5SSHM008 – Science, Technology and Society

Department of Global Health & Social Medicine
Term 2, Spring 2021 (15 credits)

Module Director	Anne Pollock	E-mail	anne.pollock@kcl.ac.uk
		Phone	email preferred
		Office	Bush House North East, Room 3.15
		Office Hours	Thursdays noon-1pm, or by appointment
Administrator	Timothy Rogers	E-mail	timothy.j.rogers@kcl.ac.uk
		Phone	Tel: +44(0)20 7848 1146
		Office	Room 4.01 Bush House, North East
Meeting times	Thursdays 10:30-noon	Location	MS Teams
Note: Any communication from the Department about this module will be by e-mail addressed to you at your student@kcl.ac.uk address.			

Aims of the module

The goal of this module is to introduce students to analysis of science and technology from a social and cultural standpoint. It also introduces students to the interdisciplinary field of Science, Technology and Society (STS) – also called Science and Technology Studies – which seeks to understand how science and technology shape society and culture and how society and culture, in turn, shape the development of science and technology.

Learning outcomes

Objectives:

- To be exposed to a range of key themes in the scholarship of science, technology and society (STS)
- To use STS approaches to explore broader social, cultural, and political questions
- To develop in-depth insight about a particular topic of interest

Readings

There are two types of readings for this course. Core readings are essential reading for all students on the course They should be read in advance of the day on which they appear on the syllabus. Supplemental readings are optional resources which, although not essential, would help students gain a deeper understanding of the given topic. All core readings are available via KEATS.

King's E-learning and Teaching Service (KEATS)

KEATS is the Virtual Learning Environment that the College uses to support teaching and learning, providing functionality that can replicate, enhance or extend the same kinds of activities that would take place in regular teaching. You will be able to access module handbooks, electronic lecture handouts and readings through KEATS, as well as submitting your assignments via Turnitin.

Student Support self-help guides for using KEATS are available in video and downloadable step-by-step PDF formats when you log on, with an IT Service Desk and other useful information. As soon as you have your King's user account you can self-enrol onto the student support course to familiarise yourself with the system before teaching starts.

Attendance

In this extraordinary term, the module will be taught online, with asynchronous and synchronous components.

A portion of the lecture material will be pre-recorded in short segments, and available one week in advance of each timetabled session. Students should watch this material whenever is most convenient for them, *in advance* of the scheduled synchronous session.

There will also be a weekly discussion online, during the timetabled time. Students are expected to attend every synchronous virtual discussion, and to inform the GTA if they are not able to do so for any reason.

Assessment and assessment guidelines

Reading Journal (formative) – Post Weekly, Wednesday nights

The evening before the synchronous session, use the blog-format Reading Journal **on KEATS** to reflect on the readings **that will be discussed the next day**. For example, you might consider: What is the core argument of each reading? What is particularly interesting/surprising? How might something from the core readings for the day spur insight into the object that you have chosen to analyze?

Object mapping (1000 words): 30% - Due Wednesday, 17th Feb, 4pm

This assignment is designed to get you thinking creatively about the object of technoscience you are analyzing for the semester. This list of potentially relevant aspects is both incomplete and excessive. It is meant to serve several purposes. First it should get your cultural imagination going regarding the topic you've chosen. Second, it should point to avenues you will want to explore. Third, it should serve to reinforce the point that every object or practice both embodies our social world and is embedded in it.

Choose five of the twelve numbered categories in bold—whichever strike you as most relevant and interesting—and devote 200-300 words each to analyzing your object in those terms. Focus on meditating upon the general topic in bold in terms of your object. You need not address every single bulleted point below the topic, or even many of them; they are there for guidance. Each numbered category should be an integral piece of writing, and so after the brainstorming phase it will be necessary to edit, discarding repetitive elements and clarifying ambiguous ones.

