# HPSC3022 Frontiers of Knowledge in History and Philosophy of Science: Science, Politics, and the State in Russia and the Soviet Union

# **Course Syllabus**

2012-13 session | Dr Simon Werrett | s.werrett@ucl.ac.uk

# **Course Information**

How are science and politics related? What role does science play in governance, and how is science itself best governed? Is scientific knowledge apolitical, and if it is politically-informed, what consequences does this have? This module explores the interactions of science, politics, and the state through a study of science in Imperial Russia and the Soviet Union. From the reign of Peter the Great (1696-1725) to the time of Perestroika in the 1980s, Russian science always operated close to the state. Using cases from Russian and Soviet history, we will explore a variety of approaches for understanding relations of science, politics, and the state. Some comparative studies will show that science and politics are equally integrated in western liberal democracies.

# Basic course information

Moodle Web	search 'HPSC3022'
site:	
Assessment:	1 x 5000 word essay (80%)
	1 x 15 minute presentation (20%)
Timetable:	www.ucl.ac.uk/sts/hpsc
Prerequisites:	No prerequisites, students must be 2nd or 3rd year standing.
	Students outside STS are welcome.
Required texts:	Loren R. Graham, Science in Russia and the Soviet Union: A Short History
	(Cambridge: Cambridge University Press, 1994) ISBN: 978-0521287890
Course tutor:	Simon Werrett
Contact:	s.werrett@ucl.ac.uk
	tel: 020 7679 3261
Web:	http://www.ucl.ac.uk/sts/staff/werrett
Office	22 Gordon Square, Room 1.2A
location:	
Office hours:	Mondays, 11-12am
	Wednesdays 9-10am

# Schedule

UCL Week	Topic	Date	Activity
20	Science and Religion in Medieval Russia	January	Read essential readings
		7/9	in time for Wednesday
21	Science and Patronage: the Imperial Court and	January	Read essential readings
	the St. Petersburg Academy of Sciences	14/16	in time for Wednesday
22	Gender and Science in Imperial Russia	January	Read essential readings
		21/23	in time for Wednesday
23	Science and Empire: Imperial Russian Voyages	Jan 30	Read essential readings
	of Exploration		in time for Wednesday
24	Science as a Spectacle: Instruments,	February	Read essential readings
	Astronomy, and the Display of Power	4/6	in time for Wednesday
25	Reading Week	February	
		11-15	
26	Science and Ideology: Darwin in Nineteenth-	February	Read essential readings
	Century Russia	18/20	in time for Wednesday
27	Science and Revolution: Marxism, the	February	Read essential readings
	Bolsheviks and the Reorganization of Science	25/27	in time for Wednesday
28	Science and Totalitarianism: Stalinism	March	Read essential readings
		4/6	in time for Wednesday
29	Rockets and Bombs: Technology in the Cold	March	Read essential readings
	War	11/13	in time for Wednesday
30	Globalized Risk: Soviet Biological Warfare and	March	Read essential readings
	the End of the USSR	18/20	in time for Wednesday
30	Essay deadline	April 3	

# Assessments

Summary

	Description	Deadline	Word limit
Presentation in class	15-minute oral presentation on assigned readings	varies	n/a
Written version of Presentation	1000-word version of your in-class presentation	Wednesday April 3	1000
Essay proposal	1-page description of planned essay and list of sources, based on a topic previously agreed with Dr. Werrett	Friday February 1	n/a
Essay Draft	Draft of the complete essay	Thursday February 28	5000

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Research	Final FOOD word occay	Wednesday April 3	F000
Essay	Final 5000-word essay		5000

# **Assignments**

The main assignment for this class is a research essay, exploring in-depth an aspect of the history of Russian or Soviet science agreed upon with the tutor. You should determine a topic and arrange to meet with Dr. Werrett to discuss its suitability before the end of January. Questions should be as focused as possible, and should be chosen with the availability of sources kept in mind. You should submit, by February 1, a single page detailing your topic and the sources you plan to consult (a factsheet on Moodle provides more details). This will not be graded, but must be submitted. Once approved, you should write a draft of your paper by the end of February, to be submitted by February 28. Again, this will not be graded, but you must arrange to meet with Dr. Werrett to discuss the draft and ways to develop the essay. The final essay will be due on Wednesday April 3rd.

You will also be asked to make a presentation on one or more of the readings in class during the term. The presentation should last no more than fifteen minutes, and should briefly summarize for two to three minutes the argument of the text under discussion, before offering critical discussion of what the author has to say (again a factsheet is available on Moodle). You will not be graded on your presentation, but you should submit online before April 3rd a written version of the presentation, up to 1000 words in length. This will be graded. All written work must be submitted via Moodle. In order to be deemed 'complete' on this module students must attempt the written presentation and final research essay.

