

On January 13-15, 2010, Prof. Dean Adams (Iowa State University, USA), taught an intensive short course on Geometric Morphometrics at the University of Florence, Italy. The course was organized by the zoological section of the “Museo di Storia Naturale dell’Università di Firenze”, and was part of the training program for museum staff, as well as in the program of courses for the “Dottorato di Ricerca in Etologia, Ecologia Animale e Antropologia” of the Department of Evolutionary Biology of the University of Florence. There were 28 participants in the course: 10 museum staff members, 15 doctoral candidates from the Department of Evolutionary Biology, and 3 researchers from other Italian universities.

During the three days of the workshop Prof. Adams discussed the theory and methods for the analysis of biological shape. The course focused on both the practical aspects of morphological analysis, as well as the mathematical reasons such methods are utilized. The goal was to provide participants with a basic knowledge of geometric morphometric methods, so they could apply these methods in their own research. On each day of the workshop, Prof. Adams gave a series of lectures, which were followed by a laboratory session to provide the participants with exposure to implementing these approaches in morphometrics software.

The first day focused on the methods and tools for collecting both 2-dimensional and 3-dimensional morphometric data. During the second day, we discussed methods for generating shape variables from landmark coordinates: focusing primarily on Generalized Procrustes analysis and the thin-plate spline. Methods for the analysis of sliding semilandmarks were also discussed. The third day was devoted to assessing patterns of variation and covariation in shape data. This included both exploratory and inferential methods of multivariate statistical analysis, including principal components analysis, general linear models (MANOVA and regression), and partial-least squares analysis. Graphical depiction and visualization of results was also discussed. Each lecture was followed by a laboratory session to verify the application of the learned techniques.

Although the workshop was only three days, the structure of the lectures allowed the participants to obtain a sufficient degree of knowledge of these techniques. Most participants had no prior experience with geometric morphometrics, but they showed a great interest and it can be said that the course has been a success.

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