it is so difficult?</i>	SDB	Introduction and overview to 'governance without government'.
7	13 Oct	Governance without Government: <i>whither authority?</i>	SDB	Theoretical foundations.
8	20 Oct	<i>Should experts govern?</i>	SDB	Scientific Self-Regulation: WTO-TRIPS and (bio)Pharmaceuticals
9	27 Oct	<i>Should bioethicists govern?</i>	TBD	Global 'ethical' governance: Recombinant DNA and AI
10	4 Nov	<i>Should private (for-profit) actors govern the technologies they produce?</i>	SDB	Technology Standardisation: Human Genetic Technologies.
12	11 Nov	<b>Reading Week</b>		
11	17 Nov	<i>Should civil society participate in global governance of science and technology?</i>	SDB	GMOs: Contestation, Deliberation; Equity, Access.
13	24 Nov	<i>Return of the state?</i>	TBD	(Geo)Politics: 2G and 3G Standard Wars.
14	1 Dec	<i>Splinternet: Digital Sovereignty or Multistakeholderism?</i>	TBD	Contemporary GG Issues - the Global Internet.
15	8 Dec	Clinical Trials and the rise of Real-World Evidence: <i>Infrastructures of Domination?</i>	SDB	Contemporary GG Issues - Emerging Health Technologies.
16	15 Dec	<i>Polycentricity, fragmentation or solidarity?</i>	SDB	

## Assessments

Type	Description	Deadline	Word limit
Essay	Article Appraisal	13-Nov-23	1500
Essay	Essay	17-Jan-24	2000

### Criteria for assessment

The departmental marking guidelines for individual items of assessment can be found in the STS Student Handbook.

### Essay

In addition to the criteria indicated in the STS Student Handbook, the following are the main criteria on which your essay will be marked. There are no set numbers/ percentages associated with these criteria but we will give you qualitative feedback based on them.

### **1. Answer the question**

Read the question carefully and answer it specifically – do not give irrelevant material or drift into answering other questions.

### **2. Organisation**

It is standard for any good writing to have an introduction (including a line clearly stating your argument), body, and conclusion. It is also important that each part flow naturally into the next one section. Towards this end, it is helpful to use 'signposting' sentences (e.g., in this section I will argue that...) or section headings (e.g., Introduction).

### **3. Introduction**

The best introductions are one or two paragraphs. In standard practice, 'introductions' start with a sentence or two to explain the problem you are writing about and why it is a problem. Another line or two to explain 'why we should care' about the problem in question. Then a line to explain what data you will use to argue your point and (typically) the last line of the introductory first paragraph should be your line of argument, no more. Good introductions are concise and precise. For instance, you might write something like "Drawing on a discourse analysis of policy documents of the UK Government from 2020 to 2022, I will argue that..."

### **4. Clarity**

We place great emphasis on clarity of argument, expression, and word choice. Avoid ambiguity and vagueness. Do not assume your reader already knows what you are talking about. Try to keep your line of argument clear. It often helps clarity to divide the main body of the essay into sections (typically three or four for a 2000-word essay). Accurate spelling, grammar, punctuation, and simple, active sentence structure also improve clarity. Avoid using complicated or archaic words. The simpler it is, the easier it is to understand what you are arguing and better it will read.

### **5. Argumentation**

Is the main argument of the essay clear, coherent, and persuasive? Is it properly supported by the evidence available? Be careful of sweeping claims and make sure you claim exactly what your data represents e.g., using agriculture-related data from a small farming village in X country cannot be extrapolated to represent the state of agriculture in the whole country.

### **6. Conclusion**

Your essay should have a conclusion that is clearly marked as such (new paragraph, 'In conclusion...'). It should be substantial in summing up what you have argued and exploring the implications of what you have argued.

### **7. Reading/ use of sources**

How well have the readings and other resources been used? Does the essay reflect them

accurately? Is the essay overly dependent on one source?

### **8. Independent critique?**

Does the essay offer some independent critique or thought on the question or does it merely report what is in the literature? In Masters-level courses this is an essential component of essays.

### **9. Referencing**

You must reference all quotes and all references/ summaries of books, etc. Pick one system for referencing and stick to it. Refer to individual page numbers, not just whole texts, whenever possible. Making use of ideas from or paraphrasing material without clearly referencing the original source is plagiarism and has incurs serious penalties.

