

Science & Society: A Global History



01:506: 251

Instructor

Class Time and Location

Office Hours

Second Summer Session, June 25 - August 3, 2018

Christopher Blakley

10:30 am-12:20pm, Monday to Thursday, Scott Hall, Room 205

2:00-3:30pm, Monday and Wednesday, Van Dyck Hall, Room 013

Course Description: Is “Science” a uniquely Western intellectual tradition? Could the Scientific Revolution have only originated in Europe? What could we discover if we explored the history of science from a global perspective?

This course invites students to consider a global approach to the development of science, medicine and technology. We will take a world tour of the early modern period, which has long been seen as the era when the globe assumed its current form and became “modern”.

One prevailing story about the rise of modernity focuses on science, medicine and technology. In this story, people ask how Western Europeans developed experimental techniques of unprecedented power for knowing and exploiting the natural world.

A second origins story identifies modernity with the collision of cultures produced by European imperialism, war, trade, and slavery, bringing Americans, Africans, Asians and Europeans into contact as never before.

What would happen if we considered that these two processes are connected? How were science, medicine and technology transformed by globalization and the movement of peoples – and how were cultures transformed by science?

We will examine how knowledge traveled through global networks stretching from Asia to the Middle East, Europe and America, exploring how science created new attitudes to nature (and the roots of our current ecological crisis) and the globalized world still with us today.

Learning Goals: Upon completion of this course, students will be able to:

1. Critically read and write about science, technology, and medicine as part of historical cultures that change according to time and place.
2. Analyze and evaluate established narratives of progress and modernity through science and technology as historically contingent narratives.
3. Understand and analyze the relationship between science, technology, medicine, global history, and the history of empires, colonization, and slavery in the pre-industrial world.
4. Examine how ideas about science and technology have been linked to claims about cultural superiority and inferiority; and interrogate histories of “Western science” as opposed to global science.
5. Critically analyze texts, images, and artifacts as primary sources.
6. Evaluate secondary sources for the coherence and persuasiveness of their analytical arguments and theoretical frameworks.
7. Write argumentative essays that persuasively present an analytical and historical argument using primary and secondary source materials.

Required Texts: There is no required textbook, however all of the assigned readings for the course (including book chapters and articles) will be posted to the course Sakai site. Once you are registered for the course you will be added to the Sakai site. Readings must be completed before class meetings.

Technology in the classroom: Students who wish to use computers in the classroom for note-taking or discussing the assigned readings are welcome. However, students using computers for other purposes beyond what our class is engaged in will lose the privilege to use technology in the classroom.

Plagiarism: Any evidence of plagiarism will be promptly reported and directed to the Dean of Students Office. Students are expected to abide by the Student Code of Conduct and Academic Integrity Policy.

Assignments: Students will be assessed by two examinations (midterm and final), and three short essays.

Examinations will consist of five identification questions and one essay question based on the lectures and assigned readings.

The short essays (2 pages) will invite students to answer a question based on the lectures, assigned readings, and in-class discussions. The prompt and guidelines for each essay assignment will be distributed via Sakai one week before the due date.

The exams and essays will be assessed based on the student's ability to synthesize information, develop a historical and analytical argument using evidence, and present that argument through clear prose free from spelling and grammatical errors.

Finally, students will be assessed on their citizenship in the classroom. Students are expected to arrive on time, contribute to class discussions, and respect the views and ideas of their colleagues in our learning community. In addition, students are welcome to participate in the class by emailing the professor three questions or comments on the assigned readings before class.

Students with Disabilities: I encourage students who feel they need accommodations based on the impact of a disability to contact me to discuss possibly adapting course materials and assessments to suit their needs. In addition, please register with the Office of Disability Services (ODS) at 848-445- 6800 (or by email at dsoffice@echo.rutgers.edu) located in Lucy Stone Hall, Suite A145 on the Livingston Campus. Documentation is required in advance from ODS before accommodations can be made for exams. Visit the internet address of this office at <https://ods.rutgers.edu/> for more information.

Office Hours: My office hours will be on Mondays and Wednesdays in Van Dyck Hall, Room 013. If students are unable to meet during these hours I am happy to accommodate meeting at

another time. I encourage students to meet with me individually to discuss the course materials, lectures, assigned readings, and assignments (including the short essays and exams). I am happy to be a resource for students on campus, and throughout the semester I am available to answer questions, read and comment on drafts of essays, and offer advice on studying for the exams.

Contacting the Professor: Please email me with any questions about the course at cmb419@history.rutgers.edu.

Grading

Citizenship	10%
Paper 1	20%
Paper 2	20%
Paper 3	20%
Midterm	15%
Final	15%

Schedule

Week 1

Monday - June 25 - Introduction: The Scientific Revolution and the History of Science

Tuesday - June 26 - Networks: Labor, Translation, and Instruments

- Reading: Marwa Elshakry, "When Science Became Western: Historiographical Reflections," *Isis* 101 (2010): 98-109.

Wednesday - June 27 - Part 1: Science in the Islamic Caliphates

- Reading: James McClellan and Harold Dorn, *Science and Technology in World History* (Johns Hopkins University Press, 1999), pp. 103-115.

Thursday - June 28 - Part 1: Science and Islam: Beyond the "Golden Age" Narrative

- Reading: Jim Al-Khalili, "The Lonely Alchemist," *House of Wisdom* chapter on Jābir ibn Hayyān, pp. 52-66.

Week 2

Monday - July 2 - Part 1: Ottoman Geography

- Reading: Giancarlo Casale, "Global Politics in the 1580s: One Canal, Twenty Thousand Cannibals, and an Ottoman Plot to Rule the World." *Journal of World History* 18, no. 3 (2007): 267-296.

