

HPSC0035 Science and Empire

Course Syllabus

2019-20 session | Dr Simon Werrett | s.werrett@ucl.ac.uk

This module provides an introduction to the relationship between the sciences, exploration and empire in history. It will approach the subject topically through key issues such as the role of science in governance, overseas trade and collecting, the development of navigation and cartography, slavery, and the circulation of knowledge. Participants will consider how the sciences made empire possible, and how imperial expansion reshaped the sciences in turn.

Course Information

Basic course information

Moodle Web site:	https://moodle.ucl.ac.uk/course/view.php?id=7440
Assessment:	Essay and Examination
Timetable:	See the common timetable
Prerequisites:	none
Required texts:	none
Course tutor(s):	Simon Werrett
Contact:	s.werrett@ucl.ac.uk ext. 33261
Web:	https://www.ucl.ac.uk/sts/people/dr-simon-werrett
Office location:	1.2, 22 Gordon Square
Office hours:	Mondays 2pm to 3pm Tuesdays 10am to 11am

Schedule

	UCL Wk	Date	Topic	Activity
1	6	JAN 13	Introduction	Read essential readings for class
2	7	JAN 20	Concepts of Science & Empire	Read essential readings for class
3	8	JAN 27	Empire and the Scientific Revolution	Read essential readings for class
4	9	FEB 3	Mapping and Measuring	Read essential readings for class
5	10	FEB 10	Navigation and the Longitude	Read essential readings for class
	11	FEB 17-21	Reading Week	no class
6	12	FEB 24	Captain Cook in the Pacific	Read essential readings for class
7	13	MAR 2	Imperial People	Read essential readings for class
8	14	MAR 9	Indigenous Knowledge	Read essential readings for class
9	15	MAR 16	Banks, Botany and Empire	Read essential readings for class
10	16	MAR 23	Conclusion	Read essential readings for class

Assignments

Summary

	Description	Deadline	Word limit	Deadline for Tutors to provide Feedback
50%	Essay	March 27, 2020 at 5pm	2500	April 10, 2020
50%	Examination (3 Hours)			

Assignments

Essay

Students are required to submit one essay of no more than 2500 words via turn-it-in on **March 27, 2020**. *Essays must be fully referenced, providing specific page numbers identifying the location of all information in the essay.* Essays must be submitted via Moodle only. All course work must be completed for a student to be eligible to sit the examination.

Answer ONE of the following questions:

- (1) How has our understanding of the relationship between science and empire changed since the 1960s? Discuss using relevant academic literature.
- (2) How did the growth of European empires depend on the sciences and how did the “Scientific Revolution” reflect the growth of European empires?
- (3) What was the “problem of longitude”? How was it solved in the eighteenth century?
- (4) Discuss and assess the competing interpretations of Captain Cook’s death on Hawai’I during the third voyage.
- (5) How did collecting serve science and empire in the seventeenth and eighteenth centuries?

Who did the collecting and how did it take place?

Specific Criteria for Assessment for this Module:

In addition to the criteria indicated in the STS Student Handbook, the following are the main criteria on which your essay will be marked. There are no set numbers/ percentages associated with these criteria but we will give you qualitative feedback based on them.

Referencing

You must reference all quotes and all references/ summaries of books, etc. Pick one system for referencing and stick to it. Refer to individual page numbers, not just whole texts, whenever possible. Make sure you are familiar with the university rules on Plagiarism and do not plagiarize.

Bibliography

You need to supply a bibliography of all works referenced. You must supply author, title, date, place of publication and publisher.

Answers question?

Read the question carefully and answer it specifically – do not give irrelevant material or drift into answering other questions.

Organisation

Is the essay organized into an introduction, main body and conclusion? Does each part flow naturally into the next one? Is the evidence in a logical order?

Introduction

You should give an introduction to your essay in no more than one or two paragraphs. Introduce your topic and your line of argument, no more. Good introductions are concise and precise.

Clarity

We place great emphasis on clarity of argument and expression. Avoid ambiguity and vagueness. Do not assume your reader already knows what you are talking about. Try to keep your line of argument clear. It often helps clarity to divide the main body of the essay into sections (typically three or four for a 2500 word essay). Accurate spelling, grammar, and punctuation also improve clarity.

