

Syllabus – Buddhism & Quantum Physics

Learning Outcomes

By taking this course, you will:

- Develop a deeper understanding of the connections between science and spirituality.
- Learn about quantum mechanics and Buddhism in an easy, accessible way.
- Investigate the nature of reality, the mind, and the self.
- Deepen and enrich your meditation practice.
- Enhance your mindfulness, awareness, and well-being.

Welcome and Introduction – Geshe Tenzin Namdak

A welcome and introduction to the course by Geshe Namdak, discussing the structure of the course, the connections between science and Buddhism, and his experience as a Buddhist scholar engaging in dialogue with scientists.

Module 1: A Beginner's Guide to Quantum Mechanics – Dr. John Realpe & Dr. Marco Colnaghi

Lesson 1: What is Quantum Mechanics?

- The uncertainty principle
- Describing quantum states
- Schrödinger's cat
- Wave-particle duality & double-slit experiment
- The measurement problem (Wigner's paradox)
- Non-locality and entanglement

Lesson 2: Interpretations of Quantum Mechanics

- The Copenhagen interpretation
- David Bohm's implicate order
- The Multiverse (many-worlds)
- Carlo Rovelli's relational interpretation
- QBism
- Other interpretations of QM

Module 2: Metaphysics, Buddhism, and Quantum Physics – Dr. Michel Bitbol

Lesson 1: Appearance and Reality in Western Thought

- Plato and the reality/appearance dualism
- Heraclitus and Democritus
- The birth of modern science: Newton, Kant, Husserl

Lesson 2: Buddhist Epistemology & Quantum Physics

- Buddhist epistemology: Mind-Only and Middle Way schools
- The paradox of quantum reality
- Interpretations of quantum mechanics
- Quantum mechanics & Buddhist philosophy

Module 3: Reality and the Nature of the Mind – Prof. John Dunne

Lesson 1: Buddhist Epistemology

- Dharmakirti and Shantarakshita
- “Sat”: the primacy of experience
- Causality, cognition, and reality

Lesson 2: Models of the World

- The mind, discrimination, and mental models
- Do patterns truly exist in nature?
- What constrains our models of the world?

Lesson 3: Illusion and Reality

- Reality as a mental construct
- Is there an ultimate model of reality?
- The illusion of separation: conceptuality, suffering, and wisdom

Module 4: From Nagarjuna to Heisenberg, and Back – Geshe Tenzin Namdak & Guest Speaker Prof. Carlo Rovelli

Lesson 1: Nagarjuna & Quantum Mechanics

- The observer and the observed: the relational interpretation
- Without foundation: Nagarjuna & modern physics
- Emptiness and dependent origination

Lesson 2: Bias, Discrimination, and Models of the World

- Models in classical and quantum physics
- Ultimate and conventional reality

Module 5: Mind, Matter, and the Quantum World – Geshe Tenzin Namdak & Guest Speaker Prof. Carlo Rovelli

Lesson 1: The Nature of the Observer

- Consciousness and quantum mechanics
- Dependent origination and the nature of the mind

Lesson 2: The Mind and the Brain

- The nature of consciousness
- What is the relation between mind and matter?
- Do laws of nature exist beyond our minds?

Module 6: How things Exist, Experiential Meditation Workshop – Scott Snibbe

Part 1: Analysis of Objects

- Analysis of the parts
- Analysis of the causes
- Analysis of the mind
- Conclusion

Part 2: Analysis of the Self

- Grounding
- Body form
- Mind
- Feeling
- Perception
- Volition or mental formation
- Awareness
- Causes
- Conclusion