

Science Technology and Development
(HPSC0157) Course Syllabus
2023-24 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 only open for registration 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:	Monday 0900-1100
Prerequisites:	None
Required texts:	See reading list in syllabus and on Moodle
Course tutor:	Dr Michel Wahome
Contact:	m.wahome@ucl.ac.uk
Office location:	22 Gordon Square, Room 2.1
Office hours:	In person: Mondays 1530 – 1700. Online: By appointment

Schedule

Date	Topics
8/1	Introduction to an STS understanding of development
15/1	National development and international governance
22/1	The politics of knowledge production and expertise
29/1	Decolonising Development
5/2	Science and Technology at the margins
12/2	Reading Week
19/2	Issue: Climate Change Adaptation
26/2	Systems Scale: Interaction with Nature
4/3	Global Scale: Governance and Consensus
11/3	National Scale: Coordination
18/3	Perspectives on the Future

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.

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, open discussion. The first half of the module will set up the various STS and critical social science perspectives that critique the practice of international development.

The second half of the term will focus on a single topic, examined from different positions and scales. The topic for this year is Climate Change Adaptation. We will also focus our reading on two books. Students will be prepared for class if they have read the essential reading. Additional readings will inform the lecture, will supplement students understanding and can be used in the assessment.

In later weeks we will narrow our discussion to the focus topic and discuss how the issue operates at different scales. Thereby, students will become of common policymaking stakeholder and interests that are involved in international development regimes.

Group Work

Students will be invited to indicate a preference for the scale at which they would like to analyse the topic, after which they will be divided into groups associated with each scale. Group members will evaluate the topic together and lead the discussion during second hour of class during their designated week. When preparing their presentations, groups can consider including:

- Background and context and the prevailing consensus
- The differing opinions and perspectives on the topic and how they affect thought and behaviour at a particular
- 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

Assessments

Each student will be assessed on an essay plan and a final essay that will be an analysis of the focus topic from a particular perspective. Students can take on a perspective that represents the interests of different stakeholders (e.g. academic scientists, government scientist, international donors, elected policymakers, global policy technocrats, local civil society representative, community organiser, etc.).

Description	Deadline	Word limit	Weight
Essay Plan	March 25, 2024	1000	25%
Essay	April 29, 2024	3000	75%

Assessment 1 (25%): Essay Plan

As part of the assessment for this course, students will submit and present a **1000-word** individual student essay outline 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. Choice of a framing that is rooted in science and technology studies
2. The assessment is structured in a logical manner
3. The essay plan is clear and well argued

Assessment 2 (75%): Essay

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.

The 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.

AI tools can be used in an assistive role

Students are permitted to use AI tools for specific defined processes within the assessment.

AI tools can be utilised to for developing an outline for essays, research and finding references. The use

of AI is not in itself a learning outcome and it should not be used to generate your analysis.

If you do use AI include a few words at the end of your essay indicating how you made use of it. This section will not count towards your word count and you will not be penalised for non-analytical use of AI.

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. Physical copies of the essential readings are also available at the university library.

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 all underpinned by the dominant cultural imaginary. This week we will examine the alternative ways of framing this topic offered by STS and other critical social science disciplines.

Essential Reading:

Katz, C. (2004) Preface. *Growing up Global: Economic Restructuring and Children's Everyday Lives*. 1st edition. Minneapolis: University of Minnesota Press. p. ix – xv.

Tsing, A. L. (2005) Preface. *Friction: an ethnography of global connection / Anna Lowenhaupt Tsing*. Princeton, New Jersey: Princeton University Press. p. ix – xiv.

Tsing, A. L. (2005) Introduction. *Friction: an ethnography of global connection*. Princeton, New Jersey: Princeton University Press. p. 1-18

Tsing, A. L. (2005) Better you had brought me a bomb so I could blow this place up. *Friction : an ethnography of global connection / Anna Lowenhaupt Tsing*. Princeton, New Jersey: Princeton University Press. p. 21 – 26

Additional Readings:

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

Latour, B. (2007) the recall of modernity: Anthropological Approaches. *Cult. Stud. Rev.* 13, p 11–30.

Olivier de Sardan, J.-P., (2005). *Anthropology and development: understanding contemporary social change*. Zed Books, London; New York.

Subramaniam, B., Foster, L., Harding, S., Roy, D., and TallBear, K., (2016) The making of global science and politics in *The Handbook of Science and Technology Studies*, Fourth Edition, edited by Ulrike Felt, et al., MIT Press, 2016. p. 1059 - 1086

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 ideas about progress been put into practice, historically. Particularly, how it relates to science and technology and industrialisation policy.

Essential Reading:

Katz, C. (2004) Chapter 2: The political economy of Howa Village. *Growing up Global: Economic Restructuring and Children's Everyday Lives*. 1st edition. Minneapolis: University of Minnesota Press. pp 23 - 56

Tsing, A. L. (2005) Chapter 1: Frontiers of capitalism. *Friction: an ethnography of global connection*. Princeton, New Jersey: Princeton University Press. p. 27 - 50

Additional Readings:

Meagher, K.,(2019) 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.

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>

Shakya, M. (2017) An anthropological reading of the policies of international development: export competitiveness as a conjunctural case study. *Dialectical anthropology*. [Online] 41 (2), 113–128.

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 scholarship, 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?

Essential Reading:

Katz, C. (2004) Chapter 4: Knowing subjects. Abstracting Knowledge. *Growing up Global: Economic Restructuring and Children's Everyday Lives*. 1st edition. Minneapolis: University of Minnesota Press. pp 109 – 133.

Tsing, A. L. (2005) They communicate only in sign language. *Friction: an ethnography of global connection*. Princeton, New Jersey: Princeton University Press. pp 51 –54.

