

**DEREE COLLEGE SYLLABUS FOR:
SO 4143 SOCIOLOGY OF SCIENCE AND TECHNOLOGY**

(Updated Spring 2022)

**UK LEVEL: 6
UK CREDITS: 15
US CREDITS: 3/0/3**

PREREQUISITES:

SO 1000 Introduction to Sociology **OR**
SO 1001 Sociology of Modern Life

**CATALOG
DESCRIPTION:**

Science as a social institution. Interaction between science and technology. Scientific knowledge and social context. Relationship of science and technology to industry. Theories and case studies on science, technology and society studies.

RATIONALE:

The emergence of science and technology as sovereign cultural forces for social transformation on a global scale call for a sociological understanding of their structural features, but also of their interrelationship and interaction with wider aspects of society, such as the economy, polity, and religion. In this respect this course becomes highly relevant to all students, given the increasingly embedded role of technology in daily routines. An understanding of the above issues in science and technology equips the student with an understanding of cardinal facets of contemporary society, such as information technology, social media and cyborg technologies.

LEARNING OUTCOMES:

As a result of taking this course, the student should be able to:

- 1.Appraise the structure of science, its demarcation from non-science based on the major theories of science.
- 2.Determine the relationship between: science, technology and society.
- 3.Appraise the transition from philosophy of science to the sociology of scientific knowledge.
- 4.Assess and discuss science within a wider social framework, extending its relevance to debates in ethics, religion and politics aided by exemplary case-studies.

**METHOD OFTEACHING AND
LEARNING:**

In congruence with the teaching and learning strategy of the college, the following tools are used:

- Classes consist of lectures, discussions of selected issues, showing of video documentaries and in-class illustrations of various issues.
- Office hours: students are encouraged to make full use of the office hours of their lecturer, where they can address issues and ask questions pertinent to the course material.
- Use of a blackboard site, where instructors post lecture notes, assignment instructions, timely announcements, as well as additional resources.

<p>ASSESSMENT:</p>	<p>Summative:</p> <table border="1" data-bbox="597 79 1341 285"> <tr> <td data-bbox="597 79 1195 212"> <p>First assessment: 24-hrs Take-home mid-term examination (Unseen text interpretation/ critical /informative responses; 1500 +/-10% words - summative</p> </td> <td data-bbox="1195 79 1341 212"> <p>40</p> </td> </tr> <tr> <td data-bbox="597 212 1195 285"> <p>Final assessment: Term Paper (3,500 +/-10% words) - summative</p> </td> <td data-bbox="1195 212 1341 285"> <p>60</p> </td> </tr> </table> <p>Formative:</p> <table border="1" data-bbox="597 344 1341 415"> <tr> <td data-bbox="597 344 1195 415"> <p>Two take-home assignments [theory and case-study application]- formative</p> </td> <td data-bbox="1195 344 1341 415"> <p>0</p> </td> </tr> </table> <p>The formative assignments prepare students for the summative assessments.</p> <p>The first assessment (24-hrs mid-term exam) tests Learning Outcomes 1, 2, 3.</p> <p>The final assessment (research paper) tests Learning Outcomes 1, 2, 3, 4</p> <p><i>The final grade for this module will be determined by averaging all summative assessment grades, based on the predetermined weights for each assessment. If students pass the comprehensive assessment that tests all Learning Outcomes for this module and the average grade for the module is 40 or higher, students are not required to resit any failed assessments.</i></p>	<p>First assessment: 24-hrs Take-home mid-term examination (Unseen text interpretation/ critical /informative responses; 1500 +/-10% words - summative</p>	<p>40</p>	<p>Final assessment: Term Paper (3,500 +/-10% words) - summative</p>	<p>60</p>	<p>Two take-home assignments [theory and case-study application]- formative</p>	<p>0</p>
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<p>Final assessment: Term Paper (3,500 +/-10% words) - summative</p>	<p>60</p>						
<p>Two take-home assignments [theory and case-study application]- formative</p>	<p>0</p>						
<p>INDICATIVE READING:</p>	<p>Required material only on Reserve Status in the JSB Library: (chapters will be assigned by the lecturer in order to complement the main source with a view to sharpen interpretive skills on primary sources)</p> <ol style="list-style-type: none"> 1. Barnes, B. and Edge, D. (eds.) (1982), <i>Science in Context: Readings in the Sociology of Science</i>, Milton Keynes: Open University Press. 2. Bloor, D. ([1976] 1991), <i>Knowledge and Social Imagery</i>, Cambridge: Cambridge. 3. Bloor, D. (1982), 'Durkheim and Mauss Revisited: Classification and the Sociology of Knowledge', <i>Studies in the History and Philosophy of Science</i>, 13(4): 267-297. 4. Bloor, D. (1983), <i>Wittgenstein: A Social Theory of Knowledge</i>. London: Macmillan. 5. Bourdieu, P. (2004), <i>Science of Science and Reflexivity</i>. Cambridge: Polity. 6. Canguilhem, G. (1989), <i>The Normal and the Pathological</i>. New York: Zone Books. 7. Chalmers, A.F. (1999), <i>What is this Thing Called Science?</i> Indianapolis/Cambridge: Hackett. 8. Collins, H. and Evans, R. (2009), <i>Rethinking Expertise</i>. Chicago: The University of Chicago Press. 9. Ezrahi, Y, Mendelson, E. and Segal, H. (eds.) (1994), <i>Technology, Pessimism, and Postmodernism</i>, Amherst: University of Massachusetts Press. 10. Fleck, L. ([1935] 1981), <i>Genesis and Development of a Scientific Fact</i>, Chicago: The University of Chicago Press. 						

