

Science, Technology and International Development  
(HPSC0157)  
Course Syllabus  
2022-23 session (T2) Convenor : Dr. Michel Wahome

## Course Information

This module examines the development of contemporary modern societies, and its relationship to science and technology. We will discuss the mainstream assumptions and theories about how progress takes place and consider what ideas and frameworks STS has to offer. In particular, STS's capacity to analyse networks, relations, and their power dynamics. Masters students will become familiar with critical scholarship and practice that interrogates national and international development policy using case studies of global development projects that are centred around science and technology. Aside from introducing students to these topics, the module will also build skills in critical analysis, and collaborative working.

This module is open for registration only to MSc students.

## Basic course information

Course website:	See Moodle
Moodle Web site:	Search "HPSC0157"
Assessment:	1000 word essay plan (35%) 3000 word essay (65%)
Timetable:	Tuesday 1400-1600
Prerequisites:	None
Required texts:	See reading list in syllabus and on Moodle
Course tutor:	Dr Michel Wahome
Contact:	<a href="mailto:m.wahome@ucl.ac.uk">m.wahome@ucl.ac.uk</a>
Office location:	22 Gordon Square, Room 2.1
Office hours:	<a href="https://outlook.office365.com/owa/calendar/DrWahomesOfficeHours@live.ucl.ac.uk/bookings/">https://outlook.office365.com/owa/calendar/DrWahomesOfficeHours@live.ucl.ac.uk/bookings/</a>

## Schedule

Date	Topics
10/1	Introduction to an STS Understanding of Development
17/1	National Development and International Governance
24/1	The Politics of Knowledge Production and Expertise
31/1	Science and Technology at the margins
7/2	Decolonising Development
14/2	Reading Week
21/2	Issue: Food Security
28/2	Issue: Healthcare and Drug Development
7/3	Issue: Digital Technology and Connectivity
14/3	Issue: Climate Change
28/3	Perspectives on the Future

## Course Structure

Teaching for this course takes the form of weekly, two-hour, face-to-face sessions. The sessions will consist of a lecture and interactive discussion.

Students will be divided into groups in week 1. In each group, members will take on different roles that represent the roles and interests of key development actors (e.g. government scientist, international donors, elected policymakers, global policy technocrats, local civil society representative). Thereby, the groups will mirror common policymaking networks and coalitions that are involved in international development regimes.

Each group will then select one of the four topics assigned to the weeks after Reading Week. Namely:

- Food Security
- Healthcare and Drug Development
- Climate Change
- Digital Technology and Connectivity

Prior to class, group members will evaluate the topic together and lead the discussion during class. Each student will be assessed on an essay plan and a final essay that will be an analysis of the group topic from the perspective of the actor whose point of view they represented.

## Group Work

Groups will lead discussion on their chosen topic on the designated week. Within the groups each student will select a particular role/party to represent. They might choose to represent a scientist, a government official, humanitarian worker, technology user, citizen, etc. and reflect on their particular positions and interest in the topic. When preparing their presentations, groups can consider including:

- Background and context on the issue
- The differing opinions and perspectives on the topic
- The prevailing consensus
- Their own thoughts and perspectives on the topic
- Any materials/materials/resources they would like to share that would help the class understand the issue, actors and stakes
- Any questions they would like the class to think about

## Aims and Objectives

The aims of the modules are to introduce students to the theories and concepts of science, technology and development, and to reflect on the global dimension of science and technology policy and its impacts. It is to equip them with a conceptual toolbox which that can enable them to become reflexive science policy analysts.

By the end of the module you will:

Understand a selection of concepts and theories of development and how they encompass and relate to scientific and technological progress.

Analyse interactions between technoscientific knowledge and actors at multiple scales.

Understand the conceptual and practical difficulties in defining and implementing the universalisms and determinisms associated with current notions of progress.

Knowledge of the recent ideological and implementation history of international development and international policy regimes.

Understanding of some of the sociological issues associated with the enactment of global development policy.

Develop familiarity with interpretive methodologies.

## Assessments

Description	Deadline	Word limit	Weight
Essay Plan	15 February 2023	1000	35%
Essay	24 April 2023	3000	65%

### Assessment 1 (35%): Essay Plan

The main piece of assessment for this module is a **3000 word essay**, on the topic of the student's group case study. The essay can represent the perspective of the development actor that the student represented in the group and/or develop some other framing for the case. Each student's essay will be marked individually and not as a group.

