

國立清華大學課程大綱

科號		組別		學分	3	人數限制	50
上課時間				教室			
科目中文名稱	科學革命（英語授課）						
科目英文名稱	Scientific Revolution						
任課教師	英家銘						
擋修科目				擋修分數			

請勾選	此科目對應之系所課程規畫所欲培養之核心能力 Core capability to be cultivated by this course	權重（百分比） Percentage
<input checked="" type="checkbox"/>	自我瞭解與溝通表達 Self-awareness, expressions & communication	<input type="text" value="25"/> %
<input checked="" type="checkbox"/>	邏輯推理與批判思考能力 Logical reasoning & critical thinking	<input type="text" value="30"/> %
<input checked="" type="checkbox"/>	科學思維與反思 Scientific thinking & reflection	<input type="text" value="45"/> %
<input type="checkbox"/>	藝術與人文涵養 Aesthetic & humanistic literacy	<input type="text"/> %
<input type="checkbox"/>	資訊科技與媒體素養 Information technology & media literacy	<input type="text"/> %
<input type="checkbox"/>	多元觀點與社會實踐 Diverse views & social practices	<input type="text"/> %

一、課程說明	<p>The event now called ‘scientific revolution’, which took place roughly from 1500 to 1700, is an important part of human history. The period changed not only how humans (Europeans, at least) viewed the universe but also how human beings saw themselves in the universe, and brought the entire civilisation from the so-called ‘middle ages’ into the ‘early modern’ times. Since the scientific revolution was not about the ‘accumulation’ but the ‘transformation’ of the knowledge, research methods, and philosophies about the nature, the aim of this course is to introduce the history of science before and during the scientific revolution, including big names such as Plato, Aristotle, Ptolemy, Copernicus, Galileo, and Newton, and help students reflect upon the nature of science and the relation between science and the society, especially about the boundaries of disciplines, science and religion, the development of universities, the place of experiments, and sponsorship in science.</p>
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二、指定用書	<ol style="list-style-type: none"> 1. Thomas Kuhn, <i>The Copernican Revolution</i> (Cambridge, MA: Harvard University Press, 1995). 2. Lawrence M. Principe, <i>The Scientific Revolution: A very short introduction</i> (Oxford: Oxford University Press, 2011). 																																																		
三、參考書籍	<ol style="list-style-type: none"> 1. James R. Jacob, <i>The Scientific Revolution: Aspirations and Achievements, 1500-1700</i> (Atlantic Highlands, NJ: Humanity Press, 1998). 2. G.E.R. Lloyd, <i>Early Greek Science: Thales to Aristotle</i> (London: W.W. Norton & Company, 1970). 3. G.E.R. Lloyd, <i>Greek Science after Aristotle</i> (London: W.W. Norton & Company, 1973). 4. G.E.R. Lloyd, <i>Magic Reason and Experience: Studies in the Origin and Development of Greek Science</i> (Cambridge: Cambridge University Press, 1979). 5. Mario Biagioli, <i>Galileo Courtier: The practice of science in the culture of absolutism</i> (Chicago: The University of Chicago Press, 1993). 6. G.E.R. Lloyd, <i>Adversaries and Authorities: Investigations into Ancient Greek and Chinese Science</i> (Cambridge: Cambridge University Press, 1996). 																																																		
四、教學方式	<p>Reading materials are designated for each week. Students are encouraged to read them before class, and the professor will discuss the contents with the students in class. There is a 90-minute open-book examination at mid-term. After the mid-term there are group presentations, for which each group has to discuss with the professor beforehand about which topic they want to present. In the final week there is again be a 90-minute open-book examination.</p> <p>Students must specify if any AI app is used in mid-term and final examinations.</p>																																																		
