The University of Hong Kong
School of Biological Sciences

Qualifying Seminar

Withstanding the stress: Behavioural and physiological strategies to survive emersion of tropical intertidal bivalves

Date: 26th Jan 2022

Time: 4:00 p.m.

Venue: KBSB 3N-01+Zoom

About the speaker:

Benjamin Chiu Sung Yau is a PhD student in the Tropical IntertiDal Ecology lab. His research focuses on describing the effect of physical stress to habitat modifying bivalves, and their corresponding behavioural and physiological adaptation to mitigate environmental stresses, which contributes to their dominance and success in physically stressful environments.

Abstract:

The relative distribution and abundance of organisms is strongly affected by environmental fluctuations, especially in dynamic and extreme environments like the intertidal zone in the tropics. The relative success of organisms is determined by the adaptive behavioural and physiological responses to these environmental stresses, which determines where they can live and their abundance. In many cases, certain species dominate habitats and these species are assumed to be well adapted to these environments by having advantageous behavioural and physiological traits. One such example is the rock oyster, *Saccostrea cucullata*, which dominates the mid-tide level on rocky shores around the Indo-Pacific. The oyster forms dense beds on sheltered shores where they are important ecosystem engineers, enhancing local biodiversity. How these oysters could tolerate and dominate environments where other species found challenging to survive, has not been addressed. Being sessile, previous attempts to explain the stress-mitigating strategies the oysters adopt have assumed relatively low importance for behavioural adaptations and have concentrated on physiological stress responses. These animals can, however, exhibit 'behaviours' and in this seminar I propose a series of measurements and experiments to quantify the stress tolerance of *S.cucullata* and how behavioural and physiological responses may work synergistically in dealing with environmental stresses, to explain the success of this oyster in the constantly changing environment found on sheltered rocky shores in the tropics.