Marks will be assessed based on analytical engagement with both the object you have chosen for your project the particular category of aspects (numbered in

bold). Points will be deducted for writing that is not integral, or that is repetitious either within an entry or between entries.
1. Bodily/organic aspects
2. Material aspects
3. Historical aspects
4. Economic aspects
5. Labor aspects
6. Educational aspects
7. Political aspects
8. Epistemological aspects
9. Symbolic/Mythological aspects
10. Religious aspects
11. Textual aspects
12. Travel and transmission aspects
NB: See further elaboration on KEATS

Web-based interactive final project (1500 words): 70%
Due Wednesday, 7th April, 4pm
Create a polished website to analyze the topic in an insightful, coherent way. The formatting and layout of the web site is completely up to you, as long as it is logical, neat, and clear. Be sure that the site demonstrates mastery over both the particular topic at hand and a range of themes and approaches of this class. Successful projects will meet all of these criteria:
- Relevant and insightful organizing framework and clear narrative thread
- Focused independent engagement with topic at hand that avoids sounding like an advertisement, screed, or Wikipedia entry
- Analysis in terms of science, technology, and society, engaging a range of course readings from throughout the term (demonstrably understood and fully cited)
- Synthetic integration of outside research, that draws on but does not simply rehash relevant scholarship (demonstrably understood and fully cited)
- Lucid, coherent, cohesive visual design, with clean text

Note: In the document that you turn in, please provide both the URL to the website and screen captures or virtual prints of all of the pages of the website, compiled into a single PDF.

Plagiarism
You **must read** the College guidelines regarding plagiarism. Please also carefully read the section on Plagiarism in your Programme Handbook.

Plagiarism is cheating. It is also the theft of other people's work. If you are uncertain about what constitutes plagiarism, a good basic rule to remember is: If you are using someone else's words, they need to be in quotation marks and accurately referenced. If you are using your own words to express someone else's ideas you need to provide an accurate reference to the source. If you do not do either of these things you are plagiarising. Don't forget that the same rules apply to your own work – you can plagiarise yourself, too, and you cannot

use the same work for more than one assessment. Remember that you sign a statement saying that you have read and understood the rules regarding plagiarism so ignorance will not be accepted as an excuse. The consequences of plagiarism or self-plagiarism can be severe: *plagiarism will result in serious penalties from being given zero for the piece of work to, in more serious cases, failing the course or even being expelled from the College*.

Plagiarism checking

You are able to submit drafts of essays in advance to the plagiarism checking software on KEATS, Turnitin. Turnitin will generate a report which will enable you to check the similarity score to known work prior to submission of your final draft. **PLEASE NOTE**: Turnitin will only give you **one similarity report in each 24 hours**. This means that if you have uploaded a document within the last 24 hours, your upload will be shown as "pending" until the Turnitin report has been generated. The document will have been submitted at the time of the upload, even if it is shown as "pending" – it is the Turnitin report that is pending. You can replace your uploaded assignment at any time before the deadline, but you will not be able to generate more than one similarity report in each 24 hours.

Uploading the right document to KEATS

It is **your responsibility** to ensure that the correct and final version of your assignment is uploaded to KEATS for grading. We strongly suggest that you include the word "FINAL" in the name of your final draft of each assignment so that you are **sure** you are selecting the correct assignment to upload. **The document that you upload to KEATS is the document that will be graded**. Leave yourself plenty of time to upload your assignments to KEATS to make sure you submit the correct file in time.

Backing Up Your Work

Please note that it is very important to keep backup copies of your work in progress. These should *at all times* be in a *separate location* from your own laptop or computer, and there should be no possibility of cross-infection of a virus from your computer to your backup source (e.g. as there would be from a laptop to a USB if you plug the USB into the laptop). Many things can go wrong with computers including viruses, crashes, theft, and destruction in other ways e.g. in a fire. Remember that you all have access to your own personal space on the server at King's and so please make sure that you regularly backup your important work to that space, or from that space if you generally save your work there. If you do not have access to another computer then you can regularly email your important work to a friend or even to yourself, so that it is at least somewhere. There are also many cloud-computing services that allow you to back up your work for free.

Word Limits

All written work submitted must include a word count on the cover-sheet. The falsification of word counts is deemed to be an act of misconduct and treated accordingly. **Please note that the word count for this module differs from**

what you may encounter in other modules. The various written assessments are more creative than traditional essays, and so the word counts are provided as guidelines rather than strict limits. Submissions within 10% of the specified word limit (plus or minus) are acceptable.