As part of the assessment for this course, students will first submit and present a **1000-word plan** for their essay.

A 1000 word (35%) individual student essay plan that is a first step towards a final individual essay that will synthesize the issues discussed in the group case study, present the student's argument that integrates an STS perspective/lens.

**Assessment 1 Criteria** (please also refer to those given in the Departmental Handbook)

1. Choose a framing that is relevant to science and technology studies.
2. The assessment is structured in a logical way.
3. The essay plan is clear and well argued.

### Assessment 2 (65%): Essay

The final 3000 word (65%) essay, as outlined in the essay plan and further developed based on feedback on the essay plan.

**Assessment 2 Criteria** (In addition to the departmental criteria in the STS Handbook)

1. The student acts on the feedback from the essay plan.
2. The document demonstrates engagement with the relevant literature and class materials.
3. The framing that is relevant to science and technology studies.
4. The assessment is structured in a logical way.
5. The assessment is clear and well-argued.

#### Submitting Assessments:

- You **MUST** submit your assessments using the submission points below.
- Check you work is referenced properly. Remember the Turnitin score is not an indication of plagiarism-free work.
- Do not put your name anywhere on the work that you upload - **only use your UCL student**

**number/candidate number.**

- Do not put your name in the filename of any work you upload (we see the filename!).
- Put the essay number or a brief essay title in the filename you upload
- Please submit files as a word document if possible.

In order to be deemed 'complete' on this module students must attempt both the assignments.

## Reading list

We have a weekly reading list for this module.

Please look at the **UCL Online Reading List** for links to the key readings.

## Weekly Guide

### 1. Introduction to an STS Understanding of Development

In practice, development policy is informed by a variety of perspectives based in disciplines like Economics, International Relations, Policy and Law, as well as the dominant cultural imaginary. This week we will examine the alternative ways of framing this topic that STS and other critical disciplines offer.

#### Readings and Resources:

Latour, B., 2007. the recall of modernity: Anthropological Approaches. *Cult. Stud. Rev.* 13,11–30. <https://doi.org/10.5130/csr.v13i1.2151>

Jasanoff, S. (2015-08-31). *Future Imperfect: Science, Technology, and the Imaginations of Modernity*. In *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*. : University of Chicago Press.

Scott, J. C. (1998). Introduction. In *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (pp. 1–8). Yale University Press. <https://doi.org/10.2307/j.ctvxkn7ds.4>

### 2. National Development and International Governance

All Nations, ideally, are preoccupied with the quality of life of their citizens and ensuring that they have the best possible life outcomes. This means that all nations are ‘developing’. We will consider how this been put into practice, historically. Particularly, how it relates to science and technology through ideas about industrialisation.

#### Readings and Resources:

Meagher, Kate. “Reflections of an Engaged Economist: An Interview with Thandika Mkandawire.” *Development and change* 50.2 (2019): 511–541. <https://doi-org.libproxy.ucl.ac.uk/10.1111/dech.12481>

Martin, J. (2022) ‘Is the IMF Fit for Purpose’, *The Guardian*, (Online), November 1, 2022 <https://www.theguardian.com/business/2022/nov/01/is-the-imf-fit-for-purpose>

Gu, S. and Lundvall, B. (2016), “China’s innovation system and the move towards harmonious growth and endogenous innovation”. *The Learning Economy and the Economics of Hope*. Anthem Press, 2016. Pp 269–304.

### 3. The Politics of Knowledge Production and Expertise

What makes an expert an expert? As you will have found out through your engagement with STS, the answer is not straightforward. Education systems often reinforce knowledge hierarchies, as well as social and political ones, by determining what is important for us to learn and know. What does this mean for local and indigenous knowledges. Are our current values around knowledge epistemically limiting?

#### Readings and Resources:

Chatterjee, Animesh. 'Problems with "Colonial Science" and "Technology Transfer"', *Idols of the Theatre*, July 6, 2014 by <https://idolsofthetheatre.wordpress.com/2014/07/06/problems-with-colonial-science-and-technology-transfer/>

Mignolo, W (2011) Geopolitics of sensing and knowing: on (de)coloniality, border thinking and epistemic disobedience, *Postcolonial Studies*, 14:3, 273-283,

Warwick, A. "Remembering the spread of Western science." *Historical Records of Australian Science* 29.2 (2018): 73-81.

### 4. Science and Technology at the Margins

Having discussed knowledge and expertise we will take a look at how local know how is incorporated into notions of development. Aside from the potential for commercial or economic development outcomes, there others ways of thinking about innovation that supports local production and use cases.

