The Hong Kong Polytechnic University

Subject Description Form

Please read the notes at the end of the table carefully before completing the form.

Subject Code	ENGL2A21
Subject Title	Critical Thinking in Medicine and Health
Credit Value	3
Level	2
Pre-requisite/ Co-requisite/ Exclusion	The following students are not allowed to take this subject: Students of programme-streams: 71418
Objectives	This subject aims to: • equip students with strong critical thinking skills that will help them to rationally evaluate the medical and health issues that will confront them in their lives. • encourage students to understand that with the steady erosion of paternalism in healthcare, people must increasingly assume the role of decision maker in relation to their health. • encourage students to become aware of the extent to which they are making decisions about vaccinations, lifestyle choices, and medical treatments in their lives and that these decisions are complex and demand knowledge that lay people often do not possess. • introduce students to the logical principles that are the basis of sound arguments, and how these principles may be subverted by those who wish to argue fallaciously about issues such as prenatal screening, abortion, end-of-life care, and human genetic engineering. • equip students to make rational judgements about vaccination safety, microbial resistance, the legalization of drugs and a range of other health issues of significance in the 21st century.
Intended Learning Outcomes *(Note 1)*	Upon completion of the subject, students will be able to: **Professional/academic knowledge and skills:** (a) identify when arguments are used in public discourse and reconstruct their premise(s) and conclusion (b) understand logical concepts such as deductive and inductive validity, soundness, rational warrant and evidence (c) identify when arguments are weak or contain logical fallacies and recognize the main formal and informal fallacies **Attributes for all-roundedness:** (d) employ robust critical thinking skills to the complex issues that confront them in their lives, particularly relating to health and well-being (e) operate as rational actors in health debates relating to contentious moral and ethical issues such as abortion, physician-assisted suicide and human genetic engineering

	(f) resist irrational discourses that pose a risk to public health and that are prevalent among groups such as anti-vaxxers using logically valid and persuasive arguments
Subject Synopsis/ Indicative Syllabus *(Note 2)*	**Week 1: What is critical thinking?** This lecture will define what critical thinking is, and discuss why it is important for everyone, not just students, to develop skills of critical thinking. **Week 2: Identifying arguments in discourse** One of the biggest challenges in evaluating thinking and reasoning is being able to identify arguments in discourse. This lecture examines how arguments can be identified and, importantly, distinguished from other forms of discourse such as explanation. **Week 3: Deductive, inductive and presumptive arguments** This lecture examines the key features of deductive, inductive and presumptive arguments, and challenges the notion that 'good' arguments are necessarily deductive in nature. **Week 4: Validity, soundness and rational warrant** Deductive concepts of validity and soundness have dominated logic and reasoning. This lecture examines these concepts, considers their limitations and argues that there is much more to rational warrant than these deductive concepts suggest. **Week 5: Formal and informal fallacies** This lecture examines deductive fallacies such as denying the antecedent and inductive fallacies like hasty generalization. It also presents an overview of a large class of arguments where errors cannot be characterized in terms of formal (deductive) logic. These arguments are informal fallacies like the argument from ignorance and slippery slope argument. **Week 6: Slippery slope arguments in health** Slippery slope arguments are one of the most commonly employed informal fallacies in argument. This lecture examines the logical structure of these arguments and considers why slippery slope is a rationally warranted argument only in certain contexts of use. **Week 7: Fear appeal arguments in health** Logicians often argue that we should only accept a conclusion in argument based on good *reasons* not based on *emotions*. This lecture examines how it can be rationally warranted to appeal to emotion in certain contexts. It considers some of the many public health campaigns where fear has been used to change health-related behaviors. **Week 8: Appealing to emotions in health** Fear is the most commonly exploited emotion in health reasoning. But it is by no means the only emotion that is used in argument to achieve change in health behaviors. This lecture examines the use of emotions such as vanity and pride in public health messaging and considers the rational merits of such arguments. **Week 9: Causal reasoning in health** Reasoning from cause to effect is fraught with logical pitfalls that give rise to fallacious reasoning. A common error is to identify an event X as a cause of event Y simply because X occurs *before* Y (so-called 'post hoc ergo propter hoc' reasoning). This lecture examines post hoc reasoning and other forms of fallacious causal reasoning.

Week 10: Reasoning by analogy in health
We aim to draw similarities (analogies) between all sorts of things in the world around us. When we use these analogies to draw conclusions in an argument, we are reasoning by analogy. This lecture examines the logical properties of analogical argument and examines some of the ways in which these arguments are used (and abused) during reasoning.

Week 11: Defeating irrational health discourse
People who are critical thinkers can identify, and overturn, illogical reasoning in everyday life. Nowhere is illogical thinking more keenly on display than in reasoning about health (the pervasive influence of anti-vaxxers is a case in point). This lecture examines how critical thinking skills can be used to defeat anti-vaxxers and others who propagate irrational discourses about health.

