



PRIMER 7 WORKSHOP
in Plymouth, UK
Multivariate Analysis in Ecology (& other Sciences)

Presenter: [Dr Paul J. Somerfield](#)
Venue: [Marine Biological Association, Plymouth, UK](#)
Dates: **19-23 June 2017**

This **PRIMER version 7** workshop is one week long (Monday – Friday, 09:00 to 18:00 on each day). Participants will engage in a mixture of informative lectures on key topics and computer lab sessions on literature data sets. Participants will have ample opportunity to discuss and analyse their own data sets in consultation with the lecturer, with dedicated time for this provided on the Friday afternoon. Participants are expected to **bring their own laptop**. Software either may be purchased (at a discounted price – see below) or a free fully functional but time-limited version will be made available to registered participants for trial use over the period of the workshop. Note that PRIMER is a Windows-only product so Macs need to run in Windows emulation.

Content

- This workshop will provide an intensive and extensive overview of statistical methods in non-parametric analysis of multivariate data, encapsulated in the software: **PRIMER version 7**. It will cater to both those who are **new to PRIMER** and to those who are “**old hands**”, but have not yet had a chance to get up to speed with the latest developments in version 7. Important new tools include: **shade plots** with flexible ordering & clustering of axes; **coherence plots** to show species displaying statistically distinguishable response patterns; **unconstrained** binary or divisive **flat clustering** (as in *k*-means) along with **SIMPROF** tests; **metric, threshold metric, non-metric** or **combined MDS** in any dimensions; **bootstrap averages** to show variation among averages in metric MDS space; **2-way versions** of BEST and RELATE; **new plot types** (bar, box, means, line, histogram, scatter, surface, shade) in 2-d or 3-d; **animations** of ordinations captured to video files; multi-factor and multi-variable **segmented bubble plots** in 2-d and 3-d; ANOSIM extended for **ordered factors** and **3-factor** designs and much more...
- As well as covering the new methods in PRIMER 7, the core basic multivariate routines will also be fully discussed, e.g. pre-treatment of data; definitions of similarity; clustering; ordination by principal components (**PCA**), non-metric (and metric) multi-dimensional scaling (**MDS**); permutation tests on similarity matrices for structured (**ANOSIM, RELATE**) and unstructured (**SIMPROF**) cases; emphasis on species analyses; linking community to abiotic data (**BEST**); biodiversity indices; means plots (with approximate region estimates), and a host of graphical tools for effective presentation of results. Non-parametric statistics and permutation tests make the methods intuitively simple to understand, so **no prior background in statistics is assumed**.

Venue

The workshop will be hosted by [The Marine Biological Association of the United Kingdom](#), The Laboratory, Citadel Hill, Plymouth, PL1 2PB, UK. Participants will enjoy this splendid historic location (associated with Darwin, Keynes, Hodgkin and Huxley), with airport proximity (Exeter, Bristol) and 3 hours from London by train. The workshop will be held in the Wolfson Room, and participants will have access to the [National Marine Biological Library](#) on site. The workshop fees listed below **include MBA membership for one year**. (Current MBA members are offered a discount of **GBP £40** off the workshop registration fee). Further travel and accommodation information is available from the [PRIMER-e website](#). For any other venue-related queries, please contact the MBA secretary, **Alexandra Street**, (alexa@MBA.ac.uk). Note that it is the participant's responsibility to arrange and pay for their own travel and accommodation – these are not included within the course fee.

Fees

COURSE FEE ¹	
Full Registration: GBP £ 620	Student Registration: GBP £ 440

The course fee **includes** all workshop materials, lunches, coffee/tea breaks, free wifi and (if needed) a temporary (fully functional but time-limited) software licence key(s) for PRIMER version 7 for use by the registrant during the workshop. It also includes a one-year membership of the MBA (without journal), allowing participants access to the library, common room and to benefit from guest facilities on-site. Current MBA members pay a reduced fee of £ 580 (and students £ 400). The course fee **does not include** other meals, accommodation or the separate (discounted) costs of purchasing time-unlimited software. All prices are in GB pounds¹.

Contact and Registration

To express interest in attending, please send an email directly to the PRIMER-e office: primer@primer-e.com. You will be sent a **registration form**, a detailed **programme** and other workshop information. All relevant documents can also be downloaded directly from the [PRIMER-e website](#). To register, please fill out the **registration form** and return it directly to primer@primer-e.com to secure your place. Places are limited. **Registration and payment must be received by 5 June 2017**. Late registrants will only be accepted if space permits.

Software

Participants wishing to purchase PRIMER-e software at the special prices below¹, offered here in GB pounds to workshop participants only, should indicate this on their registration form.

	New PRIMER 7 (GBP)	Upgrade PRIMER 6 to PRIMER 7 (GBP)	PERMANOVA+ add-on (GBP)
Private sector	£ 600	£ 300	£ 300
Public sector	£ 450	£ 225	£ 225
Academic	£ 300	£ 150	£ 150
Full-time student	£ 150	£ 75	£ 75

About the Lecturer

Dr Paul J. Somerfield (Plymouth Marine Laboratory) is a highly-cited and sought-after numerical ecologist who has been instrumental in developing and using the methods in PRIMER across many fields, having led and lectured PRIMER workshops across the globe for over two decades. With knowledge and broad experience in analysing multivariate datasets of all kinds, Paul has mentored and published with hundreds of scientists and professionals from a wide range of disciplines: marine, freshwater and terrestrial ecology, oceanography, soil science, forestry, environmental science, microbial ecology, genetics, remote sensing and modelling.

¹ All prices quoted here exclude goods and services tax (GST). New Zealand residents only must add GST (15%).