Preface

Maps are everywhere—on the Internet, in your car, and even on your mobile phone. Moreover, maps of the twenty-first century are not just paper diagrams folded like an accordion. Maps today are colorful, searchable, interactive, and shared. This transformation of the static map into dynamic and interactive multimedia reflects the integration of technological innovation and vast amounts of geographic data. The key technology behind this integration, and subsequently the maps of the twenty-first century, is *geographic information systems* or GIS.

Put simply, GIS is a special type of information technology that integrates data and information from various sources as maps. It is through this integration and mapping that the question of "where" has taken on new meaning. From getting directions to a new restaurant in San Francisco on your mobile device to exploring what will happen to coastal cities like Venice if oceans were to rise due to global warming, GIS provides insights into daily tasks and the big challenges of the future.

Essentials of Geographic Information Systems integrates key concepts behind the technology with practical concerns and real-world applications. Recognizing that many potential GIS users are nonspecialists or may only need a few maps, this book is designed to be accessible, pragmatic, and concise. *Essentials of Geographic Information Systems* also illustrates how GIS is used to ask questions, inform choices, and guide policy. From the melting of the polar ice caps to privacy issues associated with mapping, this book provides a gentle, yet substantive, introduction to the use and application of digital maps, mapping, and GIS.

In today's world, learning involves knowing how and where to search for information. In some respects, knowing where to look for answers and information is arguably just as important as the knowledge itself. Because *Essentials of Geographic Information Systems* is concise, focused, and directed, readers are encouraged to search for supplementary information and to follow up on specific topics of interest on their own when necessary. *Essentials of Geographic Information Systems* provides the foundations for learning GIS, but readers are encouraged to construct their own individual frameworks of GIS knowledge. The benefits of this approach are two-fold. First, it promotes active learning through research. Second, it facilitates flexible and selective learning—that is, what is learned is a function of individual needs and interest.

Since GIS and related geospatial and navigation technology change so rapidly, a flexible and dynamic text is necessary in order to stay current and relevant. Though

essential concepts in GIS tend to remain constant, the situations, applications, and examples of GIS are fluid and dynamic. The Flat World model of publishing is especially relevant for a text that deals with information technology. Though this book is intended for use in introductory GIS courses, *Essentials of Geographic Information Systems* will also appeal to the large number of certificate, professional, extension, and online programs in GIS that are available today. In addition to providing readers with the tools necessary to carry out spatial analyses, *Essentials of Geographic Information Systems* outlines valuable cartographic guidelines for maximizing the visual impact of your maps. The book also describes effective GIS project management solutions that commonly arise in the modern workplace. Order your desk copy of *Essentials of Geographic Information Systems* or view it online to evaluate it for your course.