### **10. Bibliography**

You need to supply a bibliography of all works referenced at the end of your essay. You must supply author, title, date, place of publication and publisher.

## **Aims & Objectives**

### **Aims:**

The aims of this course are two-fold. First, the course aims to familiarise students with the key concepts and theories of global governance distinct from international relations theory (IRT) but increasingly relevant for making sense of the rapid and pervasive pace of technological change. Second, the course's inquiry-based pedagogic approach using contemporary issues to explain theoretical underpinnings aims to familiarise students not only with real-world controversies but also the questions they raise.

### **Objectives:**

By the end of the course students are expected to develop the skills needed to conduct independent research and critically read, analyse and write about emerging science and technology.

## **Reading list**

These are essential readings for discussion in class. You are expected to have read and be able to talk about the essential reading. If you have time, you should also read the recommended pieces. It is also expected that you will explore additional material to inform your blogs, essays, and class discussions.

- Rosenau, J.N. (2009 [1992]). *Governance, Order, and Change in World Politics*. In Rosenau, J. N., & Czempiel, E. O. (Eds.). *Governance without government: order and change in world politics* (No. 20). Cambridge University Press.
- Zürn, M., Binder, M., & Ecker-Ehrhardt, M. (2012). International authority and its politicization. *International Theory*, 4(1).
- Brassett, J., & Tsingou, E. (2011). The politics of legitimate global governance. *Review of International Political Economy*, 18(1), 1-16.

- Raymond, M., & DeNardis, L. (2015). Multistakeholderism: anatomy of an inchoate global institution. *International Theory*, 7(3), 572-616.

Additional readings, referred to in lectures and to inform discussion, blog posts and essays, is below and will be put on Moodle.

## Lecture 1, Week 6 (06/10/23)

*Global Governance: What it is, what it is not, why we need it and why is it so difficult.*

This class will introduce students to what global governance *is* and *is not*, why we need it and why it is so difficult for emerging science and technology such as AI, IoTs, and Gene Editing. You will explore theories, concepts, and definitional aspects of what Global Governance is (and 'is not') in terms of:

- How it differs from International Relations (IR)
- Multilevel 'interlinked' governance
- Lack of discernible hierarchy unlike IR
- New spheres of authority beyond the national/international dichotomy.

### Essential reading

- Rosenau, J.N. (2009 [1992]). Governance, Order, and Change in World Politics. In Rosenau, J. N., & Czempiel, E. O. (Eds.). *Governance without government: order and change in world politics* (No. 20). Cambridge University Press.
- Zürn, M., Binder, M., & Ecker-Ehrhardt, M. (2012). International authority and its politicization. *International Theory*, 4(1).

### Additional reading

- Rosenau, J.N. (2009 [1992]). Governance, Order, and Change in World Politics. In Rosenau, J. Weiss, T. G., & Wilkinson, R. (2014). *Rethinking global governance? Complexity, authority, power, change*. *International Studies Quarterly*, 58(1), 207-215.

## Lecture 2, Week 7 (13/10/23)

*Governance without Government: whither authority?*

In this class students will delve into the theoretical foundations of global governance. You will develop a critical understanding of the sources of and interrelationships between authority, legitimacy, and contestation at the global level of 'governance without government'.

### Case Study this week

The World Trade Organisation Agreement on Trade-Related Aspects of Intellectual Property Rights (**WTO-TRIPS**) the most comprehensive multilateral agreement on intellectual property (IP) and **(Bio)Pharmaceuticals**.

### Essential reading

- Rosenau, J. N. (2007). Governing the ungovernable: The challenge of a global disaggregation of authority. *Regulation & Governance*, 1(1), 88-97.

For the case study read:

- Sell, S. K. (2004). The quest for global governance in intellectual property and public health: Structural, discursive, and institutional dimensions. *Temp. L. Rev.*, 77, 363.

#### Additional reading

- Brassett, J., & Tsingou, E. (2011). The politics of legitimate global governance. *Review of International Political Economy*, 18(1), 1-16.

