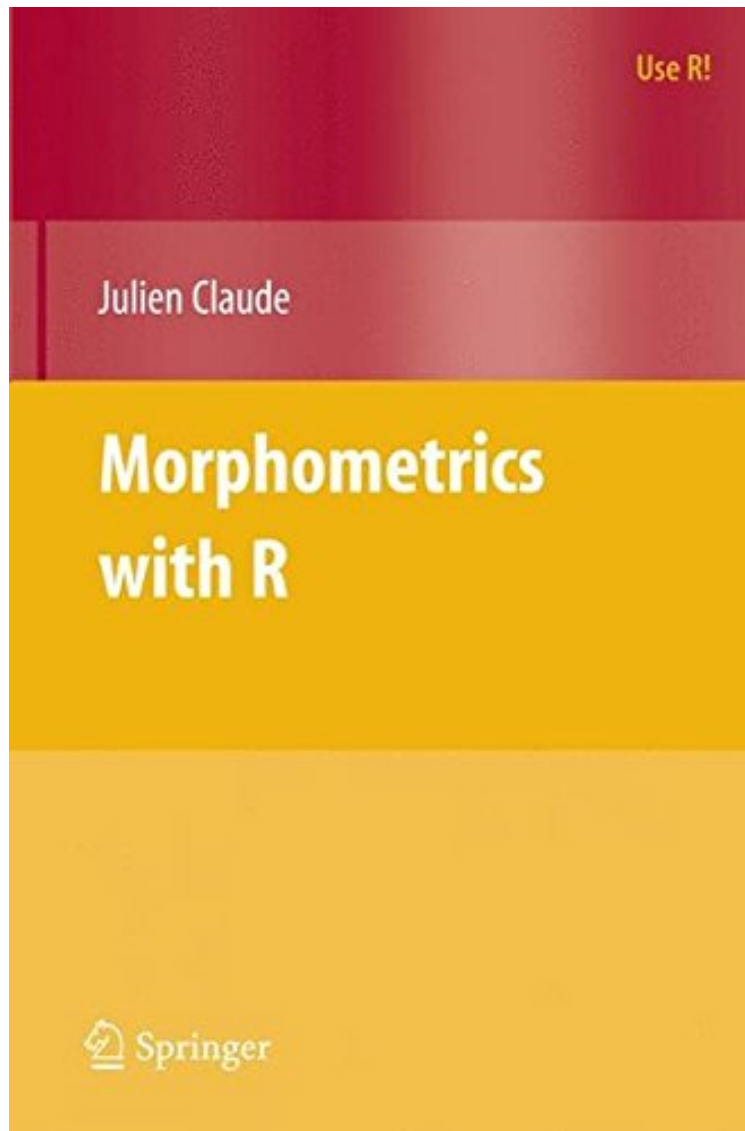


[Ebook pdf] Morphometrics with R (Use R!)

## Morphometrics with R (Use R!)

*Julien Claude*

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**Julien Claude : Morphometrics with R (Use R!)** before purchasing it in order to gage whether or not it would be worth my time, and all praised Morphometrics with R (Use R!):

0 of 1 people found the following review helpful. Five Stars By Brendaperfect.6 of 6 people found the following review helpful. Very good, if you know what you're doing By G. R. Camilo If you are knowledgeable about morphometrics, and know how to use the R environment, this book is for you. This book is not meant for learning morphometrics. For that, use the primary literature, ie, use google scholar and search for James Rohlf's and Fred Bookstein's papers from the 80s and early 90s. As for learning R, Peter Dalgaard's book, IMO, is the best. The book

does a very good job illustrating the general univariate and multivariate techniques of traditional morphometrics using the traditional stats libraries. Examples, with data, on allometry, size vs shape, etc., are worked very well. The best part is the introduction to several libraries for landmark acquisition (eg, packages rimage and rtiff) and geometric morphometrics (eg, packages shapes and Rmorph). Furthermore, Clude also introduces how morphometrics results can be incorporated into phylogenetic analysis (eg, packages ape, ade4 and PHYLOGR). Overall, the book is highly functional, just the way this kind of book should be.

This book aims to explain how to use R to perform morphometrics. Morphometric analysis is the study of shape and size variations and covariations and their covariations with other variables. Morphometrics is thus deeply rooted within statistical sciences. While most applications concern biology, morphometrics is becoming common tools used in archeological, palaeontological, geographical, or medicine disciplines. Since the recent formalizations of some of the ideas of predecessors, such as Darcy Thompson, and thanks to the development of computer technologies and new ways for appraising shape changes and variation, morphometrics have undergone, and are still undergoing, a revolution. Most techniques dealing with statistical shape analysis have been developed in the last three decades, and the number of publications using morphometrics is increasing rapidly. However, the majority of these methods cannot be implemented in available software and therefore prospective students often need to acquire detailed knowledge in informatics and statistics before applying them to their data. With acceleration in the accumulation of methods accompanying the emerging science of statistical shape analysis, it is becoming important to use tools that allow some autonomy. R easily helps fulfill this need. R is a language and environment for statistical computing and graphics. Although there is an increasing number of computer applications that perform morphometrics, using R has several advantages that confer to users considerable power and possible new horizons in a world that requires rapid adaptability.

From the reviews: "A key feature of this book is the extensive use of R, both through the direct use of code and through references to a large number of packages relevant to the morphometrics area.... This is an interesting book and I certainly learned new things by reading it. Its particular contribution is to bring together a wide variety of tools, both statistical and computational, which are relevant to morphometrics and to present these in a very practical manner through R. Those who are new to the topic are likely to gain most value from the book once they have gained some familiarity with at least some of the tools involved. However, the synthesis of tools presented here will undoubtedly lead readers into contact with, and subsequent understanding of, a wider array of methods at a very practical level." (Adrian Bowman, *The American Statistical Association*, Volume 31, September 2009) From the Back

Cover Quantifying shape and size variation is essential in evolutionary biology and in many other disciplines. Since the "morphometric revolution of the 90s," an increasing number of publications in applied and theoretical morphometrics emerged in the new discipline of statistical shape analysis. The R language and environment offers a single platform to perform a multitude of analyses from the acquisition of data to the production of static and interactive graphs. This offers an ideal environment to analyze shape variation and shape change. This open-source language is accessible for novices and for experienced users. Adopting R gives the user and developer several advantages for performing morphometrics: evolvability, adaptability, interactivity, a single and comprehensive platform, possibility of interfacing with other languages and software, custom analyses, and graphs. The book explains how to use R for morphometrics and provides a series of examples of codes and displays covering approaches ranging from traditional morphometrics to modern statistical shape analysis such as the analysis of landmark data, Thin Plate Splines, and Fourier analysis of outlines. The book fills two gaps: The gap between theoreticians and students by providing worked examples from the acquisition of data to analyses and hypothesis testing. The gap between user and developers by providing and explaining codes for performing all the steps necessary for morphometrics rather than providing a manual for a given software or package. Students and scientists interested in shape analysis can use the book as a reference for performing applied morphometrics, while prospective researchers will learn how to implement algorithms or interfacing R for new methods. In addition, adopting the "R" philosophy will enhance exchanges within and outside the morphometrics community. Julien Claude is evolutionary biologist and palaeontologist at the University of Montpellier 2 where he got his Ph.D. in 2003. He works on biodiversity and phenotypic evolution of a variety of organisms, especially vertebrates. He teaches evolutionary biology and biostatistics to undergraduate and graduate students and has developed several functions in R for the package APE.