Undergraduate Courses offered by Centre of Buddhist Studies in 2025-2026

ELECTIVE COURSE

(OPEN TO ALL FACULTIES)

BSTC2048 Buddhism and science:

view and meditation in the light of physics and neuroscience

Offering Semester:1st Semester

Lecturer Prof. Dr. Klaus-Dieter Mathes

Office Room 4.04, The Jockey Club Tower, Centennial Campus

Tel: 3910 2458

Email: kdmathes@hku.hk

Day of the week: TBC

Assessment 100% coursework

Class Venue: TBC

Course Description

Buddhism and science have developed models of reality based on empirical evidence and logic. Eastern models of reality tend to be structured around mind, and one idealist current of Buddhist thought even reduces matter to mind on the presupposition that mind alone exists (cittamātra). Western scientific models, however, are inclined to privilege matter, to the extent that for extreme proponents of scientific materialism mind has no place in a naturalistic account of the world. Given this situation, the grounds on which Buddhism and science can meet are models of reality that do not attempt to reduce mind and matter to each other. The acceptance of such a view inevitably leads to the question of whether and, if yes, how mind and matter are capable of mutual interaction. Some models of quantum physics suggest that consciousness, or the act of observation, may play a fundamental role in determining the outcome of quantum events. Numerous neuroscientific and medical experiments with experienced meditators have also shown that systematic mental training leads to a physical change in the brain and in the biochemistry of our body cells. This suggests a mutual influence of mind and matter in a complex process of dependent arising, which according to the Buddhist philosopher Nāgārjuna presupposes emptiness in the sense that everything involved in this fundamental process lacks an independent existence. Modern science and Buddhism thus share in common that there is no objective reality independent of observation.

The course is designed to help students understand the many facets of the dialogue between Buddhism and science. To this end, the course will explore the relevance of Buddhist philosophy and contemplative practices in providing models of reality for the unusual experiential results in modern physics and also in current science-based formats of working with the mind.

Assessment Ratio

Class participation 20 %

Students must have read the assigned readings carefully in order to engage in class discussions and debates.

First Quiz 20%

Second Quiz 20%

Final term paper 40% (1500-1750 words)

Week 1: General Introduction to the Dialogue; Buddhist Basics

The Four Noble truth, dependent arising, mind and matter.

Reading: Powers 2008, 18-29
Link to Healthy Mind App: https://hminnovations.org/meditation-app?gclid=EAIaIQobChMIga2e0uPr6wIVYRitBh2wAw1aEAAYASAAEgK0HfD_BwE

Week 2: Religion and Science; First and Third Person Perspectives

Discussing methodological issues. Problems with the first-person perspective: Can Buddhism be considered a "science of mind"?

Reading: Ken Wilber: *The Essential*. Boston & London: Shambhala Publications, 108-114

Week 3: Buddhist Models of Reality: An Introduction to Mahāyāna Philosophy and Practice

After a short historical overview, we will discuss a Madhyamaka-based Buddhist model of reality that can best contribute to the attempt to find philosophical explanations of the groundbreaking findings in modern science.

Reading: Klaus-Dieter Mathes 2018, 198-211
Rovelli 2021, 126-131

Week 4: Buddhism and Science: Neuroscience and the Role of First-Person Accounts

Relating first-person to third-person accounts. Discussing the Buddhist critique of materialism (i.e., the physical closure principle) in neuroscience and cognitive theory

Reading: Wallace, B. Alan: *The Taboo of Subjectivity: Toward a New Science of Consciousness*. Oxford: Oxford University Press, 2000, 123-148

Week 5: The Different Interpretations of Quantum Physics

After a general overview of how counterintuitive observations in the lab are explained, we will discuss, which explanation best fits the Madhyamaka-based model of reality. In particular, we will look into Carlo Rovelli's relational quantum mechanics, which he compares to Nāgārjuna's notions of emptiness and dependent arising

David Tong: "The Real Building Blocks of the Universe." Cambridge Lecture Feb 15, 2017. https://www.youtube.com/watch?v=zNVQfWC_evg

Adam Frank, Marcelo Gleiser, and Evan Thompson: *The Blind Spot: Why Science Cannot Ignore Human Experience.* MIT Press 2024, 91-108

Week 6: Buddhism and Quantum Physics: The Dialogue Between C.G. Jung and Wolfgang Pauli

The Role of the Observer and other Influences of Mind and Matter. C.G. Jung who was influenced by Yogācāra-Buddhism developed in cooperation with the quantum physicist Pauli a variation of Spinoza's dual-aspect monism (i.e., mind and matter are aspects of a common underlying ground), where quantum and classical states are related to sub-consciousness and concrete mental cognitions.