<u>Late Submission of Coursework</u>

Students need to note that the College has a stringent policy on late submissions. Please therefore make sure that you leave plenty of time to submit your work, bearing in mind that uploading your work may take a little time, particularly at busy periods. Submissions will close EXACTLY at the specified time on the deadline date.

For all **first attempts** at a given piece of coursework, the following applies. If coursework is submitted late, but within 24 hours of the due time and date, it will be marked, but the mark for this piece of work will be CAPPED AT 40%.If work is submitted more than 24 hours late, you will be given ZERO for that piece of work. In either case, unless an extension is formally granted and approved by the Chair of the Assessment Sub-Board (please see below for more information on mitigating circumstances), the penalty mark will be assigned. It will replace any mark indicated by the examiners as part of their evaluative comments.

For all **second attempts** at a given piece of coursework, the submission deadline is absolute. This means that you cannot submit your work within 24 hours of the due time and date or later than that. Your work will be marked, but the mark for the module (not the piece of work) will be CAPPED AT 40%.

<u>Marking criteria</u>

The written coursework will be marked based on the Department's discipline-specific marking criteria for undergraduate taught programmes These criteria are available in your Programme Handbook.

<u>Marking procedure</u>

The pass mark for all modules is 40% and each assessment is marked on a scale from 1-100 according to the criteria described above. The Department uses Marking Model 3: Double Marking by Retrospective Sampling for most assessments. This means that an internal examiner marks all written assessments. A sample of written assessments, including all assessments marked at 0-39 / 0-49, is then marked by a second internal examiner. We also use Marking Model 5: Single Marking for marking assessments that count 15% or less towards the overall module mark, such as presentations, posters and other small pieces of summative assessment, as well as for all formative assessments. All marks are subject to inspection and moderation by an external examiner (external to the College), to ensure the maintenance of proper standards and to adjudicate on borderline cases. For more information on both marking models, please consult the College Marking Framework that is available on King's Governance Zone.

Mitigating circumstances

Please consult the following College websites for [information on mitigating circumstances](#).

It is a requirement of King's College London that all students take or submit their assessments at times prescribed by King's. However, it is acknowledged that exceptionally, through illness or other good cause, a student may be unable to meet these requirements. In such instances academic regulations allow students to submit details of their mitigating circumstances for consideration by Assessment Sub-Boards.

All mitigating circumstances forms (MCFs) should be submitted via [Student Records](#). Accessing the new online form will require you to log into Student Records as normal and select 'My Mitigating Circumstances' in My Modules, shown below. All relevant information and user guides can be found in Student Records.

Please note the below:

- If you are submitting an MCF as a result of Covid-19 circumstances, you will need to explain the specific circumstances for your request, but no evidence is required.

- If, during the assessment period, it becomes apparent that you will not be able to complete some/all of your assessments, please complete an MCF within seven days of the date that the assessment was scheduled.

- If you submit your assessment after the scheduled deadline, you must submit an MCF to explain the situation.

- If you are submitting an MCF for a matter unrelated to Covid-19, please submit any evidence you may have. If you do not have any supporting evidence, please submit the form explaining why this is the case. You will also be able to provide details on any evidence that you are awaiting. You must submit your MCF within 7 days of the due date, but you can submit the evidence separately within 21 days of the submission deadline/assessment date.

The Boards will use the information submitted to determine whether the mitigating circumstances provided by the student are an acceptable reason for missing an assessment or failing to sit an examination for example. If students believe that they have mitigating circumstances they should discuss this with their tutors. They should carefully read the guidance notes and the Frequently Asked Questions, and then follow the instructions for completing and submitting the Mitigating Circumstances Form (MCF). Please note that, for a matter unrelated to Covid-19, evidence will be required in support of any request for mitigating circumstances to be considered and students should not make any assumption that extensions or examination absences will be granted.

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Module Outline and Readings

Week 1 (21st January) – Introduction to the Module

Introduces the module, and the approach of using particular concrete objects to spur creative exploration of social and material worlds.