This class will consist of two seminars each week. In the first, Dr. Werrett will speak for about fifteen to thirty minutes on the historical and scientific background to the readings for the week, following which there will be a student presentation and a brief discussion. In the second hour, there will be another student presentation, followed by half an hour of discussion of both essential readings. Please make sure you read the essential readings for the week in time for the appropriate class and that you bring copies with you to class.

### Criteria for assessment

The departmental marking guidelines for individual items of assessment can be found in the STS Student Handbook.

# Aims & objectives

The general aim of the course is to provide an overview of the history of science in Russia and the Soviet Union from the Middle Ages to the present, and to allow students the opportunity to explore an aspect of that history in some depth. In addition, the course will seek to provide a variety of perspectives for thinking about the relationship between science, power, and politics. By the end of the course students will have a working knowledge of Russian and Soviet history and history of science, and experience in critical reading, discussion, presentation, and research into associated topics.

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### **Readings**

We will be reading numerous chapters from Loren Graham's textbook on science in Russia and the Soviet Union, and you are strongly advised to purchase a copy of the book. Several copies should be available in Waterstones. The full details are:

Loren R. Graham, Science in Russia and the Soviet Union: A Short History (Cambridge: Cambridge University Press, 1993) ISBN: 0-521-24566-4

You may also wish to consult general introductions to Russian history during the course. The following are recommended, and on reserve in the UCL Library:

- Geoffrey Hosking, Russian History: A Very Short Introduction (Oxford University Press, 2012)
- Geoffrey Hosking, A History of the Soviet Union: 1917-1991 (Fontana, 1992)
- Gregory L. Freeze, Russia: A History (Oxford University Press, 1997)
- Richard Pipes, Russia Under the Old Regime (Penguin, 1974)
- Nicholas Riasanovsky, A History of Russia (Oxford University Press, 1963)

## **Reading list**

Most of the readings for this course can be downloaded from the library's online reading list for HPSC3022. These readings are designated in the list below as (ONLINE READING LIST). Others will need to be accessed directly in the library.

Week 20

Jan 7. Introduction. Jan 9. Russian History and Questions about Science.

# **Essential**

Alexander Vucinich, Science in Russian Culture: a History to 1860 (Stanford, CA.: Stanford University Press, 1963), pp. 3-37. (ONLINE READING LIST)

#### <u>Additional</u>

Graham, Science in Russia and the Soviet Union, 9-16.

W. F. Ryan, "Magic and Divination: Old Russian Sources," in Bernice Glatzer Rosenthal, ed., The Occult in Russian and Soviet Culture: The Occult and Modern Russian and Soviet Culture (Ithaca, NY: Cornell University Press, 1997), pp. 35-58. (ONLINE READING LIST)

Sevcenko, Ihor, 'Remarks on the Diffusion of Byzantine Scientific and Pseudo-Scientific Literature among the Orthodox Slavs,' Slavonic and East European Review, 1981, 59:321-345 (ONLINE READING LIST)

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#### Week 21

Science and Patronage: the Imperial Court and the St. Petersburg Academy of Sciences.

#### Essential

Jan 14. Michael Gordin, "The Importation of Being Earnest: the Early St. Petersburg Academy of Sciences," Isis 91 (2000): 1-31. (ONLINE READING LIST)

Jan 16. Werrett, Simon, 'The Schumacher Affair: Reconfiguring Academic Expertise Across Dynasties in Eigheenth-century Russia' Osiris Vol. 25: Expertise and the Early Modern State, ed. Eric Ash (Chicago, 2010): 104-125. (ONLINE READING LIST)

#### Additional

Graham, Science in Russia and the Soviet Union, 16-31.

Ludmilla Schulze, "The Russification of the St. Petersburg Academy of Sciences and Arts in the eighteenth century," British Journal for the History of Science 18 (1985): 305-335. (ONLINE READING LIST)

Alexander Lipski, "The Foundation of the Russian Academy of Sciences." Isis 44 (1953): 349-354. (ONLINE READING LIST)

#### Week 22

Gender and Science in Imperial Russia

### **Essential**

Jan 21. Gordin, Michael, 'Arduous and Delicate Task: Princess Dashkova, the Academy of Sciences, and the Taming of Natural Philosophy,' in Sue Ann Price, ed., The Princess & the Patriot: Ekaterina Dashkova, Benjamin Franklin, and the Age of Enlightenment (Philadelphia: American Philosophical Society, 2006), pp. 3-22. (ONLINE READING LIST)