Argumentation

Is the main argument of the essay clear, coherent and persuasive? Is it properly supported by the evidence available?

Conclusion

Your essay should have a conclusion which is clearly marked as such (new paragraph, 'In conclusion...'). It should be substantial in summing up what you have argued and exploring the implications of what you have argued.

Reading/ use of sources

How well have the readings and other resources been used? Does the essay reflect them accurately? Is the essay overly dependent on one source? You should prioritize using the assigned readings before using others and will be marked down if this is not the case.

Independent critique?

Does the essay offer some independent critique or thought on the question or does it merely report

what is in the literature? In second-year courses this is an essential component of essays.

Historiography?

How aware is the essay of assumptions and methods used to construct a history or to evaluate it? Does the essay discuss what historians have said about the topic and offer some critique of them?

Aims and objectives of the course

aims

- provide knowledge of key episodes in the history of science and empire
- identify key themes in the historiography of science and empire
- make use of contemporary research when interpreting historical cases.
- develop research skills that integrate archives, museum collections, and digital resources

objectives

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

- demonstrate knowledge of key themes in the history of science and empire
- provide a critical analysis of key themes in the historiography of science and empire
- relate issues in the history of science and empire to key approaches in contemporary science and technology studies
- demonstrate professional-level research skills that integrate archives, museum collections, and digital resources

Reading list

1. (January 13) Introduction

No Essential Readings

2. (January 20) Concepts of Science and Empire

Essential

- 1) George Basalla, "The Spread of Western Science," *Science* 156 (1967): 611-622 (JSTOR).
- 2) Kapil Raj, "Beyond Postcolonialism ... and Postpositivism: Circulation and the Global History of Science," *Isis* 104 (2013): 337-347 (JSTOR).

Optional

- *"Introduction" to Sujit Sivasundaram et al., "Global Histories of Science" *Isis*, 101 (2010): 95-158 (JSTOR)
- *Richard Drayton, "Science, Medicine, and the British Empire." *Oxford History of the British Empire volume 5: Historiography* (Oxford: Oxford University Press, 1999) (available online via library)
- *Raj, Kapil, *Relocating Modern Science: Circulation and the Constitution of Scientific Knowledge South Asia & Europe 17th-18th Century* (London: Palgrave MacMillan, 2007), Introduction

(HISTORY OF SCIENCE A 8 RAJ)

*Livingstone, David N. *Putting Science in Its Place: Geographies of Scientific Knowledge* (Chicago and London: University of Chicago Press, 2003), chapter 3 "Circulation" (HISTORY OF SCIENCE Y 490 LIV)

*Sandra Harding, *Is Science Multi-Cultural? Postcolonialisms, Feminisms, and Epistemologies* (Indiana University Press, 1998), 39-54.

*Sobhanlal Datta Gupta, "Imperialism and Colonialism: Towards a Postcolonial Understanding," in Jyoti Bhusan Das Gupta, *Science, Technology, Imperialism, and War* (Delhi, 2007), 423-466.

3. (January 27) Empire and the Scientific Revolution

Essential

1) Francis Bacon, *New Atlantis* (London, 1660) (online access via library)

Note: you do not need to read the section starting "One day there were two of our company bidden to a Feast of the Family, as they call it" and ending "to see them severally bathe naked."

2) Jorge Cañizares-Esguerra, *Nature, Empire, and Nation: Explorations of the History of Science in the Iberian World* (Stanford, CA: Stanford University Press, 2006), chapter 2 (HISTORY OF SCIENCE A 6 SPA:CAN)

Optional

*Joyce Appleby, *Shores of Knowledge: New World Discoveries and the Scientific Imagination* (New York: W. W. Norton & Company, 2013), chapter 4, "Collectors, Menageries, and Naturalists", 95-130.