### Lecture 3, Week 8 (20/10/23)

*Should experts govern?*

In this class students will interrogate scientific governance and self-regulation as one of the ‘arrangements’ for the global governance of emerging science and technology.

#### Case Study this week

Authority, Legitimacy and Contestation in Scientific Self-regulation: from **Recombinant DNA** (Asilomar 1975) to **Artificial Intelligence** (Asilomar 2017).

#### Essential reading

- Bowen, F. (2019). Marking their own homework: The pragmatic and moral legitimacy of industry self-regulation. *Journal of Business Ethics*, 156, 257-272.
- Taylor, P. L. (2009). Scientific self-regulation—So good, how can it fail? Commentary on “The problems with forbidding science”. *Science and Engineering Ethics*, 15, 395-406.

For the case study read:

- Hindmarsh, R., & Gottweis, H. (2005). Recombinant regulation: the Asilomar legacy 30 years on. *Science as Culture*, 14(4), 299-307.

#### Additional reading

- Hurlbut, J. B. (2015). Remembering the future: Science, law, and the legacy of Asilomar. *Dreamscapes of modernity: Sociotechnical imaginaries and the fabrication of power*, 126-151.
- Stevens, Y. A. (2021). Soft law governance: A historical perspective from life-science technologies. *Jurimetrics*, 61(1), 121-131.
- Marchant, G.E., (2019) “Soft Law” Governance of Artificial Intelligence, *AI PULSE*, 5–11.
- Marchant, G. E., Tournas, L., and Gutierrez, Carlos, I. (2020) Governing Emerging Technologies Through Soft Law: Lessons for Artificial Intelligence. *Jurimetrics*, 61(1). <https://ssrn.com/abstract=3761871>
- Andrew Webster & Lena Eriksson (2008) Governance-by-standards in the field of stem cells: managing uncertainty in the world of “basic innovation”, *New Genetics and Society*, 27:2, 99-111.

### Lecture 4, Week 9 (27/10/23)

*Should bioethicists govern?*

In this class students will interrogate **(bio)ethics** as one of the ‘arrangements’ for the global

governance of emerging science and technology.

### Case Study this week

**Human Genetic Technologies:** negotiating values, ethics, power, and economics.

### Essential reading

- R Franceschet, A. (2009) Ethics, Politics, and Global Governance. In Franceschet, A. (Ed.). *The ethics of global governance*. Boulder, CO: Lynne Rienner Publishers. 1-20.

For the case study read:

- Salter, B., & Jones, M. (2002). Human genetic technologies, European governance and the politics of bioethics. *Nature Reviews Genetics*, 3(10), 808-814.

### Additional reading

For a descriptive overview of the GG landscape of bioethics see:

Bhardwaj, M. (2003). Global bioethics and international governance of biotechnology. *Asian Biotechnology and Development Review*, 6(1), 41.

## Lecture 5, Week 10 (03/11/23)

*Should private (for-profit) actors govern the technologies they produce?*

In this class students will interrogate **(bio)ethics** as one of the ‘arrangements’ for the global governance of emerging science and technology led by private *(for-profit)* actors that produce them.

### Case Study this week

**Technology Standardisation** in the digital (Interoperability -v- Cybersecurity in IoTs) and health domains (scientific- v- market process).

### Essential reading

- Hilgartner, S. (2009). Intellectual property and the politics of emerging technology: inventors, citizens, and powers to shape the future. *Chicago-Kent Law Review*, 84(1), 197-226.

For the case study read:

- Waldby, C., & Salter, B. (2008). Global governance in human embryonic stem cell science: standardisation and bioethics in research and patenting. *Studies in Ethics, Law, and Technology*, 2(1).

### Additional reading

- Morais, H. V. (2002). The quest for international standards: global governance vs. sovereignty. *University of Kansas Law Review*, 50(4), 779-822.
- Peng, S. (2023) Compulsory Licensing: A Potential Solution To The Antitrust Dilemma Of Technology Standards Setting. *J of Tech. & Intellectual Property* 485. <https://scholarlycommons.law.northwestern.edu/njtip/vol20/iss3/5>
- Panagopoulos, A., & Sideri, K. (2021). Prospect patents and CRISPR; rivalry and ethical licensing in a semi-commons environment. *Journal of Law and the Biosciences*, 8(2), 1–24. <https://doi.org/10.1093/jlb/lcab031>
- Scheinerman, N., & Sherkow, J. S. (2021). Governance Choices of Genome Editing Patents. *Frontiers in Political Science*, 3, 106.

