BOOK REVIEW


The first edition of this GIS textbook was published in 2001. Since then, it has been widely adopted by many GIS instructors in the United States because it provides a good balance between practical technique trainings and fundamental concepts of GIS. This book is suitable for an introductory GIS course in universities or community colleges. The fifth edition made good revisions by the restructuring of material (combining relational vector data model and object-oriented vector data model into one chapter) and the expansion of the discussion in Chapter 8 (joins and relates function), Chapter 9 (cartographic representation), Chapter 11 (point pattern analysis), Chapter 14 (viewshed analysis), and Chapter 16 (geocoding).

This new edition was also enhanced by the addition of new web resource links and introduction of new Web GIS technologies, such as Google Maps, Microsoft Virtual Earth, and Google Earth in the first two chapters. However, it might be better to combine these new Web GIS technologies into a new chapter in the next edition. It is essential for the beginning GIS user to recognize the recent development of Internet GIS and Web mapping applications.

As compared to other GIS textbooks, this book provides a solid coverage of GIS concepts and avoids some common problems found in other textbooks, such as the cookie-cutter style (too detailed, step-by-step software instructions) or the encyclopedia style (too complicated and not focused contents).

‘GIS also have increasingly become the common ground for sharing data across discipline, or the “glue” which connects large-scale interdisciplinary research’ (DiBiase et al. 2006, p. vii). This book can provide a good introduction to GIS for other disciplines, such as public health, civil engineering, computer science, and ecology. Recently, UCGIS created an important document, Geographic Information Science & Technology Body of Knowledge (DiBiase et al. 2006), which provided a good guidance for core GIS&T curriculum. It might be very useful to map the core knowledge areas defined by GIS&T Body of Knowledge with Chang’s book contents. The comparison results can be used to enhance the next edition of this book.

There are several good reasons that have made this book so popular in the last 8 years. First, it gives a very systematic introduction of GIS topics, starting from the basic topics (coordinate system, vector data model, raster data model, data acquisition, geometric transformation, data editing, data management, and cartographic), and then moves to spatial analysis topics (data exploration, vector data analysis, raster data analysis, terrain mapping and analysis), and finally to advanced analysis issues (viewsheds, spatial interpolation, geocoding and dynamic segmentation, path analysis and network applications, and GIS models). At the end of each chapter, there are several key concepts and terms listed. Each chapter also includes [Review Questions], which can help self-learners to enhance their understanding of major concepts introduced in each chapter.

The [Application Tasks] and [Challenge Tasks] sections can help students learn the major techniques in the ArcGIS software package and to associate these functions with the fundamental GIS concepts. It might be one of the most effective GIS learning strategies provided by current GIS textbooks. Students can get practical hands-on skills and enhance their knowledge of GIS by following these analysis procedures. The instruction for software training tasks has been upgraded to ArcGIS 9.3 and all tasks in this edition use ArcGIS Desktop and its extensions: Spatial Analyst, 3D Analyst, Geostatistical Analyst, Network Analyst, and ArcScan.

A useful resource for instructors is the information provided from the publisher’s website. The book website includes lecture PowerPoint slides, Chapter Review Question answers, Application Task question answers, and a test bank (examples of short answer and multiple choice questions). To access these materials, GIS instructors need to contact the publisher to get the access code and account information.

To summarize, this book is a comprehensive introductory GIS textbook. This fifth edition continues to keep a balance between practical technique training and teaching the fundamental concepts of GIS. This book will be very effective for beginning users to learn about both fundamental GIS concepts and skills.

Ming-Hsiang Tsou
Department of Geography, San Diego State University, San Diego, CA, USA
Email: mtsou@mail.sdsu.edu
DOI: 10.1080/19475680903271125

References