Week 12: Health decision-making in 21st century
As well as improving our ability to challenge the irrational discourse of others, critical thinking skills also enable us to identify logical flaws in reasoning about our own health and the health of others. This lecture considers how critical thinking can lead to improvements in health decision-making at individual, institutional and societal levels.

Week 13: In-class test
Students will undertake a 2-hour, open-book test that examines all content delivered in the course.

Teaching/Learning Methodology

(Note 3)

Teaching will be conducted by means of a 2-hour interactive lecture followed by a 1-hour seminar. The lecture will introduce students to logical concepts and principles that are needed to understand what arguments are and how they should be evaluated. The lecture content is designed to fulfil the intended learning outcomes (a) to (c) above. The seminar will use activities based on real-world issues and controversies in health to give students practice at reconstructing arguments and evaluating their rational merits and logical flaws. The practical activities in the seminars will address the intended learning outcomes in (d) to (f) above.

Assessment Methods in Alignment with Intended Learning Outcomes

(Note 4)

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	f
1. Project	50%	X	X	X	X	X	X
2. In-class test	50%	X	X	X			
Total	100 %						

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

The project is a 1,500-2,500-word analysis of an argument relating to a contemporary medical or health issue. In groups of three, students must identify a suitable argument using sources such as newspaper articles, health agency

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<tr><td></td><td colspan="2">websites, information produced by campaign groups, or other materials in the public domain. Having identified and reconstructed the argument, students must then proceed to evaluate it and submit individual reports. This requires an analysis of the rational warrant that supports key claims, and the identification of any fallacies or other logical flaws. The project will assess knowledge of logical concepts and fallacies (learning outcomes (a) to (c)) as well as the ability to apply this knowledge to the analysis of an actual health argument (learning outcomes (d) to (f)).

The in-class test is a 2-hour assessment of terms and concepts examined in the subject. Students are required to answer a series of short-answer questions that will assess the entire content of the course. By examining logical concepts and principles, the test is designed to assess learning outcomes (a) to (c) inclusive.</td></tr>
<tr><td rowspan="7">Student Study Effort Expected</td><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lectures</td><td>26 Hrs.</td></tr>
<tr><td>▪ Seminars</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>• Private study</td><td>58 Hrs.</td></tr>
<tr><td>▪ Project</td><td>29 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>126 Hrs.</td></tr>
<tr><td>Reading List and References</td><td colspan="2">Students will be required to read the following books (specific chapters) and journal articles:

Required reading:
Cummings, L. (2020) Fallacies in Medicine and Health. Basingstoke: Palgrave Macmillan.

Further reading:
Cummings, L. (2014) ‘Analogical reasoning in public health’, Journal of Argumentation in Context, 3 (2): 169-197.
Cummings, L. (2015) Reasoning and Public Health. Cham, Switzerland: Springer.
Kelley, D. (2014) The Art of Reasoning: An Introduction to Logic and Critical Thinking. Fourth Edition. New York: W.W. Norton & Company, Inc.
Lerner, B.H. and Caplan, A.L. (2015) ‘Euthanasia in Belgium and the Netherlands. On a slippery slope?’ JAMA Internal Medicine, 175 (10): 1640-1641.
Munson, R. and Black, A. (2017) The Elements of Reasoning. Seventh Edition. Boston, MA: Cengage Learning.
Walton, D.N. (2000) Scare Tactics: Arguments that Appeal to Fear and Threats. Dordrecht: Kluwer Academic Publishers.
Walton, D. (2008) Informal Logic: A Pragmatic Approach. Second Edition. New York: Cambridge University Press.
Walton, D. (2017) ‘The slippery slope argument in the ethical debate on genetic engineering of humans’, Science and Engineering Ethics, 23 (6): 1507-1528.
Watson, J.C. and Arp, R. (2015) Critical Thinking: An Introduction to Reasoning Well. London and New York: Bloomsbury Academic.</td></tr>
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Note 1: Intended Learning Outcomes
Intended learning outcomes should state what students should be able to do or attain upon subject completion. Subject outcomes are expected to contribute to the attainment of the overall programme outcomes.

Note 2: Subject Synopsis/Indicative Syllabus
The syllabus should adequately address the intended learning outcomes. At the same time, overcrowding of the syllabus should be avoided.

Note 3: Teaching/Learning Methodology
This section should include a brief description of the teaching and learning methods to be employed to facilitate learning, and a justification of how the methods are aligned with the intended learning outcomes of the subject.

Note 4: Assessment Method
This section should include the assessment method(s) to be used and its relative weighting, and indicate which of the subject intended learning outcomes that each method is intended to assess. It should also provide a brief explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes.