

# **The Hong Kong University of Science and Technology**

## **UG Course Syllabus**

Science and Values

HUMA 5905

3 Credits

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**Office Hours:** Mondays 3-4 pm

### **Course Description**

Over the past twenty years, the role of values in science has evolved from a growing topic of interest in philosophy of science to one of the central intellectual problems of the discipline, thanks to the work of Helen Longino, Philip Kitcher and Heather Douglas. It is now widely recognized that reflection on values and on the effects of science in society are key issues for philosophy of science to discuss.

This advanced course aims to provide students with an understanding of central philosophical, historical and sociological debates over the role of values in science. It will provide students with the opportunity to become involved in contemporary debates in the philosophy of science and foster a critical attitude towards their own position as scientists/scholars within society.

We will discuss two ways in which values and science intersect from a 20th century perspective. On the one hand, we discuss texts from history, philosophy and sociology of science about the central values in the life of a scientist (Max Weber, Robert Merton, Steven Shapin). On the other hand, we also inquire how social and political values intersect with scientific inquiry itself (Helen Longino, Heather Douglas, Gil Eyal). These two perspectives on science and values are situated within the changing relation between science and society in the last 100 years, with a special attention to the construction of the atom bomb during the Second World War and the increased importance, from the 1960s onward, of scientific risk assessment in contemporary society.

This is a reading-based course. It is not possible to take this course without actually reading the required texts.

### **Intended Learning Outcomes (ILOs)**

By the end of this course, students should be able to:

1. explain and compare the contemporary and historical theories about the role of values in science.
2. situate these theories within their historical, social and philosophical context.
3. apply these theories to historical and contemporary case studies.
4. use these theories to reflect on their own intellectual work as philosopher or scientist.
5. Consider the views of others, whether spoken or written, and develop a critique that furthers investigation
6. Demonstrate their capacity to conduct extensive research and original, independent study

## Assessment and Grading

This course will be assessed using criterion-referencing and grades will not be assigned using a curve. Detailed rubrics for each assignment will be provided on canvas, outlining the criteria used for evaluation.

### Assessments:

#### 1) Argumentative Essay

In this essay, students have to apply one of the perspectives introduced in the course to a case of their choosing. They have to argue for or against a theory or idea using the chosen case. A list of cases will be provided as potential inspiration. In the middle of the semester there will be opportunity to consult the professor about ideas.

Students will have the opportunity to get feedback on a draft of their argumentative essay in the second part of the semester.

#### 2) Oral Presentation

Students have to present the idea of their paper in a 15-minute presentation and respond to questions from other students.

#### 3) Final oral examination

During this examination, students have to respond to questions about their essay. These questions will be both clarificatory about the content of the essay, and they will be about comparisons with other perspectives discussed in the course, and about the student's own evaluation of the ideas discussed in the course.

Assessment Task	Contribution to Overall Course grade (%)	Due date
Argumentative Essay	40%	7/05/2025*
Oral Presentation	20%	
Final Oral Examination	40%	

\* Assessment marks for individual assessed tasks will be released within two weeks of the due date.

### Mapping of Course ILOs to Assessment Tasks

Assessed Task	Mapped ILOs	Explanation
Argumentative Essay	ILO 1, ILO 2, ILO 3, ILO 4, ILO6	In this essay, students have to apply one of the perspectives introduced in the course to a case of their choosing. They have to argue for or against a theory or idea using the case of their choosing. A list of cases will be provided as potential inspiration. In the middle of the semester there will be opportunity to consult the professor about ideas.
Oral Presentation	ILO5	Students have to present the idea of their paper in a 15-minute

		presentation and respond to questions from other students.
Final Oral Examination	ILO 1, ILO 2, ILO 3, ILO4, ILO5, ILO6	During this examination, students have to respond to questions about their essay. These questions will be both clarificatory about the content of the essay, and they will be about comparisons with other perspectives discussed in the course, and about the student's own evaluation of the ideas discussed in the course.