<https://doi.org/10.3389/FPOS.2021.745898/BIBTEX>

- Bicudo, E., Morrison, M., Li, P., Faulkner, A., Webster, A., Mourby, M., and Kaye, J. (2022) Patent power in biomedical innovation: technology governance in biomodifying technologies. *Journal of World Intellectual Property* 25(2); 473-494.  
<https://doi.org/10.1111/jwip.12237>

## **Week 11 (10/11/23): Reading week. No lecture.**

### **Lecture 6, Week 12 (17/11/23)**

*Should civil society participate in global governance of science and technology?*

Drawing on STS theories and concepts, students will interrogate the **structural issues** underlying the expansion of multinational corporations. They will explore contestation and deliberation in global technology governance in the context of its implications for, or as symptomatic of, questions of **equity and access**.

#### **Case Study this week**

**GMOs:** contestation and the rise of a global civil society.

#### **Essential reading**

- Wynne B (2001) Creating public alienation: expert cultures of risk and ethics on GMOs. *Sci Cult* 10(4):445–481

For the case study read:

- Davies G (2006) The scared and the profane: biotechnology, rationality, and public debate. *Environ Plan A* 38(3):423–443

#### **Additional reading**

To understand the status quo where civil society has no meaningful say in innovation see:

- Lehoux, P., Miller, F. A., Daudelin, G., & Urbach, D. R. (2016). How venture capitalists decide which new medical technologies come to exist. *Science and Public Policy*, 43(3), 375–385. <https://doi.org/10.1093/scipol/scv051>

...and for reasons why civil society don't get have a say see:

- <https://www.frontiersin.org/articles/10.3389/fpos.2021.677003/full>
- Marris C (2001) Public views on GMOs: deconstructing the myths: Stakeholders in the GMO debate often describe public opinion as irrational. But do they really understand the public? *EMBO Rep* 2(7):545–548
- Morrison, M., de Saille, S. CRISPR in context: towards a socially responsible debate on embryo editing. *Palgrave Commun* 5, 110 (2019). <https://doi.org/10.1057/s41599-019-0319-5>
- Levidow L, Carr S (1997) How biotechnology regulation sets a risk/ethics boundary. *Agriculture Hum Values* 14(1):29–43

### **Lecture 7, Week 13 (24/11/23)**

*Return of the state?*



In this class students will question the increasingly geopolitical underpinnings of emerging disruptive S&T to interrogate the return of the state (and IRT). Discussions will draw on the international political economy (IPE) of promissory technologies.

### Case Study this week

#### The 2G and 3G Standard Wars.

(If we have time, we will briefly explore the *Geo-economics of Data Localisation and Privacy*).

### Essential reading

- Carr, M. (2017) Cyberspace and International Order. In Eds Suganami, H., Carr, M., & Humphreys, A. *The Anarchical Society At 40: Contemporary Challenges and Prospects*.
- Cavelti, M.D. & Wenger, A. (2020) Cyber security meets security politics: Complex technology, fragmented politics, and networked science, *Contemporary Security Policy*, 41:1, 5-32, DOI: [10.1080/13523260.2019.1678855](https://doi.org/10.1080/13523260.2019.1678855)

For the case study read:

- Grindley, P. and Salant, D.J. (1999) Standards Wars: The Use Of Standard Setting As A Means Of Facilitating Cartels. Third Generation Wireless Telecommunications Standard Setting. *International Journal of Communications Law and Policy* 3 (1999).

### Additional reading

- Godinho, M. A., Martins, H., Al-Shorbaji, N., Quintana, Y., & Liaw, S. T. (2022). “Digital Health Diplomacy” in Global Digital Health? A call for critique and discourse. *Journal of the American Medical Informatics Association*, 29(5), 1019-1024.
- Shapiro, C., & Varian, H. R. (1999). The art of standards wars. *California management review*, 41(2), 8-32.
- Stango, V. (2004). The economics of standards wars. *Review of network economics*, 3(1). Chicago.
- Kavanagh, C. (2015). Cybersecurity, Sovereignty, and US Foreign Policy. *American Foreign Policy Interests*, 37(2), 100-112.