Tsing, A. L. (2005) Dark Rays. *Friction : an ethnography of global connection / Anna Lowenhaupt Tsing*. Princeton, New Jersey: Princeton University Press. pp 113 - 120

Additional Readings:

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 (2018) Remembering the spread of Western science. *Historical Records of Australian Science* 29.2. p. 73-81

Reyes-García, V., Fernández-Llamazares, Á., Aumeeruddy-Thomas, Y. *et al.* (2022). Recognizing Indigenous peoples' and local communities' rights and agency in the post-2020 Biodiversity Agenda. *Ambio* 51, p 84–92. <https://doi.org/10.1007/s13280-021-01561-7>

4. 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?

Essential Reading:

Katz, C. (2004) Chapter 5. Disrupted Landscapes of Production and Reproduction. *Growing up Global: Economic Restructuring and Children's Everyday Lives*. 1st edition. Minneapolis: University of Minnesota Press. p. 134 - 154

Tsing, A. L. (2005) Chapter 2: The Economy of appearances. *Friction : an ethnography of global connection / Anna Lowenhaupt Tsing*. Princeton, New Jersey: Princeton University Press. p. 50 - 77

Additional Readings:

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.

5. 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 science and technology that supports local use cases.

Essential Readings:

Katz, C. (2004) Chapter 8: The strange familiar. *Growing up Global: Economic Restructuring and Children's Everyday Lives*. 1st edition. Minneapolis: University of Minnesota Press. p 225 - 238

Tsing, A. L. (2005) Let a new Asia and new Africa be born. *Friction: an ethnography of global connection*. Princeton, New Jersey: Princeton University Press. p. 81 - 87

Additional Readings:

Odumosu, T. Making Mobiles African Mavhunga, C.C. (Ed.), (2017)., in: *What Do Science, Technology, and Innovation Mean from Africa?*, The MIT Press, p. 137 – 150

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.

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>

6. Climate Change Adaptation

In the next few weeks, we will examine approaches to the application of scientific solutions to social issues. This year we focus on one topic—that of Climate Adaptation. This topic allows us to think about

social change, how it has taken place in the past, the current avenues available to various actors and allows us to imagine alternatives.

Essential Readings:

Tsing, A. L. (2005) Chapter 3: Natural Universals and the Global Scale. *Friction : an ethnography of global connection / Anna Lowenhaupt Tsing*. Princeton, New Jersey: Princeton University Press. p 88 - 112

Additional Reading:

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.

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.

7. Systems Scale: Interaction with Nature

How we view our relationship to nature has long influenced our conception of progress and subsequently, decision making about managing resources and economies. Scholarship in STS challenges the tendency to separate ourselves from non-human actors, demonstrating the inherent relationality and interdependence of humans with the non-human world.

Essential Reading

Tsing, A. L. (2005) Chapter 4: Nature Loving. *Friction: an ethnography of global connection / Anna Lowenhaupt Tsing*. Princeton, New Jersey: Princeton University Press. p 121 - 154

Tsing, A. L. (2005) Chapter 5: A history of weediness. *Friction : an ethnography of global connection / Anna Lowenhaupt Tsing*. Princeton, New Jersey: Princeton University Press. p 171 - 204

Additional Readings:

Ransom, E., Grady, C., Trepanier, L., & Bain, C. (2023). Situated Ethics in Development: STS Insights for a Pragmatic Approach to Development Policy and Practice. *Science, Technology, & Human Values*, 48(1), 190-211. <https://doi.org/10.1177/01622439211052685>

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

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>

8. Global Scale: Governance and Consensus

This week we will discuss global governance the opportunities and challenges that have emerged from the advent of the global and multistakeholder policy era. We consider a number of regulatory environments and what they may be able to teach us about rulemaking for climate change adaptation.

Essential Reading:

Tsing, A. L. (2005) This earth, this island Borneo. *Friction : an ethnography of global connection / Anna Lowenhaupt Tsing*. Princeton, New Jersey: Princeton University Press. p 155 - 170

Lundgren, M., Squatrito, T. & Tallberg, J. Stability and change in international policy-making: A punctuated equilibrium approach. *Rev Int Organ* **13**, 547–572 (2018). <https://doi.org/10.1007/s11558-017-9288-x>

Readings and Resources:

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

Silke B., Forsyth, T., Kohler, P.M., Lahsen, M., and Mahony, M., (2016) The making of global science and politics in *The Handbook of Science and Technology Studies*, Fourth Edition, edited by Ulrike Felt, et al., MIT Press, 2016. p. 1059 - 1086

9. National Scale: Coordination

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 and action is not always connected to ‘belief’. This is exemplary of scenarios where expertise has no authority and scientific legitimacy does not matter.

Essential Reading:

Tsing, A. L. (2005) A hair in the flour. *Friction : an ethnography of global connection / Anna Lowenhaupt Tsing*. Princeton, New Jersey: Princeton University Press. p 205 – 212

Tsing, A. L. (2005) Movements. *Friction : an ethnography of global connection / Anna Lowenhaupt Tsing*. Princeton, New Jersey: Princeton University Press. p 213 – 238

Additional Readings:

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/>

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

10. Perspectives on the Future

In this final class, we will reflect on previous weeks, consider potential the potential futures reflected in our reading and current scholarship. We consider interdependence across scales and which interests are likely to design the future.

Essential reading:

Katz, C. (2004) Chapter 9: Negotiating the Recent Future. *Growing up Global: Economic Restructuring and Children's Everyday Lives*. 1st edition. Minneapolis: University of Minnesota Press.

Tsing, A. L. (2005) The Forest of Collaborations. *Friction: an ethnography of global connection*. Princeton, New Jersey: Princeton University Press.

Additional readings:

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

Dorning, 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

Watch:

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

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