Tuesday - July 3 - Part 1: **Discussion:** Al-Nuwayri and Mamluk Encyclopedism

- Reading: Selections from *The Ultimate Ambition in the Arts of Erudition* by Shihab al-Din al-Nuwayri.

Wednesday - July 4 - **No class meeting, July 4th Holiday**

Thursday - July 5 - Part 2: America: Mesoamerican Knowledge (**Due:** Paper 1: Al-Nuwayri)

- Reading: *An Aztec Herbal: The Classic Codex of 1552* [Codex Badianus], trans. and ed. William Gates (1939; Dover, 2000): xxxvii-lxiv & end-papers.

Week 3

Monday - July 9 - Part 2: America: Columbian Exchanges and Natural History

- Reading: Marcy Norton, *Sacred Gifts, Profane Pleasures: A History of Tobacco and Chocolate in the Atlantic World* (Cornell University Press, 2008), pp. 121-140.

Tuesday - July 10 - Part 2: America: Creole American Sciences

- Reading: Jorge Cañizares-Esguerra, "Spanish America: From Baroque to Modern Colonial Science," in Roy Porter (ed.), *Cambridge History of Science, Vol. 4* (Cambridge University Press, 2003), pp. 718-738.

Wednesday - July 11 - Part 2: **Discussion:** Francisco Hernández and Chocolate

- Reading: *The Mexican Treasury: The Writings of Dr. Francisco Hernández*, ed. Simon Varey (Stanford University Press, 2000), selections.

Thursday - July 12 - Part 3: The Qing Empire and Jesuit Missionaries (**Due:** Paper 2: Hernández)

- Reading: Frank Dikotter, "China," in Roy Porter (ed.), *Cambridge History of Science, Vol. 4* (Cambridge University Press, 2003), pp. 688-697.

Week 4

Monday - July 16 - Part 3: Japan and the Dutch East India Company

- Reading: Engelbert Kaempfer, *Japan Today*, originally published, London, 1727: selections from Beatrice Bodart-Bailey (ed.), *Kaempfer's Japan: Tokugawa Culture Observed* (University of Hawai'i Press, 1999), pp. 234-235, 187-190, 360-368.

Tuesday - July 17 - **Midterm Exam In-Class [Covers Parts 1, 2, and 3]**

Wednesday - July 18 - Part 4: Europe's New Science Revisited

- Reading: Larry Stewart, "Global Pillage: Science, Commerce, and Empire". in Roy Porter (ed.), *The Cambridge History of Science, Vol 4* (Cambridge: Cambridge University Press), pp. 825-844.

Thursday - July 19 - Part 4: Networks: Global Newton

- Reading: Simon Schaffer, "Newton on the Beach: The Information Order of *Principia Mathematica*," *History of Science* 47 (2009): pp. 243-276.

Week 5

Monday - July 23 - Part 4: Networks: Women, Science, and Translation in the Enlightenment

- Reading: Paula Findlen, "Translating the New Science: Women and the Circulation of Knowledge in Enlightenment Italy." *Configurations* 3, no. 2 (1995): 167-206.

Tuesday - July 24 - Part 4: Science and Slavery: From Plantations to Colonial Botany

- Reading: Susan Scott Parrish, "Diasporic African Sources of Enlightenment Knowledge," in James Delbourgo and Nicholas Dew (eds.), *Science and Empire in the Atlantic World* (Routledge, 2007), pp. 281-310.

Wednesday - July 25 - Part 4: **Discussion:** Domingos Álvares and Slavery

- Reading: Portuguese Inquisition Transcript testimony of Domingos Álvares in James Sweet, *Domingos Álvares: African Healing and the Intellectual History of the Atlantic World* (University of North Carolina Press, 2011), pp. 172-176.

Thursday - July 26 - Part 5: India: The Mughal Empire (**Due:** Paper 3: Álvares)

- Reading: Kapil Raj, "Surgeons, Fakirs, Merchants, and Craftspeople: Making L'Empereur's *Jardin* in Early Modern South Asia," in Londa Schiebinger and Claudia Swan (eds.), *Colonial Botany: Science, Commerce, and Politics in the Early Modern World* (University of Pennsylvania Press, 2004), pp. 252-269.

Week 6

Monday - July 30 - Part 5: India: Orientalism and The Asiatic Society

- Reading: Michael Adas, *Machines as the Measure of Men: Science, Technology, and Ideologies of Western Dominance* (Cornell UP, 1992), pp. 95-108, 166-177.

Tuesday - July 31 - Part 5: India: Newton in Translation

- Reading: Simon Schaffer, "The Asiatic Enlightenment of British Astronomy," in Schaffer, *et al.* (eds.), *The Brokered World*, 2009, pp. 49-62 only.

Wednesday - August 1 - The Globe in 1800: A Mechanical or Organic World?

- Reading: John Tresch, "¡Viva la República Cósmica! Or the Children of Humboldt and Coca-Cola," in Bruno Latour and Peter Weibel (eds.), *Making Things Public: Atmospheres of Democracy* (MIT Press, 2005), pp. 352-356.

Thursday - August 2 - Final Discussion and Course Review

- Reading: Steven Weinberg, “Eye on the Present: The Whig History of Science,” *New York Review of Books*, 17 December 2015
[\[http://www.nybooks.com/articles/2015/12/17/eye-present-whig-history-science/\]](http://www.nybooks.com/articles/2015/12/17/eye-present-whig-history-science/)

Friday - August 3: **Final Exam In-Class [Covers Parts 4 and 5]**