Department of
Science and Technology Studies

HPSC0073
Introduction to Science and Technology Studies

1. Module Syllabus

2020-21 session.   version: 15 October 2020

Convenor: Professor Joe Cain

2. Description

Science and Technology Studies (STS) is an interdisciplinary field in which science and technology is examined from different perspectives. ("Science" here is broadly understood to include science, technology, medicine, and mathematics.) Broadly, the perspectives are divided into History and Philosophy of Science (HPS) and Social Studies of Science (SSS). HPS includes history of science and philosophy of science, as well as integrated approaches to both. SSS includes sociology of science, science policy studies, and studies of science communication, engagement, and evaluation. This module introduces students to some of the key ideas, arguments, and readings in HPS and SSS, collectively STS. It acts as a bridge to the specialized option modules in the department's taught postgraduate offer.

3. Key Information

3.1 Digital resources

Type	Location
Moodle	moodle.ucl.ac.uk/course/view.php?id=7476
Timetable	ucl.ac.uk/timetable *or* tinyurl.com/hpsc0073
ReadingLists@UCL	ucl.ac.uk/library/teaching-learning-services-tls/readinglistsucl *or* tinyurl.com/read0073
Required texts	No single required text –readings for each session are listed on the schedule

3.2 Convenor

The Convenor serves as the module organiser. They have overall responsibility for the smooth operation of the module, including delivery, student support, marking, and engagement. The convenor is the first point of contact on module-related matters that involve administrative matters. They also are a last resort in matters related to academic and personal tuition.

Information	Specifics
Convenor	Professor Joe Cain
Contact	J.Cain@ucl.ac.uk
Telephone	+44 (0) 207 679 3041
Web	ucl.ac.uk/sts/cain
Office location	22 Gordon Square, room 4.3
Office hours	See Moodle

This module features 10-12 tutors associated with the sessions and assessment. One of the objectives of this module is to introduce students in our degrees to the wide range of expertise present in STS. Please feel encouraged to engage staff in areas of your own interest.

Students with **content-related questions** should approach the relevant academic staff for assistance. Students with **personal and career questions** should approach their personal tutor in the first instance. Direct questions about **course mechanics and administration** to the module Convenor.

4. Aims and objectives

4.1 Aims

The module has two specific aims. First, it introduces students to key ideas, arguments, and readings across the full range of subjects associated with Science and Technology Studies. Second, the module prepares students, in terms of key ideas, arguments and readings, to be able to accelerate in specialist STS MSc option courses. STS is defined broadly to include history of science, philosophy of science, integrated history and philosophy of science, science policy, sociology of science and technology, and science communication and evaluation.

4.2 Objectives

By the end of this module students should be able to:

1. demonstrate knowledge of key ideas, arguments and readings in STS
2. critically analyse key ideas, arguments and readings in STS

5. Schedule

UCLWeek	Date	Tutors	Session Topic	Essential Reading
6	05 Oct	Illari Gouyon	1. Introduction What is a scientist?	Erickson 2016 Sismondo 2009 Chalmers 1999
7	12 Oct	Illari	2. Does science progress?	Lakatos 1978 Kuhn 1978
8	19 Oct	Tobin	3. How does science produce knowledge?	Lipton 1995
9	26 Oct	Gouyon	4. Does the public need to understand science?	Wynne 1995 Irwin 2006
10	02 Nov	Stilgoe	5. How is scientific evidence used in policy?	Sarewitz 2004 Pielke 2007
11	09 Nov		6. Reading Week	
12	16 Nov	Mata	7. Can science be separated from its social context?	Merton 1973 Mulkay 1976 Bloor 1991
13	23 Nov	Smallman	8. Science, Technology and Inequality	Smallman 2015 Cozzens 2008
14	30 Nov	Gregory	9. Where has science come from?	Rochberg 1992 Von Staden 1992 Pingree 1992
15	07 Dec	Werrett Bulstrode	10. Are there different histories of science?	Schiebinger 2003 Raj 2013 Schaffer 2011
16	14 Dec	Agar	11. Do artifacts have politics?	Winner 1985 MacKenzie and Wacjman 1999 Edgerton 1999

6. Plan for each week

Moodle is the central organising tool for learning in this module.

Students are expected to undertake several activities each week for this module, focusing on the theme identified as the session topic:

1. **full class session** (1 hour per week identified in the timetable as "online teaching") - The purpose of this class time is for the tutor to present content associated with the week's theme.

   In some weeks, tutors will deliver live face-to-face presentations during this scheduled hour, and attendance is expected from students.