## Lecture 8, Week 14 (01/12/23)

### *Splinternet: Digital Sovereignty or Multistakeholderism?*

In this class students will develop skills in critical analysis of a contemporary global governance issue.

### Case Study this week

Winners and Losers of Participation: State -v- Non-State Stakeholders in the **Global Internet**.

### Essential reading

- Raymond, M., & DeNardis, L. (2015). Multistakeholderism: anatomy of an inchoate global institution. *International Theory*, 7(3), 572-616.
- Carr, M., (2015). Power Plays in Global Internet Governance. *GigaNet: Global Internet Governance Academic Network, Annual Symposium 2015*.  
<https://ssrn.com/abstract=2809887> or <http://dx.doi.org/10.2139/ssrn.2809887>

For the case study read:

- Floridi, L. (2020) The Fight for Digital Sovereignty: What It Is, and Why It Matters, Especially for the EU. *Philosophy & Technology* 33:369–378.

#### Additional reading

- O'Hara, Kieron. (2021). The Vision of the Open Internet. In O'Hara, Kieron, Wendy Hall, and Vinton Cerf (Eds.) *Four Internets: Data, Geopolitics, and the Governance of Cyberspace*. New York.  
<https://doi-org.libproxy.ucl.ac.uk/10.1093/oso/9780197523681.001.0001>

### Lecture 9, Week 15 (08/12/23)

*Infrastructures of Domination? Clinical Trials and the rise of Real-World Evidence.*

In this class students will develop skills in the critical analysis of a contemporary global governance issue.

#### Case Study this week

Infrastructures and Politics of Evidence: *Science* (experts) v *Experience* (Lay publics) in the case of 'Unproven' Stem Cell Therapies (and if we have time, Covid-19 vaccines).

#### Essential reading

- Anita Hardon & Robert Pool (2016) Anthropologists in Global Health Experiments, *Medical Anthropology*, 35:5, 447-451, DOI: 10.1080/01459740.2016.1177046
- Keenan, M., & Dillenburger, K. (2011). When all you have is a hammer...: RCTs and hegemony in science. *Research in Autism Spectrum Disorders*, 5(1), 1-13.

For the case study read:

- Salter, B., Zhou, Y., & Datta, S. (2015). Hegemony in the marketplace of biomedical innovation: consumer demand and stem cell science. *Social Science & Medicine*, 131, 156-163.
- Datta, S. (2018). Emerging dynamics of evidence and trust in online user-to-user engagement: The case of 'unproven' stem cell therapies. *Critical Public Health*, 28(3), 352-362.

#### Additional reading

- Ginsburg, G. S., & Phillips, K. A. (2018). Precision medicine: from science to value. *Health affairs*, 37(5), 694-701.
- Jones, D. S., & Podolsky, S. H. (2015). The history and fate of the gold standard. *The Lancet*, 385(9977), 1502-1503.
- Polak, T. B., van Rosmalen, J., & Uyl-de Groot, C. A. (2020). Expanded Access as a source of real-world data: An overview of FDA and EMA approvals. *British journal of clinical pharmacology*, 86(9), 1819-1826.
- Hogle, L. F., & Das, A. (2017). The social production of evidence: regenerative medicine and the 21st Century Cures Act. *Regenerative Medicine*, 12(6), 581-586.

### Lecture 10, Week 15 (15/12/23)

*Polycentricity, fragmentation or solidarity?*

In this class students will interrogate ideas of polycentricity, fragmentation and solidarity in the global governance of emerging technologies.

**Essential reading**

- Scholte, J. A. (2004). *Globalization and governance: from statism to polycentrism*.
- Prainsack, B., El-Sayed, S., Forgó, N., Szoszkiewicz, Ł., & Baumer, P. (2022). Data solidarity: a blueprint for governing health futures. *The Lancet Digital Health*, 4(11), e773-e774.

**Important policy information**

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Details of college and departmental policies relating to modules and assessments can be found in the STS Student Handbook [www.ucl.ac.uk/sts/handbook](http://www.ucl.ac.uk/sts/handbook)

All students taking modules in the STS department are expected to read these policies.