*Kim Sloan, *A new world: England's first view of America* (London: British Museum 2007) (ENGLISH XJ 199 WHI:SLO)

* Nicholas Dew, "Scientific travel in the Atlantic world: the French expedition to Goree and the Antilles, 1681-1683," *British Journal for the History of Science*, 43 (2010): 1-17 (E-JOURNAL)

*Deanna MacDonald, "Collecting a New World: The Ethnographic Collections of Margaret of Austria," *Sixteenth Century Journal* 33, No. 3 (Autumn, 2002): 649-663.

*Pamela H. Smith and Paula Findlen eds., *Merchants and Marvels: Commerce, Science, and art in Early Modern Europe* (London, New York, Routledge, 2002). (INST ARCH MB 4 SMI)

*Lorraine Daston and Katherine Park, *Wonders and the Order of Nature* (New York, London: Zone Books, 1999) (online access)

*Harold Cook, *Matters of exchange: commerce, medicine, and science in the Dutch Golden Age* (New Haven: Yale University Press, 2007) (HISTORY OF SCIENCE D 5 COO)

* Antonio Barrera-Osorio, *Experiencing Nature: The Spanish American Empire and the Early Scientific Revolution* (Austin: University of Texas Press, 2006).

*Sarah Irving, *Natural Science and the Origins of the British Empire* (London: Pickering & Chatto, 2008), chapter 1 "In a Pure Soil: Francis Bacon's Empire of Knowledge."

4. (February 3) Mapping and Measuring

Essential

1) Kapil Raj, "Colonial Encounters and the Forging of New Knowledge and National Identities: Great Britain and India, 1760-1850," *Osiris* 15 (2000): 119-34.

2) Qiong Zhang, *Making the New World Their Own Chinese Encounters with Jesuit Science in the Age of Discovery* (Leiden: Brill, 2015), chapter 6 "Taking in a New World" (eBook, available as PDF online)

Optional

* J. B. Harley, 'Silences and Secrets: The Hidden Agenda of Cartography in Early Modern

Europe,' in William K. Storey, ed., *Scientific Aspects of European Expansion* (Aldershot: Variorum, 1996), pp. 161-180. (digital reading available on reading list)

*J. B. Harley, *The New Nature of Maps* (Johns Hopkins University Press, 2001). (GEOGRAPHY D 40 HAR)

*Joyce Appleby, *Shores of Knowledge: New World Discoveries and the Scientific Imagination* (New York: W. W. Norton & Company, 2013), chapter 6 "The True Shape of the Earth", 159-182.

*James Ackerman, ed., *The Imperial Map: Cartography and the Mastery of Empire* (Chicago: University of Chicago Press, 2009).

*John L. Greenberg, "Degrees of Longitude and the Earth's Shape: the Diffusion of a Scientific Idea in Paris in the 1730's," *Annals of Science* 41 (1984): 151-158.

*Mary Terrall, *The man who flattened the earth: Maupertuis and the sciences in the enlightenment* (Chicago: University of Chicago Press, 2002) (HISTORY OF SCIENCE E 3 MAU:TER)

*Mary Terrall, "Representing the Earth's Shape: the Polemics surrounding Maupertuis's Expedition to Lapland," *Isis* 83 (1992): 218-237 (JSTOR)

*Neil Safier, *Measuring the new world: Enlightenment science and South America* (Chicago: University of Chicago Press, 2008)

*Matthew H. Edney, *Mapping an empire: the geographical construction of British India, 1765 – 1843* (Chicago: Chicago Univ. Press, 1997) (GEOGRAPHY RA 60 EDN)

* David Turnbull, "Cartography and Science in Early Modern Europe: Mapping the Construction of Knowledge Spaces," *Imago Mundi* 48 (1996): 5-24 (JSTOR).

* Kapil Raj, 'Circulation and the Emergence of Modern Mapping: Great Britain and Early Colonial India, 1764-1820,' in Kapil Raj, *Relocating Modern Science* (London: Macmillan, 2007)

5. (February 10) Navigation and the Longitude

Essential

1) J. A. Bennett, "The travels and trials of Mr Harrison's timekeeper," in Marie-Noelle Bourguet, Christian Licoppe, H. Otto Sibum, eds., *Instruments, travel and science: itineraries of precision from the seventeenth to the twentieth century* (London: Routledge, 2002), 75-95 (HISTORY OF SCIENCE VX 5 BOU)

2) John Gascoigne, "Cook, the Sea, and Culture Contact in the Pacific," *The Great Circle* 26, no. 1 (2004): 3-18.