### Final Grade Descriptors:

Grades	Short Description	Elaboration on subject grading description
A	Excellent Performance	Demonstrates a comprehensive grasp of debates about values in philosophy of science, expertise in problem-solving, and significant creativity in thinking. Exhibits a high capacity for scholarship and collaboration, going beyond core requirements to achieve learning goals.
B	Good Performance	Shows good knowledge and understanding of the main subject matter, competence in problem-solving, and the ability to analyze and evaluate issues.
C	Satisfactory Performance	Possesses adequate knowledge of core subject matter, competence in dealing with familiar problems, and some capacity for analysis and novel application of methods and concepts discussed. Shows persistence and effort to achieve broadly defined learning goals.
D	Marginal Pass	Has threshold knowledge of core subject matter, potential to achieve key professional skills, and the ability to make basic judgments. Benefits from the course and has the potential to develop in the discipline.
F	Fail	Demonstrates insufficient understanding of the subject matter and lacks the necessary problem-solving skills. Shows limited ability to think critically or analytically and exhibits minimal effort towards achieving learning goals. Does not meet the threshold requirements for professional practice or development in the discipline.

### Course AI Policy

Students are **not** allowed to use generative AI to complete any of the tasks for this course. The application of generative AI in the process of mastering the material at the hand is at the student's own risk. Generative AI does not possess the capacity for philosophical interpretation or analysis. The student is highly advised to train such interpretation and analysis independently of the assistance of AI.

### Communication and Feedback

Assessment marks for individual assessed tasks will be communicated via Canvas within two weeks of submission. Students will have the opportunity to get feedback on drafts of their assignment. This feedback will include an assessment of the structure of the paper and a cogency of the developed argument. Students who have further questions about the feedback including marks should consult the instructor within five working days after the feedback is received.

### Required Texts and Materials

The required readings will be uploaded to Canvas

<b>Week</b>	<b>Topics</b>
<b>(1)</b> <b>5 Feb</b>	Introduction to Part I: Values central to the scientific way of life
<b>(2)</b> <b>12 Feb</b>	Science: the Eternal Quest Max Weber, "Science as Vocation"
<b>(3)</b> <b>19 Feb</b>	Science as Socialization Merton, Robert K. "Science and the Social Order" Oppenheimer, Robert. "War and the Nations"
<b>(4)</b> <b>26 Feb</b>	Science as Institution-building Frank, Philipp. "Science Teaching and the Humanities." Eyal, Gil. "Trans-science as a vocation"
<b>(5)</b> <b>5 Mar</b>	Virtues and the Scientific Life Shapin, Steven. The Scientific Life: a Moral History of a Late Modern Vocation. Chap. 1-2
<b>(6)</b> <b>12 Mar</b>	Introduction to Part II: values in science The Issue of Values and Acceptance Frank, Philipp G. "The Variety of Reasons for the Acceptance of Scientific Theories"
<b>(7)</b> <b>19 Mar</b>	Values in Science: Against the Value-Free Ideal Longino, Helen. "Beyond 'Bad Science': Skeptical Reflections on the Value-Freedom of Scientific Inquiry." Science, Technology, & Human Values 8, no. 1 (1983): 7–17.
<b>(8)</b> <b>26 Mar</b>	Values in Science: Inductive Risk Douglas, Heather. "Inductive Risk and Values in Science." Philosophy of Science 67, no. 4 (2000): 559–79.
<b>(9)</b> <b>9 Apr</b>	Values in Science: Democracy Kitcher, Philip. Science in a Democratic Society. New York: Prometheus Books (2011). Chap. 1-2

<b>(10)</b> <b>16 Apr</b>	Student Presentations
<b>(11)</b> <b>23 Apr</b>	Student Presentations
<b>(12)</b> <b>30 Apr</b>	Student Presentations

### **Academic Integrity**

Students are expected to adhere to the university's academic integrity policy. Students are expected to uphold HKUST's Academic Honor Code and to maintain the highest standards of academic integrity. The University has zero tolerance of academic misconduct. Please refer to [Academic Integrity | HKUST – Academic Registry](#) for the University's definition of plagiarism and ways to avoid cheating and plagiarism.