Holland, D. (2009). Between the Practical and the Academic: The Relation of Mode 1 and Mode 2 Knowledge Production in a Developing Country. *Science, Technology, & Human Values*, 34(5), 551-572.

Odumosu, T., (2017), "7 Making Mobiles African," in *What Do Science, Technology, and Innovation Mean from Africa?* , MIT Press, pp.137-150.

Philip, K., Irani, L., & Dourish, P. (2012). Postcolonial Computing: A Tactical Survey. *Science, Technology, & Human Values*, 37(1), 3-29.

Suchman, L., Bishop, L., 2000. Problematizing "Innovation" as a Critical Project. *Technol. Anal. Strateg. Manag.* 12, 327–333.

#### Watch:

Frugal Innovation: <https://www.youtube.com/watch?v=jJ-tTrZPvag>

### 5. Decolonising Development

In recent years, the impetus to 'decolonise' institutions and society, has grown. What is the theoretical discourse around decolonisation in the development arena and how can it be implemented? Are

development and decolonisation oxymorons? How can we allow and account for agency when also aiming to resolve issues that stem from inequality?

**Readings and Resources:**

Harper-Shipman. (2019). How comprehensive is comprehensive? Using Wangari Maathai as a critique of the World Bank's contemporary development model. *Third World Quarterly*, 40(4), 633–650.  
<https://doi.org/10.1080/01436597.2018.1549940>

Meera Sabaratnam. (2017). "Conclusions: Decolonising Intervention. Decolonising International Relations. *Decolonising Intervention: International Statebuilding in Mozambique*. Rowman & Littlefield International.

Ouedraogo, Negzaoui, S., & Dabo-Niang, S. (2021). Gender gap in science in Africa: experience of African women in mathematics association. *Pure and Applied Chemistry*, 93(11), 1343–1350.

Wield, D., & Barker, C. (1978). Science, Technology and Development: Part of a Course in Development Studies for First and Second Year Engineering and Medical Students at the University of Dar Es Salaam, Tanzania. *Social Studies of Science*, 8(3), 385-395.

## 6. Food Security

In the next few weeks, we will examine approaches to the application of scientific solutions to social issues. The first of our topical issues is food security. Eradicating hunger has been the goal of development institutions for decades, and an issue on which much of the world has been willing to work together. To understand the many interests in this topic, we will examine the case of the Green Revolution.

**Readings and Resources:**

Malkan, S., (2022), Gates Foundation agriculture project in Africa flunks review, *US Right To Know*, (Online), March 17, 2022, <https://usrtk.org/bill-gates/gates-foundation-agriculture-project-in-africa-flunks-review/>

Parayil, G. (1992). The Green Revolution in India: A Case Study of Technological Change. *Technology and Culture*, 33(4), 737-756.

Pray, Carl E. "The Green Revolution as a Case Study in Transfer of Technology." *The Annals of the American Academy of Political and Social Science*, vol. 458, 1981, pp. 68–80

Zhang, J. Y. (2018). How to Be Modern? The Social Negotiation of 'Good Food' in Contemporary China. *Sociology*, 52(1), 150–165. <https://www.jstor.org/stable/26558692>

**Watch:**

Are livestock always bad for the planet?: <https://www.youtube.com/watch?v=EPiYwCZrk6k>

## 7. Health Care and Drug Development

For this week's topic, we do not have to look far for a case study on global action. At the height of the pandemic, we had a first hand look at global health policy actors, the mechanisms available to them and how they operate. We will discuss what we learned about global inequalities with respect to the conduct of science and to whom benefits accrue.

### Readings and Resources:

Dove, A. Maurice Hilleman. *Nat Med* 11 (Suppl 4), S2 (2005). <https://doi.org/10.1038/nm1223>

Milne, Richard. "Pharmaceutical Prospects: Biopharming and the Geography of Technological Expectations." *Social Studies of Science*, vol. 42, no. 2, 2012, pp. 290–306. JSTOR, [www.jstor.org/stable/23210210](http://www.jstor.org/stable/23210210).

Zhang, J. Y. (2021) To keep nationalism in check, nurture science solidarity. *Nature (London)*. [Online] 591 (7848), 9–9.

