DEVELOPMENT OF A GENERAL EDUCATION COURSE ON QUANTUM INFORMATION SCIENCE

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General education plays a vital role in the mission of higher education to cultivate responsible and engaged citizens with a global awareness (CUHK, 2013; Benander, Denton, Page, & Skinner, 2000). Besides humanities and social science, the category of nature, science and technology is a critical part of general education (CUHK(SZ), 2021; Vander Schee, 2011) as it will help students to appraise the physical world with a scientific attitude, evaluate humans' role in being part of nature and assess the impact of science and technology on modern life (CUHK(SZ), 2021) by introducing various principles, discoveries, and methods of natural sciences as well as modern technology. Quantum physics has been revolutionizing modern life since its appearance in 20th century. The rapid development of quantum information science is bringing a new age. The education of quantum information science for the younger generation, in particular for those who are not specialized in physics, is becoming increasingly demanded. Therefore, a course on quantum information science is becoming an indispensable part of general education.

The author developed a general education course on quantum information science at the Chinese University of Hong Kong, Shenzhen in China for non-physics major undergraduates in 2015. Three themes including how quantum mechanics was developed, what quantum mechanics is about and how quantum mechanics relates to modern life, are addressed. In this work, challenges of teaching quantum information science as a general education course and possible solutions will be presented based on the seven-year teaching experience of the author.

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