Optional

*Minutes of the Board of Longitude meeting, June 30, 1737, first discussion of Harrison's timekeepers

<http://cudl.lib.cam.ac.uk/view/MS-RGO-00014-00005/7>

*Richard Dunn, Rebekah Higgitt, *Finding Longitude: How ships, clocks and stars helped solve the longitude problem* (London: Collins, 2014).

*Board of Longitude Project website - <<http://cudl.lib.cam.ac.uk/collections/longitude>>

*David Cannadine, ed., *Empire, the sea and global history: Britain's maritime world, c. 1760-1840* (Basingstoke: Palgrave Macmillan, 2007) (HISTORY 58 C CAN)

*Dava Sobel, *Longitude: the true story of a lone genius who solved the greatest scientific problem of his time* (New York: walker, 1995), HISTORY OF SCIENCE PE 5 SOB

*J. A. Bennett, 'Science Lost and Longitude Found: The Tercentenary of John Harrison,' *Journal of the History of Astronomy* 24 (1993):281-287.

* Derek Howse, *Greenwich and the Discovery of the Longitude* (Oxford: Oxford University Press, 1980). (HISTORY OF SCIENCE VW 5.2 HOW)

*Derek Howse, "Navigation and Astronomy in the Voyages," in Derek Howse, ed., *Background to Discovery: Pacific Exploration from Dampier to Cook* (Berkeley, LA: University of California

Press, 1992), 160-184.

*Larry Stewart, "The Longitudinarians," in Larry Stewart, *The Rise of Public Science: Rhetoric, Technology, and Natural Philosophy in Newtonian Britain, 1660-1750* (Cambridge: Cambridge University Press, 1992), pp. 183-212 (HISTORY OF SCIENCE D 5 STE).

February 17-21: Reading Week – no classes

6. (February 24) Captain Cook in the Pacific

Essential

1) Cook in Tahiti to view the Transit of Venus on the first voyage: Journal from April 1st, 1769 to July 13th, 1769.

Available online: <<<http://gutenberg.net.au/ebooks/e00043.html>>>

2) * Rob Iliffe, "Science and Voyages of Discovery," in Roy Porter, ed., *The Cambridge History of Science: The Eighteenth Century* (Cambridge University Press) pp. 618-645 (online, via library)

Optional

Joyce Appleby, *Shores of Knowledge: New World Discoveries and the Scientific Imagination* (New York: W. W. Norton & Company, 2013), chapter 7, "Attention turns to the Pacific", 183-210.

* Withey, Lynne, *Voyages of Discovery: Captain Cook and the Exploration of the Pacific* (California, 1989) (ANTHROPOLOGY S 5 WIT)

* Gascoigne, John, *Captain Cook: Voyager Between Worlds* (London: Hambledon Continuum, 2007) (HISTORY 57 I GAS)

* Williams, Glyndwr, ed., *Captain Cook: Explorations and Reassessments* (Woodbridge: Boydell Press 2004) (GEOGRAPHY B 40 WIL)

* A. Chapman, "The transits of Venus," *Endeavour* 33 (1998): 148-151 (E-JOURNAL)

* Richard Woolley, "Captain Cook and the Transit of Venus of 1769," *Notes and Records of the Royal Society of London*, 24(1969): 19-32 (JSTOR).

* Lincoln, Margarette, ed., *Science and exploration in the Pacific: European voyages to the southern oceans in the eighteenth century* (Woodbridge, Suffolk; Rochester, NY, USA : Boydell Press, 1999) (HISTORY OF SCIENCE PE 5 PAC:LIN)

*Robin Fisher; Hugh Johnston, eds., *Captain James Cook and His Times* (Seattle: University of Washington Press, 1979). (Main HISTORY 57I FIS)

* Anne Salmond, *The Trial of the Cannibal Dog: The Remarkable Story of Captain Cook's Encounters in the South Seas* (New Haven: Yale University Press, 2003)