五、教學進度	<table border="1"> <thead> <tr> <th data-bbox="384 1095 486 1160">Week</th> <th data-bbox="491 1095 1083 1160">Contents</th> <th data-bbox="1083 1095 1450 1160">Reading material</th> </tr> </thead> <tbody> <tr> <td data-bbox="384 1160 486 1200">1</td> <td data-bbox="491 1160 1083 1200">Course introduction</td> <td data-bbox="1083 1160 1450 1200"></td> </tr> <tr> <td data-bbox="384 1200 486 1272">2</td> <td data-bbox="491 1200 1083 1272">Early Greek philosophy of nature and medicine.</td> <td data-bbox="1083 1200 1450 1272">Lloyd (1970), pp.16-23; 50-65</td> </tr> <tr> <td data-bbox="384 1272 486 1350">3</td> <td data-bbox="491 1272 1083 1350">Plato's philosophy and contemporaneous astronomy in the fourth century BCE</td> <td data-bbox="1083 1272 1450 1350">Kuhn (1995), pp.1-59</td> </tr> <tr> <td data-bbox="384 1350 486 1391">4</td> <td data-bbox="491 1350 1083 1391">Aristotle's philosophy of Nature</td> <td data-bbox="1083 1350 1450 1391">Kuhn (1995), pp.78-99</td> </tr> <tr> <td data-bbox="384 1391 486 1453">5</td> <td data-bbox="491 1391 1083 1453">Hellenistic astronomies and medicine</td> <td data-bbox="1083 1391 1450 1453">Kuhn (1995), pp.59-77 Lloyd (1973), pp.75-90</td> </tr> <tr> <td data-bbox="384 1453 486 1494">6</td> <td data-bbox="491 1453 1083 1494">From Hellenistic to Medieval sciences</td> <td data-bbox="1083 1453 1450 1494">Kuhn (1995), pp.100-133</td> </tr> <tr> <td data-bbox="384 1494 486 1534">7</td> <td data-bbox="491 1494 1083 1534">Renaissance and Copernicus</td> <td data-bbox="1083 1494 1450 1534">Kuhn (1995), pp.134-184</td> </tr> <tr> <td data-bbox="384 1534 486 1574">8</td> <td data-bbox="491 1534 1083 1574">Mid-term examination</td> <td data-bbox="1083 1534 1450 1574"></td> </tr> <tr> <td data-bbox="384 1574 486 1644">9</td> <td data-bbox="491 1574 1083 1644">Tycho and Kepler (group presentation 1 & 2)</td> <td data-bbox="1083 1574 1450 1644">Kuhn (1995), pp.200-219</td> </tr> <tr> <td data-bbox="384 1644 486 1713">10</td> <td data-bbox="491 1644 1083 1713">Galileo: Spyglasses, sponsorship and the church (group presentation 3 & 4)</td> <td data-bbox="1083 1644 1450 1713">Kuhn (1995), pp.219-228</td> </tr> <tr> <td data-bbox="384 1713 486 1783">11</td> <td data-bbox="491 1713 1083 1783">Medical revolution: Vesalius and Harvey (group presentation 5)</td> <td data-bbox="1083 1713 1450 1783">Principe (2011), pp.93-112</td> </tr> <tr> <td data-bbox="384 1783 486 1861">12</td> <td data-bbox="491 1783 1083 1861">René Descartes and the Corpuscular universe (group presentation 6)</td> <td data-bbox="1083 1783 1450 1861">Kuhn (1995), pp.237-252</td> </tr> <tr> <td data-bbox="384 1861 486 1939">13</td> <td data-bbox="491 1861 1083 1939">From sponsorship to learned societies (group presentation 7)</td> <td data-bbox="1083 1861 1450 1939">Principe (2011), pp.113-132</td> </tr> <tr> <td data-bbox="384 1939 486 2009">14</td> <td data-bbox="491 1939 1083 2009">Isaac Newton and the new paradigm (group presentation 8)</td> <td data-bbox="1083 1939 1450 2009">Kuhn (1995), pp.252-265</td> </tr> <tr> <td data-bbox="384 2009 486 2047">15</td> <td data-bbox="491 2009 1083 2047">Adversaries vs. Authorities;</td> <td data-bbox="1083 2009 1450 2047"></td> </tr> </tbody> </table>	Week	Contents	Reading material	1	Course introduction		2	Early Greek philosophy of nature and medicine.	Lloyd (1970), pp.16-23; 50-65	3	Plato's philosophy and contemporaneous astronomy in the fourth century BCE	Kuhn (1995), pp.1-59	4	Aristotle's philosophy of Nature	Kuhn (1995), pp.78-99	5	Hellenistic astronomies and medicine	Kuhn (1995), pp.59-77 Lloyd (1973), pp.75-90	6	From Hellenistic to Medieval sciences	Kuhn (1995), pp.100-133	7	Renaissance and Copernicus	Kuhn (1995), pp.134-184	8	Mid-term examination		9	Tycho and Kepler (group presentation 1 & 2)	Kuhn (1995), pp.200-219	10	Galileo: Spyglasses, sponsorship and the church (group presentation 3 & 4)	Kuhn (1995), pp.219-228	11	Medical revolution: Vesalius and Harvey (group presentation 5)	Principe (2011), pp.93-112	12	René Descartes and the Corpuscular universe (group presentation 6)	Kuhn (1995), pp.237-252	13	From sponsorship to learned societies (group presentation 7)	Principe (2011), pp.113-132	14	Isaac Newton and the new paradigm (group presentation 8)	Kuhn (1995), pp.252-265	15	Adversaries vs. Authorities;			
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		general discussions	
	16	Final examination	
六、成績考核	Classroom participation 10% Mid-term examination 30% Group presentation 30% Final examination 30%		
七、講義位址 http://	All materials are uploaded in the university platform eLearn.		