Jan 23. Olga Valkova, "The Conquest of Science: Women and Science in Russia, 1860–1940," Osiris, vol. 23 (2008): Intelligentsia Science: The Russian Century, 1860–1960, eds. Michael D. Gordin and Karl Hall (Chicago: University of Chicago Press, 2008): 136-165. (ONLINE READING LIST)

# <u>Additional</u>

Price, Sue Ann, ed., The Princess & the Patriot: Ekaterina Dashkova, Benjamin Franklin, and the Age of Enlightenment (Philadelphia: American Philosophical Society, 2006). (ONLINE READING LIST)

Koblitz, Ann Hibner, 'Science, Women, and the Russian Intelligentsia: the

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Generation of the 1860s', Isis, 79 (1988), 208-226. (ONLINE READING LIST)

Koblitz, Ann Hibner, A Convergence of Lives. Sofia Kovalevskaia: Scientist, Writer, Revolutionary (Boston and Basel: Birkhauser, 1983; revised 2nd ed. New Brunswick, NJ: Rutgers University Press, 1993). (WOMEN'S LIBRARY)

#### Week 23

Science and Empire: Imperial Russian Voyages of Exploration.

\*\*NOTE: there will be no class on Jan 28, but make sure you read the essential reading. \*\*

#### **Essential**

Jan 30. J. L. Black, "G. F. Müller and Russian Academy of Sciences Contingent in the Second Kamchatka Expedition, 1733-1743," Canadian Slavonic Papers, 1983, 25: 235-252. (ONLINE READING LIST)

Jan 30. Simon Werrett, 'Russian Responses to the Voyages of Captain Cook,' in Captain Cook: Explorations and Reassessments, Glyn Williams, ed. (New York: Boydell & Brewer Press, 2004), pp. 179-200. (ONLINE READING LIST)

#### **Additional**

A. E. Sokol, "Russian Expansion and Exploration in the Pacific." American Slavic and East European Review 11 (1952): 85-105. (ONLINE READING LIST)

Slezkine, Yuri. "Naturalists versus Nations: Eighteenth-Century Russian Scholars Confront Ethnic Diversity," in Russia's Orient: Imperial Borderlands and Peoples, 1700-1917, eds. Daniel R. Brower and Edward J. Lazzerini (Bloomington, Indiana, 1997), pp. 27-57. (LIBRARY)

#### Week 24

Science as a Spectacle: Instruments, Astronomy, and the Display of Power

#### **Essential**

Feb 4. Simon Werrett, "The Astronomical Capital of the World: Pulkovo Observatory in the Russia of Tsar Nicholas I" in *The Heavens on Earth:* Observatory Techniques in Nineteenth-century Science, Charlotte Bigg, Otto Sibum, and David Aubin, eds., (Durham, NC: Duke University Press, 2010), pp. 33-57. (ONLINE READING LIST)

Feb 6. Simon Werrett, "Technology on Display: Instruments and Identities on Russian Voyages of Exploration". Russian Review, Vol. 70, no. 2 (July 2011): 380-396. (ONLINE READING LIST)

# Additional

Batten, Allan H. Resolute and Undertaking Characters; the Lives of Wilhelm and Otto Struve (Dordrecht and Boston, D. Reidel Publishing, 1988). (LIBRARY)

Williams, Mari E. 'Astronomical Observatories as Practical Space: The Case of Pulkowa,' in *The Development of the Laboratory: Essays on the Place of Experiment in Industrial Civilization*, ed. Frank A. J. L. James (London, MacMillan, 1989), pp. 118-136. (ONLINE READING LIST)

Week 25: Reading Week

Week 26

Science and Ideology: Darwin in Nineteenth-Century Russia

#### Essential

Feb 18. Todes, Daniel P. "Darwin's Malthusian Metaphor and Russian Evolutionary Thought, 1859-1917," Isis 78 (1987): 537-551. (ONLINE READING LIST)

Feb 20. Kinna, Ruth, 'Kropotkin's theory of mutual aid in historical context,' International Review of Social History, 1995, 40:259-283. (ONLINE READING LIST)

# <u>Additional</u>

Graham, Science in Russia and the Soviet Union, 56-75.

Daniel P. Todes, *Darwin Without Malthus: The Struggle for Existence in Russian Evolutionary Thought* (Oxford: Oxford University Press, 1989). (LIBRARY)

Alexander Vucinich, *Darwin in Russian Thought* (Berkeley, Ca.: University of California Press, 1988). ((ONLINE READING LIST E-BOOK)

James Allen Rogers, 'Russian Opposition to Darwinism in the Nineteenth Century,' *Isis*, 1974, 65:487-505. (ONLINE READING LIST)

Week 27

Science and Revolution: Marxism, the Bolsheviks and the Reorganization of Science

### **Essential**

Feb. 25. Douglas R. Weiner, "Community Ecology in Stalin's Russia: 'Socialist' and 'Bourgeois' Science," Isis 75 (1984): 684-696. (ONLINE READING LIST)

Feb 27. Vucinich, Alexander, 'Soviet Physicists and Philosophers in the 1930s: Dynamics of a Conflict' Isis, 1980, 71:236-50. (ONLINE READING LIST)

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# <u>Additional</u>

Graham, Science in Russia and the Soviet Union, chapter 4 and 5.

