## GL21A        PALAEONTOLOGY     Morphometrics I

Read Chapter 4 from Raup, D.M. & Stanley, S.M. 1978.  Principles of Paleontolgy (2nd Edition). W. H. Freeman and Co. San Francisco, 481p.

I. Describing Species & Fossil Populations

      A.  Qualitative description

      B.  Quantitative description

II.  Characters

      A.  Homologous

      B.  Age independent

      C.  Age dependent

III.  Morphometric Analysis

      A.  Univariate Analysis - Figure 4-11
           1.  Means, Modes and the spread of data

           2.  Histograms

      B.  Bivariate Analysis  (examining the relationship b/w 2 variables)  - Figure 4-14

      C.  Using Ratios  - Figure 4-12

III.  Correlation –
      A. Linear Correlation- degree to which two data on 2 variables can be plotted on a straight line

      B.  Positive and Negative

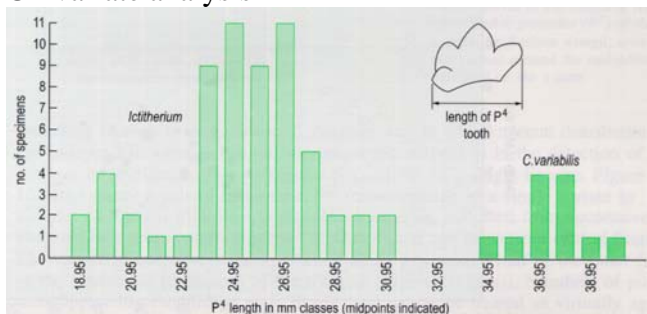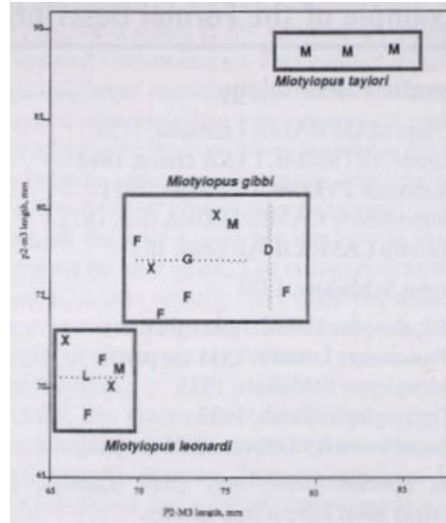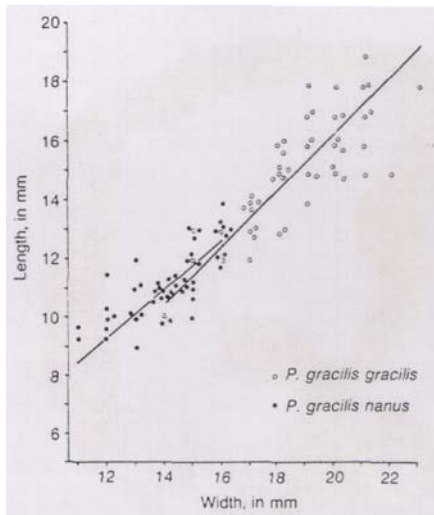      C.  Measured characters are generally positively correlated

Univariate analysis



**Figure 10.11**  *Histogram of measurements of the length of the upper fourth premolar ($P^4$) for all specimens of the Chinese Pliocene hyaenas studied by Kurtén. The data are grouped in mm intervals, the mid-points of which are shown on the x axis. The clusters of data for Crocuta variabilis and Ictitherium are indicated. Further details discussed in text.*

Bivariate analysis



Correlation



high correlation    low correlation    no correlation