### Watch:

The Drugs Industry: <https://www.kanopy.com/en/ucl/watch/video/123048/123054>

## 8. Digital Technology and Connectivity

This week we will discuss the opportunities and challenges that have emerged from the advent of the digital technology and internet era. Bridging the 'digital divide' has become an objective that is led primarily by private corporations. The result is that these companies are increasingly being implicated in how economies, and therefore society is organised. Given the culture-making power of the internet, these firms are also party to how we exist in the world. We consider the regulatory environments for this issue and the role and operations of states in global governance.

### Readings and Resources:

Byrum, G., & Benjamin, R. (2022). Disrupting the Gospel of Tech Solutionism to Build Tech Justice. *Stanford Social Innovation Review*. <https://doi.org/10.48558/9SEV-4D26>

The Consilience Project, 'The Case Against Naive Technocapitalist Optimism' (2021), <https://consilienceproject.org/the-case-against-naive-technocapitalist-optimism/>

Hofmann, J. (2016). Multi-stakeholderism in internet governance: putting a fiction into practice. *J. Cyber Policy* 1(1), 29–49

MIT Technology Review's Series on AI Colonialism: <https://www.technologyreview.com/supertopic/ai-colonialism-supertopic>

### Watch:

Simon Butler on 'The Philosophy of Bitcoin and The Question of Money':

[https://www.youtube.com/watch?v=OGtrQLTtk\\_U](https://www.youtube.com/watch?v=OGtrQLTtk_U)

## 9. Climate Change

The lack of agreement global government agreement on mitigating Climate Change is sometimes blamed on climate denialism. The observable reality is that most actors pick and choose what science to believe. This is exemplary of scenarios where expertise has no authority and scientific legitimacy does not matter.

### Readings and Resources:

Campos, I., Alves, F., Dinis, J., Truninger, M., Vizinho, A., & Penha-Lopes, G. (2016). Climate adaptation, transitions, and socially innovative action-research approaches. *Ecology and Society*, 21(1).

Hickel, J. & Slamersak, A. (2022) Existing climate mitigation scenarios perpetuate colonial inequalities. *The Lancet. Planetary health*. [Online] 6 (7), e628–e631.

Lyons, K., (2022), How to move a country: Fiji's radical plan to escape rising sea levels, *The Guardian*, (Online), November 8, 2022. [https://www.theguardian.com/environment/2022/nov/08/how-to-move-a-country-fiji-radical-plan-escape-rising-seas-climate-crisis?utm\\_source=pocket-newtab-global-en-GB](https://www.theguardian.com/environment/2022/nov/08/how-to-move-a-country-fiji-radical-plan-escape-rising-seas-climate-crisis?utm_source=pocket-newtab-global-en-GB)

Moloo, Z., (2021), Bill Gates and his technofix dream for the planet, *Africa Is A Country*, (Online), March 9, 2021. <https://africasacountry.com/2021/03/bill-gates-and-his-technofix-dream-for-the-planet>

### Watch:

What do Climate Deniers Actually Believe: <https://www.youtube.com/watch?v=qXLqoFHGmv0>

## 10. Perspectives on the Future

In this final class, we will reflect on previous weeks, consider potential the potential futures reflected in current scholarship and formulates some of our own.

### Reading and Resources:

Katz, C. (2004), 'Negotiating the Recent Future' in *Growing up global : economic restructuring and children's everyday lives / Cindi Katz*. Minneapolis, Minn. ;: University of Minnesota Press.

Mbembe, A., 2012. Theory From the Antipodes: Notes on Jean & John Comaroffs' TFS — Cultural Anthropology <https://culanth.org/fieldsights/theory-from-the-antipodes-notes-on-jean-john-comaroffs-tfs>

Noor Elahi, Ingrid L.P. Nyborg & Bahadar Nawab (2015) Participatory Development Practices: A Critical Analysis of Gender Empowerment and Development in Pre- and Post-crises Swat, Pakistan, *Forum for Development Studies*, 42:2, 333-356

Dorninger, C. et al. (2021) Global patterns of ecologically unequal exchange: Implications for sustainability in the 21st century. *Ecological economics*.

<https://doi.org/10.1016/j.ecolecon.2020.106824>

**Watch:**

Rigorous Imagining for Moral Futures:

[https://vimeo.com/653659350?embedded=true&source=video\\_title&owner=117223452](https://vimeo.com/653659350?embedded=true&source=video_title&owner=117223452)

**Watch:**

Bruno Latour: What are the optimal interrelations of art, science and politics in the Anthropocene?:

<https://www.youtube.com/watch?v=40H0TWjg1aE>