Slava Gerovitch, "'Mathematical Machines' of the Cold War: Soviet Computing, American Cybernetics and Ideological Disputes in the Early 1950s," Social Studies of Science, Vol. 31, No. 2, Science in the Cold War (April 2001): 253-287. (ONLINE READING LIST)

Loren R. Graham, "The Socio-political Roots of Boris Hessen: Soviet Marxism and the History of Science." Social Studies of Science 15 (1985): 705-722.

Richard Stites, Revolutionary Dreams: Utopian Vision and Experimental Life in the Russian Revolution (Oxford and New York: Oxford University Press, 1989), chapter 8, 'Utopia in Time: Futurology and Science Fiction', pp. 167-189. (LIBRARY)

#### Week 28

Science and Totalitarianism: Stalinism

#### Essential

Mar 4. Bailes, Kendall E. 'Soviet Science in the Stalin Period: The Case of V. I. Vernadskii and his Scientific School, 1928-1945,' Slavic Review, 1986, 45:20-37. (ONLINE READING LIST)

Mar 6. Josephson, Paul, 'Physics, Stalinist Politics of Science, and Cultural Revolution,' Soviet Studies, 40 (1988): 245-65. (ONLINE READING LIST)

#### Additional

Graham, Science in Russia and the Soviet Union, chapter 6

Alexei Kojevnikov, "President of Stalin's Academy: The Mask and Responsibility of Sergei Vavilov." Isis 87 (1996): 18-50.

McCutcheon, Robert A. 'The 1936-1937 Purge of Soviet Astronomers,' Slavic Review, 1991, 50:100-117. (ONLINE READING LIST)

#### Week 29

Rockets and Bombs: Technology in the Cold War

#### Essential

Mar 11. David Holloway, "Entering the Nuclear Arms Race: The Soviet Decision to Build the Atomic Bomb, 1939-45." Social Studies of Science 11 (1981): 159-197. (ONLINE READING LIST)

Mar 13. Slava Gerovitch. "Human-Machine Issues in the Soviet Space Program," in Critical Issues in the History of Spaceflight, eds. Steven J. Dick and Roger D. Launius (Washington, D.C.: NASA History Division, 2006), pp. 107-140. (ONLINE READING LIST)

#### Additional

Slava Gerovitch, "Stalin's Rocket Designers' Leap into Space: The Technical Intelligentsia Faces the Thaw," *Osiris*, vol. 23 (2008): *Intelligentsia Science: The Russian Century, 1860–1960*, eds. Michael D. Gordin and Karl Hall (Chicago: University of Chicago Press, 2008): 189-209. (ONLINE READING LIST)

Siddiqi, Asif A., *The Soviet Space Race with Apollo* (University Press of Florida, 2003) (LIBRARY)

Siddiqi, Asif. "Deep Impact: Robert Goddard and the Soviet 'Space Fad' of the 1920s." *History and Technology* 20 (2004): 97-113. (ONLINE READING LIST)

Michael D. Gordin, *Red Cloud at Dawn: Truman, Stalin, and the End of the Atomic Monopoly* (Picador, 2010). (LIBRARY)

#### Week 30

Globalized Risk: Soviet Biological Warfare and the End of the USSR

#### **Essential**

Mar 18. Meselson, M. et al (1994), "The Sverdlovsk Anthrax Outbreak of 1979," Science 266 (1994): 1202-1207. (ONLINE READING LIST)

*Mar 20.* Hart, J. 'The Soviet Biological Weapons Programme' in M. Wheelis et al, *Deadly Cultures: Biological Weapons Since 1945* (Harvard University Press, 2006), 132-156. (ONLINE READING LIST)

## <u>Additional</u>

Ken Alibek, Biohazard: The Chilling True Story of the Largest Covert Biological Weapons Program in the World (New York: Random House, 1999). (LIBRARY)

Leitenberg, Milton and Raymond A. Zilinskas, *The Soviet Biological Weapons Program: A History* (Cambridge, MA: Harvard University Press, 2012) (LIBRARY)

<sup>\*\*</sup>Important Policy Information on attendance, word limits, late submission, extensions, plagiarism and requirements for passing the course should be downloaded from the 3022 Moodle site. This PDF document is called "2012-2013 Syllabus Supplement".\*\*