Learning objectives
- an overview of the course
- begin to explore how objects and truth claims can reveal society and power

In-class film: Island of Flowers, directed by Jorge Furtado (1989)

Core Reading:
Dumit, Joseph. "Writing the Implosion: Teaching the World One Thing at a Time," *Cultural Anthropology* 29, no. 2 (2014): 344–362.

Week 2 (28th Jan) – Precursors to STS

Introduces the interdisciplinary field of science, technology and society through exploration of scholarship and phenomena from which it emerged.

Learning objectives
- introduce foundational texts and approaches in the critical study of science and technology
- consider the historical context of the 20th century in the emergence of this interdisciplinary field

Core Reading

Fleck, Ludwik, *Genesis and Development of a Scientific Fact.* Edited by T. J. Trenn & R. K. Merton. Translated by F. Bradley & T. J. Trenn. Foreword by T. S. Kuhn. Chicago: The University of Chicago Press, 1979 [1935], Prologue and Chapter 2: "Epistemological Conclusions from the Established History of a Concept," pp. xxvii-xxviii, 20-52.

Rose, Hilary, and Steven Rose. "The Radicalization of Science," *Socialist Register* (1972): 105-132.

Supplemental:

Kuhn, Thomas S. "Scientific Paradigms." In *Sociology of Science* edited by Barry Barnes, 80-104. Middlesex: Penguin Books, 1972.

Merton, Robert K. "The Normative Structure of Science," n The Sociology of Science: Theoretical and Empirical Investigations, 267-278. Chicago: University of Chicago Press, 1973 [1942].

Week 3 (4th Feb) – Historical Construction of Objectivity

Interrogates the concept of "objectivity" in science, as developed during the historical period known as the Enlightenment.

Learning objectives
- be exposed to the historical context of the valuation of the concept of objectivity
- explore ways in which objectivity is political

Core Reading

Shapin, Steven, and Simon Schaffer. *Leviathan and the Air Pump: Hobbes, Boyle, and Experimental Life* (Princeton, NJ: Princeton University Press, 1985): "Chapter 2: Seeing and Believing," pp. 22-79.

Haraway, Donna J., *Modest Witness@Second_Millenium.FemaleMan©_Meets_On coMouse™: Feminism and Technoscience* (New York and London: Routledge, 1997), pp. 23-48.

Supplemental:

Daston, Lorraine, and Peter Gallison, "The Image of Objectivity," *Representations*, No. 40 (Autumn, 1992), pp. 81-128.

Keller, Evelyn Fox, "Gender and Science," in *Reflections on Gender and Science*, Yale U Press 1985, pp. 75-94.

Lewontin, R.C. *Biology as Ideology: The Doctorine of DNA*. New York: Harper Collins, 1991.

Week 4 (11th Feb) – Making Facts in the Lab
Featuring Guest Lecturer:
Vivette García-Deister, Universidad Nacional Autónoma de México

Analyzes how facts are constructed in laboratory science.
Learning objectives
- be exposed to foundational approaches in the ethnographic study of science
- consider the distinctive social and cultural forms of laboratories

Core Reading
Latour, Bruno. *Science in Action: How to follow scientists and engineers through society*. Cambridge, MA: Harvard University Press, 1987: 1-17.
García-Deister, Vivette. "Laboratory Life of the Mexican Mestizo." Wade et al. (eds), *Mestizo Genomics: Race Mixture, Nation, and Science in Latin America*, Durham, NC: Duke University Press, 2014, pp. 161-182.

Supplemental:

Latour, Bruno, and Steve Woolgar. *Laboratory Life: The Construction of Scientific Facts.* "Chapter 2: An Anthropologist Visits the Laboratory," (Sage, 1979): pp. 43-90.

Mol, Annemarie, and John Law. "Regions, Networks and Fluids: Anaemia and Social Topology." *Social Studies of Science* 24, no. 4 (1994): 641-71.

Friese, Carrie. *Realizing potential in translational medicine: the uncanny emergence of care as science.* Current Anthropology, 54 issue S7 (2013): S129-S138.

Week 5 (18th Feb) – Looking From Somewhere

Explores routes to creating usable knowledge in the wake of the understanding of the ways in which knowledge is inextricable from social processes.