11. Gross, P., Levitt, N. And Lewis, M.W. (eds) (1996), *The Flight from Science and Reason*. Baltimore and London: The Johns Hopkins University Press.
12. Habermas, J. ([1969] 1987), *Toward a Rational Society*. Cambridge: Polity.
13. Harding, S. (1986), *The Science Question in Feminism*, Ithaca, New York: Cornell University Press.
14. Kuhn, T. (1970), *The Structure of Scientific Revolutions*, Chicago: University of Chicago Press.
15. Latour, B. ([1987] 1997), *Science in Action: How to Follow Scientists and Engineers through Society*, Cambridge, Massachusetts: Harvard University Press.
16. Laudan, L. (1971), 'Towards a Reassessment of Comte's 'Methode Positive'', *Philosophy of Science* 38(1): 35-53.
17. Law, J and J. Hassard (1999) *Actor Network Theory and After*. Oxford: Wiley-Blackwell.
17. Luhmann, N and K. Behnke (1994), 'The Modernity of Science', *New German Critique*, 61: 9-23.
18. Merton, R.K. (1973), *The Sociology of Science: Theoretical and Empirical investigations*. Chicago and London: The University of Chicago Press.
19. Nelkin, D. and Lindee M.S. (1995), *The DNA Mystique. The Gene as a Cultural Icon*, New York: W.H. Freeman and Company.
20. Zimmerman, M. E. (1990), *Heidegger's Confrontation with Modernity: Technology, Politics, Art.*. Bloomington: Indiana University Press.

Recommended Material:

1. Andrews, L. and Nelkin, D. (2001), *Body Bazaar. The Market for Human Tissue in the Biotechnology Age.*, New York: Crown Publishers.
2. Barnes, B., Bloor, D. and Henry, J. (1996), *Scientific Knowledge: A Sociological Analysis*. Chicago and London: The University of Chicago Press.
3. Bell, D (1973), *The Coming of Post-Industrial Society: A venture in Social Forecasting*. New York: Penguin.
4. Castells, M. (2012), "Changing the World in the Networked Society", pp 218-243. In: *Networks of Outrage and Hope: Social Movements in the Internet Age*. Cambridge: Polity.
5. Collins, H and R. Evans (2017) *Why Democracies Need Science*. Cambridge: Polity.
5. Downey, G. and Dumit, J. (1997), *Cyborgs and Citadels: Anthropological Interventions in Emerging Sciences and Technologies*. Santa Fe, New Mexico: School of American Research Press.
6. Fuchs, C. (2011), "New Media, Web 2.0 and Surveillance", *Sociology Compass* 5(2): 134-147.
5. Fuller, S. (1997), *Science*. Minneapolis: University of Minnesota Press.
6. Gehlen, A. (1980), *Man in the Age of Technology*. New York: Columbia University Press.
7. Habermas, J. (1972), *Knowledge and Human Interests*, London:

