Core aims for Imperial Horizons

The purpose of new modules, in keeping with the overall aims of the Imperial Horizons programme, is to broaden students’ education, increase their employability, and develop graduate attributes.

Science, Culture and Society – Core Field Aims

- To address the problems and opportunities afforded by interdisciplinarity. One of the rationales for the Imperial Horizons programme is that it broadens students’ education and helps to counteract the ‘silo effect’ that may be a danger with intensive subject-specific education. SCS courses will look at the ways in which the humanities and the science paradigms complement each other but also afford different methodologies and interpretive frameworks for analysis. This encourages reflexivity about disciplinarity and epistemology.

- To develop the ability to select from, interpret and critically analyse texts and other sources, including images, documents, films and objects. By addressing issues of genre, content, context, perspective and purpose, students will become adept at evaluating a variety of forms of evidence, and also develop bibliographic skills.

- To encourage an appreciation for the complexity and diversity of the nature of knowledge, accounts, situations, events and mentalities. This emphasis is central to developing students’ intellectual maturity.

- To nurture a tolerance of ambiguity. One of the key transformations in the progression from school to higher education, is that students learn to work in an environment in which there is rarely one correct answer. Learning how to manage uncertainty is a skill honed by dealing with complex and ambiguous material and scenarios. It places the emphasis on the process of arriving at, validating and defending an outcome.

- To foster intellectual independence. Studying on the Imperial Horizons programme encourages students to take control over their intellectual development. They will acquire transferable skills such as marshalling of argument, team work, oral presentation and written skills, time-management skills and IT skills.
Revolutions and the Making of the Modern World (Level 5)

This innovative course examines some of the major political, ideological, intellectual and technological revolutions over the course of the past three centuries. Successful revolutions will be evaluated, but so are counter-revolutions and failed revolutions. Politically, this course covers the entire historical and political spectrum from anarchism to fascism and everything in between.

*Revolutions and the Making of the Modern World* is chronological in scope, moving from the eighteenth century up to the present day. Each week a different type of revolution will be analysed, using different historical examples. The examples have been chosen from around the globe to facilitate students' wider appreciation of a variety of human cultures and experiences.

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<td>10–30 students</td>
<td>6</td>
<td>20 weeks (40 hours)</td>
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**Learning Objectives**

On successful completion of the course students will have:

- learned how to adopt a critical and analytical stance towards both historical sources and historiographical standpoints. Understood that historiographical approaches and intellectual trends are products of their time and need to be viewed as historical sources in their own right
- demonstrated systematic knowledge and critical understanding of the subject, some of it in specialist areas, and informed by current developments both in academia and wider society
- selected and used accurately established techniques of analysis and enquiry outside the context in which they were first studied, and be aware of their limitations
- recognised the potential uncertainty, ambiguity and limits of knowledge in their subject
- identified and asked questions appropriately to explore relevant historical problems within the broader subject
- communicated complex information, arguments and ideas effectively and appropriately to the subject, purpose and audience
- found, critically evaluated and used high-quality information and sources in a variety of contexts

**Indicative Core Content**

- History of politics: overthrowing the state (French Revolution)
- History of technology: industrial revolution (emergence of the factory system in Britain)
- History of ideas: scientific revolution in the eighteenth century (Thomas Kuhn's *Structure of Scientific Revolutions*)
- History of European politics: failed revolutions (the European revolutions of 1848)
- History of politics: overthrowing the state (Russian revolution)
- History of politics: collapse of the state (Russian civil war)
- History of ideas: scientific revolution in the twentieth century (Einstein and related issues)
- History of politics: counter-revolution (Stalin, Trotsky and the USSR)
### Revolutions and the Making of the Modern World (Level 5)

- History of technology: technological revolution *versus* evolution (specific case studies, using Science Museum content)
- History of politics: collapse of the state and localised innovation (Spanish civil war)
- History of politics: a new state (Italian Fascist and German Nazi revolutions)
- History of culture: overthrowing culture (Chinese cultural revolution)
- History of politics: overthrowing the state (Cuban revolution)
- Contemporary history: recent revolutions (e.g. Iran in 1979)
- Current events: revolutions today (Arab spring; ISIS)

### Pedagogical Rationale / Methodology

Short readings will be assigned weekly, and are compulsory. From week to week, the format of the two-hour sessions will vary. Typically a 45-minute lecture will be followed by a discussion class. Critical source evaluation will form a part of the curriculum, as will group discussion and debate. This course is assessed with two 2,000 word essays (one per term) on a choice of topics, and an oral presentation which will be based on a piece of student coursework.