   In other weeks, tutors will prepare recorded material and asynchronous activities equivalent to one hour of face-to-face delivery. During those weeks, no live meeting will be held for the full class, and completion of the work can be done at a time convenient for the student. Check Moodle each week.

   Check Moodle each week for instructions about this session. Expectations for student participation will be posted in Moodle and in announcements posted through Moodle.

   Prior to the scheduled face-to-face session, students are expected to:
   (1) complete essential readings, and

(2) complete any asynchronous learning activities prescribed by the tutor.

2. **seminar hour** (1 hour per week identified in the timetable as "seminar") - The purpose of this face-to-face, synchronous time is discussion of essential readings by students, in groups, with the assistance of module tutors. These hours also are settings for students to ask questions to tutors and to learn from peers. Attendance in one seminar hour each week is required.

   To prepare for these seminar hours, students should (1 hour):
   (a) review their notes from essential readings and asynchronous learning for that week's session, as well as from any face-to-face session provided for the topic
   (b) prepare questions from their learning to clarify, challenge, and compare this material
   (c) prepare to relate the material from this week to other material developed in this module and elsewhere in their knowledge
   (d) consider the relevance of this content for essay titles in this and other modules

3. **independent reading** (4 hours per week) - students are expected to undertake independent reading in subjects associated with this module. Tutors will offer suggestions for additional reading, and peers can offer supplements. Finding relevant material is an essential professional skill and should not be taken lightly. Students are encouraged to share their growing understanding via forums on Moodle.

4. **research and reflection supporting writing of essays plus drafting and revision of essays** (4 hours per week) - students are expected to make time to read and reflect upon relevant material supporting their essay writing. This means going beyond simple regurgitation of information or trite analysis. Also, time for revision is essential for producing polished, readable, and insightful writing.

5. **participate in Moodle forums and chats** (1 hour) - physical isolation can be frustrating for many reasons. One is the potential to lose social interaction with peers. Forums are provided as one alternative. Students are expected to scan forum discussions and to participate where they believe they can make an active, positive contribution. Forums are monitored by module tutors and by the Convenor.

Essential readings are available through the ReadingLists@UCL service for this module:
<https://www.ucl.ac.uk/library/teaching-learning-services-tls/readinglistsucl>
Links to this service also are available through the Moodle site for this module.

Additional readings are listed on Moodle, but normally are not provided via the ReadingLists@UCL system.

Reading Week is scheduled for UCL Week 11, which is the sixth week of formal teaching sessions for this module. During this week, no tutor-led activities are scheduled. Instead, students are given time to catch-up where needed and to read more widely in their subject, using the wide variety of resources available to them as members of the UCL community. Students are encouraged to use online forums to discuss their discoveries as they might do through other social media. Students are expected to be pursuing their studies during this week. It is not intended to be a holiday. For example, you should be reading *New Scientist* weekly. Advice on how to access *New Scientist* through library services are online.

7. Assessment: four essays

Assessment in this module consists of four 1000-word essays, each contributing 25% in the final grade for the module. You must submit all four essays to complete the module.

The aim of these essays is to assess your critical engagement with the literature and key concepts in STS. The essays will also provide you with the opportunity to develop your academic writing in a gradual manner, receiving feedback throughout the module. The feedback will help you improve in the next piece of coursework and longer assessments in other modules.

The precise deadline for each assignment is set as 12:00 noon London time on the deadline date. Items may be submitted earlier, though feedback will not be available until after the deadline. Essays submitted late will be subject to standard late penalties as prescribed by UCL and described in the *STS Student Handbook*.

If you encounter a technical problem submitting your coursework, such as a fault in the Moodle system, please email your essay to the Convenor, Professor Joe Cain, at <J.Cain@ucl.ac.uk>. The date and time the document is sent will be considered the submission time.

For each essay, select one option from the available titles in that assignment. The following table summarises the essays timetable and subject range for each assignment:

Essays	Subject range	Deadline (noon)	Students can expect feedback on or before
Essay 1	Philosophy of Science. Choose between essay title 1 (Illari) and 2 (Tobin)	02 November	17 November
Essay 2	STS. Choose between essay title 3 (Gouyon) and 4 (Stilgoe)	23 November	08 December
Essay 3	STS. Choose between essay title 5 (Mata) and 6 (Smallman)	21 December	06 January
Essay 4	History of Science. Choose between essay title 7 (Gregory), 8 (Werrett), 9 (Agar)	04 January	19 January

This module follows UCL rules on word counts, as described in the *STS Student Handbook*. Department policy is to count all words in the main body of a text, including footnotes or endnotes. Word counts exclude bibliography, titles, tables, captions, appendices, and other peripheral elements of a submission. Students often choose a citation style, such as Chicago, to maximise the number of words available for the substantive elements of their essay (see section on References below).

