# Multivariate statistics for archaeology and data processing

Tuesday, 13 June 2023
Online training course organised by STARC, The Cyprus Institute

(Please note that the time of lectures is provided in EET/GMT+2, Nicosia, Cyprus)

Zoom link: https://us06web.zoom.us/j/84260959923
Meeting ID: 842 6095 9923
Passcode: 380410

11:00-12:00 **An introduction to data analysis: Descriptive statistics, univariate analyses and a glimpse to multivariate statistics**
Speaker: Dr Efthymia Nikita, Associate Professor in Bioarchaeology at the Science and Technology in Archaeology and Culture Research Center (STARC), The Cyprus Institute

**Brief description**
This lecture will offer an introduction to statistical analysis, covering key concepts such as sample and population, descriptive and inferential statistics, parametric and nonparametric data. Basic methods for presenting data in a succinct manner (summary statistics, graphs, frequencies) will be discussed, along with their respective advantages and disadvantages. Important univariate tests for two or more compared samples, will also be presented, followed by a brief introduction to multivariate statistics and how the latter expands the capabilities of the former. By the end of the lecture, the students will have gained a good understanding of the available tests for different types of research hypotheses and different types of data and they will be able to select the appropriate test for their purposes.

**Suggested reading**
Nikita, E. 2020. Introduction to Statistics using R. The Cyprus Institute. https://www.academia.edu/43124751/INTRODUCTION_TO_STATISTICS_USING_R

12:30-14:30 **Title: Multivariate Analysis: Data Collection and Tools Available**
Speakers: Dr Barrie Wells & Dr Ricki Walker, Conwy Valley Systems Limited

**Brief description**
The intention is to provide assistance in the choice of data collection protocols to match specific analysis goals. This will require two main strands: a review of the multivariate statistical tools available for analysis of archaeometric data and a consideration of data confidence, both that required by the tools and attainable from thin sections. Practical demonstrations will illustrate the dependence of data confidence on sampling in data collection. Examples will be given to illustrate the usage of the various statistical tools.

Whilst consideration of data collection will be limited to petrographic analysis of thin sections (or polished blocks) under a polarising light microscope, the statistical tools considered will be applicable to other data types (geochemical, XRF, XRD, etc). It is intended that this introduction will be followed by a more prescriptive course on multivariate data analysis, at the November training course at UCL, when participants may have their own data to analyse. The primary purpose here is to guide participants towards collecting data sufficient for supporting their analyses.

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