	<p>Heinemann.</p> <p>8.Habermas, J. (2003), <i>The Future of Human Nature</i>. Cambridge: Polity.</p> <p>9.Josephson, P. (2000), <i>Totalitarian Science and Technology</i>, New York: Humanity Books.</p> <p>10. Kadvany, J. (2001), <i>Imre Lakatos and the Guises of Reason</i>. Duke University Press.</p> <p>11.Law, John and John Hassard (eds.) (1999), <i>Actor Network Theory and After</i>, Oxford: Blackwell.</p> <p>12.Longino, H. (1990), <i>Science as Social Knowledge: Values and Objectivity in Scientific Inquiry</i>. Princeton, New Jersey: Princeton University Press.</p> <p>13.MacKenzie, D. (1993), <i>Inventing Accuracy. A Historical Sociology of Nuclear Missile Guidance</i>, Cambridge, Massachusetts: The MIT Press.</p> <p>14.Mulkay, M. (1979), <i>Science and the Sociology of Knowledge</i>. London: George Allen and Unwin.</p> <p>15. Panagiotou, A (2017), <i>Structure, Agency and Biotechnology: The Case of the Rothamsted GM Wheat Trials</i>. London: Anthem Press.</p> <p>15.Popper, K. (1969), <i>Conjectures and Refutations: the Growth of Scientific Knowledge</i>, London: Routledge and Kegan Paul.</p> <p>16.Shapin, S. (1994), <i>A Social History of Truth: Civility and Science in Seventeenth Century England</i>, Chicago: University of Chicago Press.</p> <p>17. Shapin, S. (2010), <i>The Scientific Life: A Moral History of a Late Modern Vocation</i>. Chicago: The University of Chicago Press</p> <p>18.Schmaus, W. (1994), <i>Durkheim's Philosophy of Science and the Sociology of Knowledge: Creating an Intellectual Niche</i>. Chicago: The University of Chicago Press.</p> <p>19.Sokal, A. and Bricmont, J. (1998), <i>The Fashionable Nonsense. Postmodern Intellectuals' Abuse of Science</i>. New York: Picador.</p>
<p>INDICATIVE MATERIAL: (e.g. audiovisual, digital material, etc.)</p>	<p>REQUIRED MATERIAL: Poitras, L (2014). <i>Citizen Four</i>. Dogwoof Digital. Renk, J (2019). <i>Chernobyl</i>. HBO.</p> <p>RECOMMENDED MATERIAL: N/A</p>
<p>COMMUNICATION REQUIREMENTS:</p>	<p>Verbal skills using academic / professional English.</p>
<p>SOFTWARE REQUIREMENTS:</p>	<p>Word. ppts</p>
<p>WWW RESOURCES:</p>	<p>www.cs.ucsd.edu/users/goguen/projs/soc.html www.sagepub.co.uk/journals/details/jo194.html</p>
<p>INDICATIVE CONTENT:</p>	<p>1. The Philosophy of Science: Epistemological Foundations -Popper's falsificationism -Kuhn's scientific revolutions -Lakatos and Research Programmes</p>

-Feyerabend: Science and the Free Society

2. The Sociology of Science: Founding Arguments

- Robert Merton and the Sociology of Science: Ethos and Values
- Robert Merton and the Scientific Community

3. The Strong Programme in the Sociology of Scientific Knowledge

-A Durkheimian Approach to Science. Excursus on Fleck

-Tenets of the Strong Programme

- Conventions and language-games
- Shapin on 'trust' and science

4. Latour and the Action-Network Theory

- A Janus-faced Science
- Laboratories, literature, machines
- Latour's *We Have Never Been Modern*
- Action Network Theory (John Law)
- The Bloor-Latour controversy

5. The Feminist Standpoint on Science

-Sandra Harding, Helen Longino, Donna Haraway's cyborg-feminism-Criticisms against a 'feminist' science

6. Science, Technology and Society

- The hierarchical and the symmetrical model
- Science, technology and innovation
- Case-study: Uninventing nuclear weapons

7. Biology, Technology and Society

-Genetic Determinism and Epigenetic Biology

-Nelkin on the gene as cultural icon; biocommerce, biosurveillance and biocrime

-Habermas and Lewontin against genetic reductionism

-Latour on the COVID-19 pandemic

8. Technology and Modernity: Marxist and Reactionary accounts

- Habermas on Science and Technology as Ideology
- Heidegger on *Gestell*; Jünger's *Typus in the Age of the Mask*.
- Science and Technology under Surveillance: From Nazi science and Chernobyl to Edward Snowden

9. Conclusion: Where do we stand?

- Rationalism Revisited: Lakatos and the guises of reason
- Post-truth and anti-science movements