Learning objectives
- consider how feminists have pursued knowledge creation despite objections to objectivity
- grapple with tensions between critiquing science and mobilizing its tools to create a more just world

Core Reading

Haraway, Donna. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," *Feminist Studies*, Vol. 14 No. 3 (Autumn 1988), pp. 575-599.

Hooks, Bell. "Choosing the Margin as a Space of Radical Openness," *Framework: The Journal of Cinema and Media* 36 (1989): 15-23.

Supplemental:

Fausto-Sterling, Anne. "Science matters, culture matters." *Perspectives in Biology and Medicine* 46, no. 1 (2003): 109-124.

Harding, Sandra "Rethinking Standpoint Epistemology: What is Strong Objectivity?" from Linda Alcoff and Elizabeth Potter, eds., *Feminist Epistemologies*, Routledge 1993, 49-82.

Fausto-Sterling, Anne. "The Bare Bones of Race," *Social Studies of Science* 38 (2008): 657–694.

Giordano, Sara. "Scientific Reforms, Feminist Interventions, and the Politics of Knowing: An Auto-ethnography of a Feminist Neuroscientist," *Hypatia* 29 (2014): 755-773.

Roy, Deboleena. "Asking Different Questions: Feminist Practices for the Natural Sciences," *Hypatia* 19.1 (2004): 134-156.

[Week 6 – Reading Week]

Week 7 (4ᵗʰ March) – Science as a Post/Colonial Enterprise

Explores the role of science in colonialism and its contestation.

Learning objectives
- explore the historical and ongoing colonial logics of science
- interrogate how it matters who makes science

Core Reading

Reardon, Jenny, and Kim Tallbear. "'Your DNA is *Our* History': Genomics, Anthropology, and the Construction of Whiteness as Property," *Current Anthropology* Vol. 53, No. S5, (April 2012), pp. S233-S245.

Benjamin, Ruha. *A Lab of Their Own*: Genomic sovereignty as postcolonial science policy, *Policy and Society* 28.4 (2009): 341-355.

Supplemental:

Anderson, Warwick. "From subjugated knowledge to conjugated subjects: science and globalisation, or postcolonial studies of science?," *Postcolonial Studies* 12 no. 4 (2009): 389-400.

García-Deister, Vivette. "In Sickness and in Myth: Genetic Avatars of Indigenous Alterity and the Mexican Nation." In *Beyond Alterity: Destabilizing the Indigenous Other in Mexico*, edited by Paula López Caballero and Ariadna Acevedo-Rodrigo. Tucson: University of Arizona Press 2018, 263-83.

Harding, Sandra. "Postcolonial and feminist philosophies of science and technology: convergences and dissonances," *Postcolonial Studies* 12, No. 4 (2009): 401-421.

Harding, Sandra, ed. *The Postcolonial Science and Technology Studies Reader*. Durham, NC: Duke University Press, 2011.

Hobson, John M. *The Eastern Origins of Western Civilization*. Cambridge, 2004.

Mavhunga, Clapperton Chakanetsa, "Vermin Beings: On Pestiferous Animals and Human Game," *Social Text* 29, no. 1 (106) (2011): 151-176.

Prasad, Amit. "Discursive Contextures of Science: Euro/West-Centrism and Science and Technology Studies," *Engaging Science, Technology, and Society* Vol 2 (2016): 293-207.

Subramaniam, Banu. *Ghost Stories for Darwin: The Science of Variation and the Politics of Diversity*. University of Illinois Press, 2014.

Week 8 (11ᵗʰ Mar) – Plural Ways of Knowing

Explore tensions and alignments between laboratory, clinical, and other forms of knowledge

Learning Objectives:
- Consider incommensurability of forms of medical knowledges
- Explore syncretism

Core Reading:

Law, John, Geir Afdal, Kristin Asdal, Wen-yuan Lin, Ingunn Moser, Vicky Singleton; Modes of Syncretism: Notes on Noncoherence. *Common Knowledge* 1 January 2014; 20 (1): 172–192.
doi: https://doi.org/10.1215/0961754X-2374817

Mol, Annemarie. *The Body Multiple: Ontology in Medical Practice*. "Chapter 2: Different Atheroscleroses," (Durham, NC: Duke University Press, 2002), pp. 29-51.

