1. **Academic Year**: 2022/23

2. **Course Code**: CCST9035

3. **Course Title**: Making Sense of Science-related Social Issues

4. **Course Description**:
The course aims to enhance students' understanding about science and technology, and to enable them to critically evaluate socio-scientific issues (SSI) as reported in the media. Such critical evaluation should enable them to make rational and responsible decisions on these issues, and to be aware of the implication of such decisions.

The course will consist of three components: (1) *Features about science and technology* aims to promote an understanding of the nature of science and technology. Cases on frontier scientific research such as the development of anti-cancer drugs and prenatal diagnosis, and their implications and controversies, will be discussed. (2) *The making of science-related news in the media* aims to develop an understanding of the agendas behind the inclusion of certain science-related social issues in media reports. Operation of the media, criteria of "news worthiness" of science news, and editorial stances of different media, etc. will be considered. (3) *Critical evaluation of SSI and making of sensible decisions* aims to develop transferable skills such as reasoning, analytical and evaluative skills through critical analysis of the impact of scientific and technological development on issues like equity, public health, and socio-cultural practices.

5. **Assessment Ratio**: 100% coursework

6. **Offer Semester**: First Semester

Day of Teaching: Wednesday

7. **Offering Department(s)**:

Faculty of Education - 100%

8. **Course Co-ordinator**:
Dr J.S.C. Leung (Staff No: 37771)
Faculty of Education (Teacher Education and Learning Leadership)
Tel: 2241 5085
Email: leungscj@hku.hk

9. **Teacher(s)**:
Dr J.S.C. Leung (Staff No: 37771)
Faculty of Education (Teacher Education and Learning Leadership)
Tel: 2241 5085 Email: leungscj@hku.hk
(Teaching Load: 100%)

10. **Study Load**

Activities	**Number of hours**
Lectures/ Seminars/ Workshops	24
Tutorials	12
Reading / Self-study	40
Assessment: Oral presentation (incl preparation)	10
Assessment: Group visual media production and presentation	40
Assessment: Essay / Report writing	20
Total:	146

11. **Course Learning Outcomes and Alignment with Common Core Programme Learning Outcomes**

Course Learning Outcomes – On completing the course, students will be able to:		**Alignment with Common Core Programme Learning Outcome(s)**
1.	Identify and describe relevant features of science and technology as reflected in history of science and contemporary science practice.	CC PLO(s): 1, 2
2.	Explain the intricate relationship between facts and opinions, and evaluate arguments as presented in different sources of the media on the same issue.	CC PLO(s): 1, 2
3.	Apply the understanding of the nature of science and technology and news media in critical analysis of SSI.	CC PLO(s): 1, 2, 3
4.	Communicate ideas related to science, technology and society in an organized manner with appropriate terminology.	CC PLO(s): 3, 4
5.	Critically evaluate a SSI and make sensible judgments and decisions on the SSI based on evidence and ethical values, etc.	CC PLO(s): 1, 3, 4

12. **Assessment Tasks**

Assessment Method	**Details of Assignment**	**Weighting**	**Alignment with Course Learning Outcome(s)**
Participation in classroom activities	Students will participate in learning tasks in lectures and tutorials.	10	CLOs: 1, 2, 3, 4
Reflective writing	Students will submit weekly memo to reflect on their learning.	25	CLOs: 1, 3, 4
Peer-evaluated presentation	Students will work in groups of 3-4. Each group will present their evaluation and stance of a SSI in form of visual media (e.g., poster, video, etc.). The performance of each group will be assessed by other groups (10%) and by their tutors (10%). Peer evaluation (5%).	25	CLOs: 1, 2, 3, 4
Essay	Students will critically evaluate SSI news and explain their own stance or reaction. A reflection on their choice of stance will be included.	40	CLOs: 1, 2, 3, 4, 5

13. **Course Content and Topics**

The following content and topics will be covered by a combination of lectures, seminars by invited speakers, and follow-up workshops.

(1) Features about science and technology

This component aims to dispel common myths about science and technology and hence promote a more sophisticated understanding of the nature of science that fosters more critical and in-depth perusal of science-related media reports. The following interrelated dimensions of nature of science will be elaborated:

(a) role and status of science knowledge (through consideration of questions such as: To what extent science is 'true' and 'certain'? To what extent science is disinterested perusal of 'truth'? What does it mean to be 'scientific'? Why are scientific claims controversial even within the scientific community?),
(b) methods of scientific investigations (through consideration of questions such as: While school science put some emphasis on the use of 'scientific method', does scientists follow such 'scientific method'? How does scientific knowledge evolve over time? Why is the establishment and refutation of scientific knowledge not straightforward?),
(c) science as a social practice (with particular attention to issues such as institutional prestige, funding, peer review procedures and conflict of interests),
(d) The interaction of science, technology and society (through discussion on why and how they are related).

To illustrate the above dimensions, frontier scientific research, development of anti-cancer drugs, prenatal diagnosis and historical cases will be discussed. Emphasis will be placed on the inter-relationship among science, technology and society, and critical evaluation of claims based on an understanding of such inter-relationship.

(2) The making of science-related news

As SSI are mainly channeled through science-related news to the public, understanding of agendas behind the inclusion of certain SSI in the news would be useful and relevant in making judgement on claims and arguments reported. To make critical evaluation of the SSI, an understanding of the following is essential:

(a) how media operates
(b) the criteria of news worthiness (news values) of science news,
(c) how SSI are framed as 'issues' as reported in the media (e.g. given the same SSI, e.g. the H5N1 vaccination, some media reports took it as a controversy while some as an advocacy, how can they do that with the same set of scientific data?),
(d) how the editorial stance of media (e.g. magazine and newspaper) would affect the way they report/represent SSI.

To illustrate the above list, in addition to local newspapers, examples would be taken from major English-language newspaper and current affairs magazines that target at educated laymen, e.g. *The Economist* and *Time*.

(3) From understanding about science/technology and news media to critical analysis of SSI

Students will be guided to identify which features of science/technology are relevant to some specifically chosen contemporary and remarkable SSI. They will practise the following to develop transferable skills through analyzing some SSI:

(a) analyze SSI reported in news media (e.g. newspapers, TV news reports, documentaries) based on the ideas introduced in (1) and (2),
(b) identify general principles of analyzing SSI,
(c) evaluate the impact of scientific and technological development on issues such as equity, public health, financing and socio-cultural practices *etc*; and the possible consequences of different solutions proposed by media with different stances.

14. **Required Reading**

Jarman, R., & McClune, B. (2007). *Developing scientific literacy: Using news media in the classroom*. Maidenhead, UK: McGraw-Hill/Open University Press.

McComas, W. F. (1998). The principal elements of the nature of science: Dispelling the myths. In W. F. McComas (Ed.), *The nature of science in science education: Rationales and strategies* (pp. 53-70). Dordrecht; Boston: Kluwer Academic Publishers.

15. **Additional Course Information**

(e.g. course policy, penalty for late assignments, e.t.c.)

16. **Course Level Grade Descriptors**

(Please provide the course level grade descriptors document for uploading to the SIS.)