### Assessment

- Essay 1: 2,000 words (end of autumn term): 30%
- Essay 2: 2,000 word essay (end of spring term): 50%
- Presentation on coursework (during spring term): 20%
### Global History of Science (Level 6)

**Summary**

This course considers ‘the global’ as a concept, challenging students to think across space and time, to commonalities and connections in the history of science. The idea of the ‘diffusion’ of ‘superior’ Western science to Africa, Asia and the Americas is a misnomer, for it ignores the ways in which that knowledge was reappropriated as part of the political, economic, cultural and scientific projects of non-Western peoples. This course covers the efflorescence of technological development in Sung China and the ‘Golden Age’ of Islamic science in the Near East, through to the new natural science learning made possible by the expansion of early modern European empires, and the use of that knowledge as part of the racist and Social Darwinian theories of imperialism, to the invocation of science and critique of Western modernity in the nationalist struggles and post-colonial realities of what was to become the ‘developing world’. This course will also introduce the key historiographical and theoretical tools with which scholars have challenged the Eurocentric history of science, including Marxism, (post-)Structuralism, and post-colonialism.

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**Learning Objectives**

On successful completion of the course students will have:

- evaluated earlier ideas about the singular significance of Europe in the development of the natural sciences and medicine by analysing the historic role of the non-European world.
- evaluated the ways in which Enlightenment science shaped the expansion of empires, and the ways in which scientific ideas were used to justify imperial rule.
- examined the role of science in the post-colonial world, and the impact of particular research priorities on development.
- engaged with the political, economic, social, and cultural contexts within which scientific knowledge is accumulated and in which scientific practitioners operate, and developed skepticism about science as objective, rational, value-neutral, and universal.
- critically examined a range of primary and secondary source materials, identifying their strengths and weaknesses, the nature and sources of bias, the importance of the context of their authorship.
- identified how and where to find and select primary and secondary source materials for their assignments.
- applied their knowledge from the course and their research skills to plan and produce a presentation and an essay that persuasively argue a response to a set question, demonstrating ability to communicate complex information, arguments and ideas effectively.

**Indicative Core Content**

- George Basalla and ‘the spread of Western science’; features of Basalla’s influential three-stage ‘diffusionist’ model, criticism and challenges from a non-European perspective.
- Science in Song China in global perspective: technological advance in medieval China, China as poised for an ‘industrial revolution’ half a millennium before Western Europe.
- The Islamic ‘Golden Age’ and global science: Chinese, Indian, Persian, and Ancient Greek influences on Islamic science, contributions of Islamic science to European science in the Middle Ages.
- The first and second ‘ages of exploration’: history of voyages of discovery, history of imperial expansion.
- The origins of the Scientific Revolution outside Europe: a brief overview of early modern science in Europe, the interaction of European science with exploration and empire-building in the New
# Global History of Science (Level 6)

World, Asia, and the Pacific.
- The art and technology of map-making: early maps, trigonometric surveys and map-making equipment, indigenous peoples in map-making.
- Kew, imperialism, and natural ‘improvement’: biography of Joseph Banks, Kew Gardens as the epicenter of global botanical networks, the idea of ‘improving’ science and the ‘transplantation’ of plants to new environments.
- Victorian ‘museums of science’ – collecting and curating the natural world: the cabinet of curiosities before c. 1800, the history of collecting, museums of natural and economic products in the nineteenth century.
- The ‘dark side’ of science – scientific racism: phrenology and ethnography as sciences, social Darwinism and biological theories of race and racial inferiority.
- The fear of global population explosion: early twentieth-century theorists and theories of eugenics and global population growth in India, Australia, and Britain, the Boserup ‘revisionism’ of Malthusian theory about population growth and resource shortages in the context of technological development.
- Science education outside Europe in the early twentieth century: traditional and Western science education, modern scientific institutes, agricultural training colleges.
- US and French nuclear testing in the Pacific after 1945: history of nuclear testing, environmental impacts.
- Institutions of science and technology in the post-colonial world: the Indian Institutes of Technology, the sciences in Communist China, funding constraints and the relationship of research priorities to international prestige and national development.
- Medicine and ‘Third World’, development before and after the AIDS epidemic: the Human Development Index, the impact of medical advances in improving life expectancies, the controversy over the cost of life-saving drugs in the developing world.
- The atomic bomb in India, Pakistan, and China: science, security concerns, and international relations, the opportunity cost of research spending on nuclear arms.

## Assessment

- Source analysis: critical response to sources, up to 1000 words (15%)
- Presentation: individually, in response to a set of readings and a set question, 5–10 minutes on a particular topic (15%)
- Synoptic essay: up to 1500 words (30%)
- Analytical essay: up to 2500 words (40%)