Supplemental:

Mavhunga, Clapperton Chakanesta. "Seeing the National Park from Outside it: On an African Epistemology of Nature," In: *The Edges of Environmental History: Honouring Jane Carruthers*, edited by Christof Mauch and Libby Robin, RCC Perspectives 2014, no. 1, 53–60.

Verran, Helen. *Science and African Logic* University of Chicago Press 2001.

Week 9 (18th Mar) – Nonexperts Engaging Truth Claims

Explores how individuals and broader publics engage with knowledge claims.

Learning objectives
- consider the specificity of how different kinds of knowledge claims are contested and/or incorporated into identities
- explore the concepts of objective self fashioning and affiliative self fashioning

Core Reading:

Dumit, Joseph. "Is it Me or My Brain? Depression and Neuroscientific Facts," *Journal of the Medical Humanities* Vol 24, Nos. 1/2 (Summer 2003): 35-47.

Nelson, Alondra. "Bio Science: Genetic Genealogy Testing and the Pursuit of African Ancestry," *Social Studies of Science* 38.5 (October 2008): 759–783.

Supplemental:

Cartwright, Elizabeth. "The Logic of Heartbeats." In *Cyborg Babies: From Technosex to Technotots*, Edited by Robbie Davis-Floyd and Joseph Dumit, New York: Routledge, 1998.

Cevetello, Joseph. "The Elite Glucometer," in *Evocative Objects: Things we Think With*, edited by Sherry Turkle, MIT Press 2007, pp. 63-79.

Forlano, Laura. "Data Rituals in Intimate Infrastructures: Crip Time and the Disabled Cyborg Body as an Epistemic Site of Feminist Science," *Catalyst: Feminism, Theory, Technoscience* 3 no. 2 (2017): https://catalystjournal.org/index.php/catalyst/article/view/28843

van de Wiel, Lucy, Prenatal Imaging: Egg Freezing, Embryo Selection and the Visual Politics of Reproductive Time," *Catalyst: Feminism, Theory, Technoscience* 4 no. 2 (2018): https://catalystjournal.org/index.php/catalyst/article/view/29908

Week 10 (25th Mar) – From Technoluxe to Crip Technoscience

Explore how "disability" is defined, navigated, and contested in contemporary technoscience

Learning objectives
- to analyze technoluxe, and figure it on a continuum with ordinary biomedicine
- to explore how disability studies and disability activists are engaging debates about the role of medicine and technoscience

Core Reading:

Frank, Arthur W. "Emily's Scars: Surgical Shapings, Technoluxe, and Bioethics," *Hastings Center Report* 34 no. 2 (2004): 18-29.

Hamraie, Aimi, and Kelly Fritsch, "Crip Technoscience Manifesto," *Catalyst: Feminism, Theory, Techoscience* 5.1: https://doi.org/10.28968/cftt.v5i1.

Supplemental:

Jain, S Lochlann. "Cancer Butch," *Cultural Anthropology* 22 no. 4 (Nov 2007): 501-538.

Lorde, Audre. "Breast Cancer: Power Versus Prosthesis," from *The Cancer Journals* (San Francisco: Aunt Lute Books, 1980): 55-77.

Week 11 (1st April) – Images and Imaginaries

Engage with mythical and imaginative thinking about science, technology, and society.

Learning objectives
- to consider how cultural narratives and iconic figurations constrain and inspire creative thinking about the technoscientific world as it might be
- to engage with specific influential concepts: the cyborg, and sociotechnical imaginaries

Core Reading:

Haraway, Donna, "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century," in *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991): 149-181.

Jasanoff, Sheila, "Future Imperfect: Science, Technology, and Imaginaries of Modernity," from *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*, pp. 1-33.

Supplemental:

Hammonds, Evelynn, "New Technologies of Race," in Gill Kirkup et al., eds., *The Gendered Cyborg*, New York: Routledge, 2000, pp. 306-318.

Janne Rothmar Herrmann & Charlotte Kroløkke. "Eggs on Ice: Imaginaries of Eggs and Cryopreservation in Denmark," *NORA - Nordic Journal of Feminist and Gender Research*, 26:1 (2018): 19-35.