* Nicholas Thomas, *Cook: The Extraordinary Sea Voyages of Captain James Cook* (New York: Walker & Company, 2003)

7. (March 2) Imperial People

Essential

1) Ussama Makdisi, "Ottoman Orientalism," *American Historical Review* 107, no. 3 (2002): 768-96 (JSTOR)

2) Robin Inglis, "The Noble Savage: Myth and Reality and the Northwest Coast at the End of the Eighteenth Century," *Alexandro Malaspina Research Center, Document Vault: Papers and Archives* (available online)

Optional

*Bernard Smith, *Imagining the Pacific: in the wake of the Cook voyages* (New Haven; London: Yale University Press, 1992) (Science Short Loan SMI)

- *I.C. Campbell, "Savages noble and ignoble: the preconceptions of early European voyages in Polynesia," *Pacific Studies*, 4(1980): 45-59 (available online)
- *Londa Schiebinger, "Jeanne Baret: the first woman to circumnavigate the globe," *Endeavour* 27 (2003): 22-25 (E-journal)
- * Olaudah Equiano, *The Interesting Narrative of the Life of Olaudah Equiano, Or Gustavus Vassa, The African* (London, c. 1789), chapter one (available online)
- * James Delbourgo, "The Newtonian slave body: Racial enlightenment in the Atlantic World," *Atlantic Studies: Literary, Cultural and Historical Perspectives* 9 (2012) (available online)
- * James Delbourgo, "Science," in *The British Atlantic World, 1500-1800*, eds. David Armitage, Michael J. Braddick (Palgrave Macmillan, 2009), 92-112.
- *Kenneth Morgan, *Slavery and the British Empire: From Africa to America* (Oxford: Oxford University Press, 2007) (E-book)
- * J. R. Oldfield, *Popular Politics and British Anti-Slavery: The Mobilisation of Public Opinion against the Slave Trade 1787-1807* (Taylor and Francis, 2012) (E-book)
- *Trevor Burnard, "The Atlantic Slave Trade," in *The Routledge History of Slavery*, eds. Gad Heuman and Trevor Burnard (Routledge, 2010), 80-97 (E-Book)
- *Christopher Leslie Brown, "Abolition of the Atlantic Slave Trade," in *The Routledge History of Slavery*, eds. Gad Heuman and Trevor Burnard (Routledge, 2010), 281-297 (E-Book)

8. (March 9) Indigenous Knowledge

Essential

- 1) Samuel M. Kamakau, *The Ruling Chiefs of Hawaii* (1842), chapter 8 "Captain Cook's Visit to Hawaii" (Online reading)
- 2) Anne Salmond, "Tute: The Impact of Polynesia on Captain Cook." In *Captain Cook: Explorations and Reassessments*, edited by Glyndwr Williams (Boydell and Brewer, 2004), 77-93.

Optional

- * James Burney's account of the death of Captain Cook, from his journal. Read from February 1 to February 20, 1779. Available online:
<http://acms.sl.nsw.gov.au/_transcript/2011/D02340/a2281.pdf>
- * Robert Borofsky, "Cook, Lono, Obeyesekere, and Sahlins," *Current Anthropology* 38 (1997): 255-282 (JSTOR)
- *Gananath Obeyesekere, *The apotheosis of Captain Cook : European mythmaking in the Pacific* (Princeton, N.J.: Princeton University Press, 1997), 3-22. (online access)
- *Marshall Sahlins, 'Captain James Cook; or, The Dying God', in M. Sahlins, *Islands of History* (Chicago: University of Chicago Press, 1985), 104-135. (ANTHROPOLOGY SP 16 SAH)
- *Greg Denning, "Sharks that Walk on the Land," in Greg Denning, *Performances* (University of Chicago Press, 1996), 64-78. (ANTHROPOLOGY D 2 GAN)
- *Marshall Sahlins, *How "Natives" Think: About Captain Cook For Example* (Chicago: Chicago University Press, 1995)
- *Londa Schiebinger, *Plants and Empire: Colonial Bioprospecting in the Atlantic World* (Cambridge, MA: Harvard University Press, 2004). (online access)
- *David Turnbull, *Masons, tricksters and cartographers: comparative studies in the sociology of scientific and indigenous knowledge* (London: Routledge, 2000) (GEOGRAPHY H 26 TUR)
- *Ian Hacking, "Aloha, Aloha," (Review of Sahlins, *How 'Natives' Think, About Captain Cook, For Example* (Chicago, 1995)), *London Review of Books* (7 September 1995): 6-9.
- *Scott Ashley, "How Navigators Think: The Death of Captain Cook Revisited," *Past and Present* 194 (2007):107-137.
- *Helen Watson-Verran and David Turnbull, "Science and Other Indigenous Knowledge

