

# UFV Math Club

presents

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# Using Linear Probes to estimate spatial complexity of coral reef communities

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**Abstract:** Researchers are often faced with the task of estimating various spatial characteristics of a substrate or community. The most common characteristic is the area covered by a specific substrate or organism, referred to as Percentage Cover ( $P$ ). A second important characteristic of a community is a measure of the relative length of the edge of a substrate or organism to the area of patches of organisms, referred to as Length/Area ( $L_a$ ).

Both characteristics are difficult to estimate automatically from images of biological communities, as boundaries are often indistinct. This is especially true for benthic communities such as coral reefs. For this reason, researchers currently depend on human analysis of images to obtain estimates of  $P$  and  $L_a$ . For this reason it is important that efficient sampling methods are defined.

In this talk, transects are discussed generally, and point intercept and linear probe techniques are explored as efficient techniques for estimating  $P$  and  $L_a$ . Standard point intercept techniques are found to be less efficient than a newly defined technique which offers a reasonable compromise between efficiency of the procedure and efficiency of the estimator. A family of linear probes is also explored, which offers researchers an opportunity to estimate not only  $P$ , but  $L_a$  using a single simple method which has not been pursued in the biological literature.

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**Monday, October 20, 4pm, D213, Abbotsford**

**All students, faculty and staff are invited to attend.**