■ Preface

There is a plethora of books available that introduce, at a variety of levels, approaches for the analysis of spatial data. Why write yet another one? The most obvious reason is that, while many of the existing books provide excellent accounts of a wide range of methods, none of the existing texts started and concluded at a level that I felt was appropriate for the students (mostly at an undergraduate level) whom I have had the responsibility to teach. Many existing introductory texts on geographical information systems (GIS) include material at an appropriate level about data models, databases, visualization, and elements of spatial analysis, amongst other themes. However, in my experience, a combination of texts was required to address fully the key issues in spatial data analysis in sufficient depth. While some texts covered many approaches to spatial data analysis, the prior expectations, in terms of existing knowledge, made such texts inaccessible to many undergraduate students in geography and others with a burgeoning interest in spatial data analysis. This book is intended as a bridge between texts that introduce some key principles of GIS and those that go into a great deal of depth about a wide body of methods for spatial analysis.

Another concern is to introduce in a reasonably small amount of text a set of key ideas so that the book could be used to support part of a course concerned with, for example, GIS and GIScience in general. Although there is a focus on how the methods work, the aim is also to develop an understanding of when and how it is appropriate to apply particular methods. One key reason for writing this book follows from my belief that academic courses in GIScience should focus on education and not simply on training—that is, while it is important for students to learn how to use software, without some understanding of what is being done and of the implications of particular decisions, the process is reduced to training.

This book is also a logical progression from previous work: another book (Lloyd, 2006) published before this book was started had a rather different focus and intended audience with some introductory material provided but a fair amount of background knowledge assumed. On finishing that book, writing a more general text that started from first principles was tempting and the present book is the result. I hope that this book builds knowledge and fosters interest. If it provokes readers to find out more then it will have succeeded in its aims.