Systems," in Jasanoff, S., Markle, G., Petersen, J. and Pinch, T., eds., *Handbook of Science and Technology Studies* (Thousand Oaks, CA: Sage, 1994), 115-139.

*Sandra Harding, "A World of Sciences," in Sandra Harding, ed., *Science and Other Cultures: Issues in Philosophies of Science and Technology* (London: Routledge, 2003), 49-69.

9. (March 16) Botany and Empire: Joseph Banks

Essential

1) Banks explores Australia on the first voyage: Journal from Jul 1, 1770 to July 31, 1770.

Available online: <<http://gutenberg.net.au/ebooks05/0501141h.html#may1769>>

2) David Philip Miller, "Joseph Banks, empire, and "centers of calculation" in late Hanoverian London," in David Philip Miller, and Peter Hahns Reill, eds., *Visions of Empire: Voyages, Botany, and Representations of Nature* (New York: Cambridge Univ. Press, 1996), 21-37.

Optional

*Papers of Sir Joseph Banks (State Library, New South Wales)

<<<http://www2.sl.nsw.gov.au/banks/>>>

*Charles Lyte, *Sir Joseph Banks: 18th Century Explorer, Botanist, and Entrepreneur* (Sydney: Reed, 1980), chapter 6 "The Endeavour in Australia", 115-132 (BOTANY 80 b LYT).

*Patricia Fara, *Sex, Botany & Empire: the Story of Carl Linnaeus and Joseph Banks* (New York: Columbia University Press, 2003), 47-69 (HISTORY OF SCIENCE RE 50 FAR)

*David Mackay, "A Presiding Genius of Exploration: Banks, Cook, and Empire, 1767-1805," in Robin Fisher; Hugh Johnston, eds., *Captain James Cook and His Times* (Seattle: University of Washington Press, 1979), 21-39. (Main HISTORY 57I FIS)

* Neil Safier, "Fruitless Botany: Joseph de Jussieu's South American Odyssey," in *Science and Empire in the Atlantic World*, eds. James Delbourgo and Nicolas Dew (New York: Routledge, 2007), 203-224 (E-Book)

*Daniela Bleichmar, "Atlantic Competitions: Botany in the Eighteenth-Century Spanish Empire," in *Science and Empire in the Atlantic World*, eds. James Delbourgo and Nicolas Dew (New York: Routledge, 2007), 225-252 (E-Book)

*John Gascoigne, *Science in the Service of Empire: Joseph Banks, the British State and the Uses of Science in the Age of Revolution* (2000).

*William T. Stearn, "The Botanical Results of Captain Cook's Three Voyages and Their Later Influence," *Pacific Studies* 1 (1978): 147-162.

*Phyllis I. Edwards, "Sir Joseph Banks and the Botany of Captain Cook's Three Voyages of Exploration" *Pacific Studies* 2 (1978), 20-43.

*Tony Rice, *Voyages of Discovery: Three Centuries of Natural History Exploration* (London: Natural History Museum, 2002).

*Richard Drayton, *Nature's Government: Science, Imperial Britain, and the 'Improvement' of the World* (New Haven, London: Yale University Press, 2000).

* Alfred Crosby, *Ecological Imperialism: The Biological Expansion of Europe*, (Cambridge: Cambridge University Press, 1987)

* Londa Schiebinger and Claudia Swan, eds., *Colonial Botany: Science, Commerce, and Politics in the Early Modern World* (Philadelphia: University of Pennsylvania Press, 2007).

10. (March 23) Conclusion