7.1 Essay titles

Specific tutors are listed as responsible for advice on specific essay titles. You can expect them to provide instructions during module sessions. You also can find additional advice on the Moodle site. If you still require assistance, please consult module tutors via the online forums on Moodle.

The Convenor will provide general advice on essays as well as general information about format and referencing.

Essay 1- Choose between the two following options

1. Does it still make sense to read classics in philosophy of science, such as the writings of Popper, Kuhn, Lakatos and Feyerabend? (Illari, Lecture 2)

2.Scientific knowledge is produced by successful scientific explanations. Critically evaluate this claim in relation to the Semmelweiss case (Tobin, Lecture 3)

Essay 2- Choose between the two following options:

3. Critically discuss Brian Wynne's suggestion, writing in 1995, 'there is a tacit cultural politics of legitimation of science, and related institutions, being conducted under the language of "public understanding of science." (Gouyon, Lecture 4)

4. Helga Nowotny calls expertise "transgressive competence". What does she mean by that, and should it change how governments seek expert advice? (Stilgoe, Lecture 5)

Essay 3- Choose between the two following options:

5. Is science studies responsible for the advent of a post-truth era? (Mata, Lecture 7)

6. How does Cozzens define inequality? Drawing on material in the reading list, and academic sources you identify yourself, discuss what this definition means for how we think about the social implications of science and technology." (Smallman, Lecture 8)

Essay 4 - Choose between the three following options:

7. When and where did science begin? (Gregory, Lecture 9)

8. Compare and contrast two of these three approaches to history of science: feminist history, post-colonial history, and the 'material turn'. Are there crossovers between the approaches you have chosen? (Werrett and Bulstrode, Lecture 10)

9. How strongly does technological change shape historical change? (Agar, Lecture 11)

7.2 Essay extensions and mitigations

Information about extensions and mitigations is provided in the *STS Student Handbook*. Individual tutors cannot grant extensions on their own initiative, so please do not ask.

7.3 Essay feedback

Your feedback and first marks on each essay will be accessible via Moodle, normally two weeks (15 working days) after the submission of your essay. Please note that first marks are provisional and might change after second marking and moderation by external examiners. Marks are confirmed and fixed in June.

Please focus on the feedback provided by the first marker, which is what will allow you to improve in the next piece of coursework.

You should discuss all your feedback with your personal tutor with the aim of identifying weaknesses and possible routes for improvement. If you have any questions about the specific

feedback for an essay, please discuss it with the tutor for the relevant session or essay.

7.4 Specific criteria for assessment of your essays

The assessment provided for this module is designed to help students develop their essay-writing skills and demonstrate critical knowledge across the syllabus.

As the essays are 1000 words each, and these are written in rapid succession, we do not expect full coverage of the available literature on the topic you choose. Focus instead on key ideas covered in the essential readings assigned for a given lecture and some selected further readings to deepen and refine your analysis.

The essays will also help you develop your academic writing style, including:

- organization of argument (how a case is built in the essay)
- structure (e.g. clear introduction, arguments, and conclusion; clear links between sections and paragraphs)
- focus and clarity
- appropriate use of evidence and quotations
- grammar and spelling
- consistent referencing

General marking guidelines can be found in the *STS Student Handbook*.

7.5 References

Referencing is essential for scholarly writing. Different referencing styles have evolved in different disciplines. As STS is an interdisciplinary field, we commonly move across many referencing styles in our learning and research. The specific choice for a referencing system in this module is less important than the consistent use of whichever system you chose. For this reason, in your essays, you are free to choose one of the styles used in a major journal in our field. Use that system consistently throughout your essay. Your choices are:

- *Science and Public Policy*
- *Social Studies of Science*
- *British Journal for the Philosophy of Science*
- *Isis*

The style for each journal is shown in articles published in those journals. Detailed explanation on referencing style is provided in "Instructions for Authors" guidance offered on journal websites.

If you are undecided on referencing styles, we recommend the Chicago style, see:
Chicago-Style Citation Quick Guide
Author-Date: Sample Citations

Whichever referencing style you use, and in cases when a rule cannot be located, the key standard to apply is that of recovery: can a reader locate the specific source you wish to identify? If the answer is "yes," then the referencing is sufficient. If the answer is "no," then it is not. When in doubt, ask your personal tutor or the tutor responsible for the essay title. Also, ask in the Moodle chatroom.

8. Important policy information

Refer to the *STS Student Handbook* on matters of policy regarding this module. If you have any questions, please ask the Convenor.