Reading: Harald Atmanspacher: "20th Century Variants of Dual-Aspect Thinking." *Mind & Matter* 2014, vol. 12(2), 251-259.

Week 7: Morphgenetic Fields: A Dialogue between Robert Sheldrake and David Bohm

The idea of fields of morphic fields in Biology is compared to David Bohm's explicate and implicate order of quantum and classical states ("pilot wave theory")

Robert Sheldrake: Morphic Resonance: The Nature of Formative Causation. Toronto: Park Street Press. (ebook). A Revised and Expanded Edition of *A New Science of Live*. Appendix B: Morphic Fields and the Implicate Order (online)

Week 8: From Third-Person to First-Person Perspectives: In Search of the Neuronal Correlates of Consciousness

The senior Buddhist monk Matthieu Ricard (with a Ph.D. in molecular genetics at the Institut Pasteur, Paris) in dialogue with the neuroscientist Wolf Singer

Reading: Matthieu Ricard and Wolf Singer: Beyond the Self: Conversations between Buddhism and Neuroscience. Cambridge: The MIT Press, 2017, 137-160

Week 9: Buddhist Reactions to AI

Both Buddhism and AI focus on understanding how consciousness works in the absence of an independent agency or self (*ātman*). Based on such deliberations, Buddhists and Scientists worked on a definition of intelligence (including AI) as an emergent property. However, traditional Buddhists argue that human intelligence is fundamentally distinct from AI.

Reading: Thomas Doctor, et al.: "Biology, Buddhism, and AI: Care as the Driver of Intelligence." *Entropy*. Published May 16, 2022.(https://doi.org/10.3390/e24050710)

Week 10: Meditation and Neuroplasticity

Research in neuroplasticity profits considerably from experiments with Buddhist meditators. After a general introduction to the topic of neuroplasticity, we will watch and discuss short film clips with Mingyur Rinpoche and Dr. Herbert Benson from the Harvard Medical College.

Reading: Sharon Begley: *Train your Mind, Change your Brain*. New York: Ballantine Books, 2007, Chapter 6

Videos: Mingyur Rinpoche and Neural Synchrony in Meditation
https://www.youtube.com/watch?v=5C_GOUvNZtk
Herbert Benson - The Relaxation Revolution: Enhancing Health Through Mind-Body Healing (https://www.youtube.com/watch?v=KZ7JfC3_Zgc)

Week 11: The Nature of Consciousness

Ricard, Matthieu and Singer, Wolf: Beyond the Self: Conversations between Buddhism and Neuroscience. Cmbridge: The MIT Press, 2017, p. 211-262

Week 12: Kabat-Zinn's Mindfulness-Based Stress Reduction (MBSR)

MBSR is a result of the confluence of two very different epistemologies encountering each other for the first time— that of science and that of the meditative traditions. At this point, we will also discuss our experiences with the Healthy Mind App.

Reading: Jon Kabat-Zinn: “Some Reflections on the Origins of MBSR, Skillful Means, and the Trouble with Maps.” Contemporary Buddhism 12 (1), 2011: 281–306.

Note:

Plagiarism:
Plagiarism is a serious academic offence. The University upholds the principle that plagiarism in any form is unacceptable and any student found plagiarizing is liable to disciplinary action in addition to failing the assessment concerned. Please read the following webpage on "plagiarism" for details:
http://arts.hku.hk/current-students/undergraduate/assessment/plagiarism

Faculty Grade Expectations: http://arts.hku.hk/grade_expectations.pdf