

## STEM to healthcare: radiotherapy treatment planning for undergraduates

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**Principal Investigator:** Dr. Condon LAU

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**Abstract:**

Medical physics is one of the few healthcare professions directly related to Science, Technology, Engineering, and Mathematics (STEM) education. Not surprisingly, medical physics is a popular career path for STEM graduates and understanding radiotherapy treatment planning is one of the key training steps. Treatment planning, and radiotherapy in general, is typically a postgraduate level topic. Thanks to the upcoming launch of the MSc in Medical Physics programme, CityU has obtained a treatment planning system for teaching radiotherapy. Therefore, this presents an excellent opportunity to enhance undergraduate education in medical physics and healthcare in general, preparing students for postgraduate studies and future professional practice.

In this project, we will develop novel treatment planning modules suited for undergraduate STEM students. Undergraduates are less knowledgeable on radiation physics, and human anatomy and physiology, than postgraduate students. In brief, the modules will teach basic radiation physics and anatomy/physiology, prior to requiring students to design a radiotherapy treatment plan with simplified physics and anatomy/physiology. The modules will be integrated into an existing radiotherapy course. Note that these modules do not replace postgraduate and professional training, but better prepare students for that path and instill a passion for knowledge and discovery. CityU will collaborate with local medical physicists and educators, and international radiotherapy equipment vendors, to develop the modules. We plan to implement these reusable modules starting semester A of 2023-24. The project will also employ postgraduate teaching assistants and research assistants interested in a medical physics career to help prepare



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the modules.