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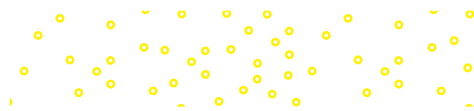
# Human Geography

LANDSCAPES OF HUMAN ACTIVITIES



MARK D. BJELLAND  
DANIEL R. MONTELLO  
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THIRTEENTH EDITION

Human  
GEOGRAPHY  
LANDSCAPES OF HUMAN ACTIVITIES

MARK D. BJELLAND

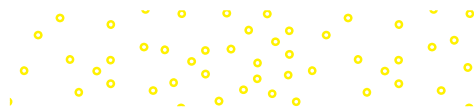
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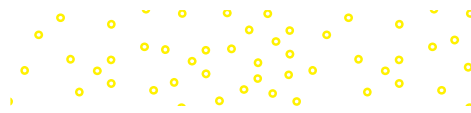
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## HUMAN GEOGRAPHY: LANDSCAPES OF HUMAN ACTIVITIES, THIRTEENTH EDITION

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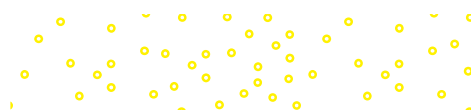
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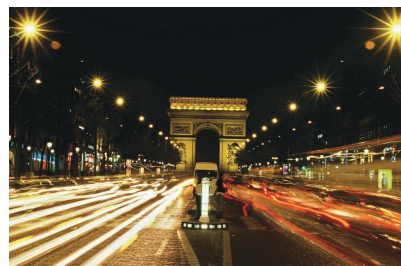
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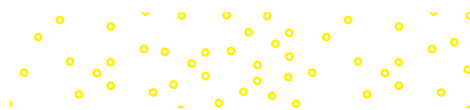
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# Preface

This thirteenth edition of *Human Geography* retains the organization and structure of its earlier versions. Like them, it seeks to introduce its users to the scope and excitement of geography and its relevance to their daily lives and roles as informed citizens. We recognize that for many students, human geography may be their first or only work in geography and this, their first or only textbook in the discipline. For these students particularly, we seek to convey the richness and breadth of human geography and to give insight into the nature and intellectual challenges of the field of geography itself. Our goals are to be inclusive in content, current in data, and relevant in interpretations. These goals are elusive. Because of the time lapse between world events and the publication of a book, events inevitably outpace analysis. We therefore depend on a continuing partnership with classroom instructors to incorporate and interpret current events and emerging geographic patterns.

## Organization

The text can easily be read in a one-semester course. The emphasis is on key concepts and theories in human geography, which can then be applied to understanding patterns of human activities and current events. Chapter 1 sets the stage by briefly introducing students to the scope, methods, and background basics of geography as a discipline and to the tools—especially maps—that all geographers employ. It is supplemented by Appendix A, which gives a more detailed treatment of map projections than is appropriate in a general introductory chapter. Both are designed to be helpful, with content supportive of, not essential to, the later chapters of the text.

The arrangement of those chapters reflects our own sense of logic and teaching experiences. Chapters 2 through 4 introduce major themes and fundamental concepts in human geography. Chapter 2 examines the basis of culture, culture change, and cultural regionalism. Chapter 3 offers a comprehensive review of concepts of spatial interaction and spatial behavior. Chapter 4 considers population structures, patterns, and change. Chapters 5 through 7 discuss the foundations for different social and cultural identities: language and religion (Chapter 5), ethnicity (Chapter 6), and folk and popular culture (Chapter 7). Chapter 7 also examines the landscape expressions of different cultures. Chapters 8, 9, and 10 focus on economic geography, beginning with activities connected to the Earth and natural resources (Chapter 8), then exploring the changing geographies of manufacturing and service industries (Chapter 9), and concluding with an examination of inequality and issues in economic development (Chapter 10).

Chapter 11 examines the organization of urban systems and urban space, while Chapter 12 explores the political organization of territory. Chapter 13 draws together in sharper focus selected aspects of the human impact on the environment, demonstrating the relevance of human geographic concepts and patterns to matters of current national and global environmental concern.

Among those concepts is the centrality of gender issues that underlie all facets of human geographic inquiry. Because they are so pervasive and significant, we felt it unwise to relegate their consideration to a single separate chapter, thus artificially isolating women and women's concerns from all the topics of human geography for which gender distinctions and interests are relevant. Instead, we have incorporated significant gender/female issues within the several chapters where those issues apply—either within the running text of the chapter or, very often, highlighted in boxed discussions.

We hope by means of this structure to convey to students the logical integration that we recognize in the broad field of human geography. We realize that our sense of organization and continuity is not necessarily that of instructors using this text and have designed each chapter to be reasonably self-contained, able to be assigned in any sequence that satisfies the arrangement preferred by the instructor.

## New to This Edition

We are pleased to introduce this newly updated and revised edition of *Human Geography: Landscapes of Human Activity*. Although the text's established framework has been retained in this thirteenth edition, each chapter has been revised to improve readability, and every chapter contains at least brief text additions or modifications to reflect current data. All chapters contain new or revised illustrations, maps, and photos.

The thirteenth edition contains many new and updated topics, including the following:

### New Maps

Many existing maps have been updated for the thirteenth edition of *Human Geography*. In addition, new maps introduced in this edition include:

- A new choropleth map of the religiously unaffiliated in the United States
- A new map of metropolitan regions specializing in the information economy
- Satellite maps of urban growth in Las Vegas, Nevada
- Renewable freshwater resources per capita by country

## New Boxes

Many of the boxed elements in the text have been updated, and the following new boxes have been introduced:

- “The Burning Man Festival of Art and Music: Subcultural Landscape in the Great Basin Desert” in Chapter 2
- “Health Geography,” in Chapter 2
- “Geography and Citizenship: Changing Toponyms,” in Chapter 5
- “Religious Attire in Secular Spaces,” in Chapter 5
- “Geography and Citizenship: Monuments, Memorials, and Civic Spaces,” in Chapter 7
- “Sustainable Development Goals,” in Chapter 10
- “Geography and Citizenship: Gerrymandering in the United States,” in Chapter 12

## New/Revised Topics

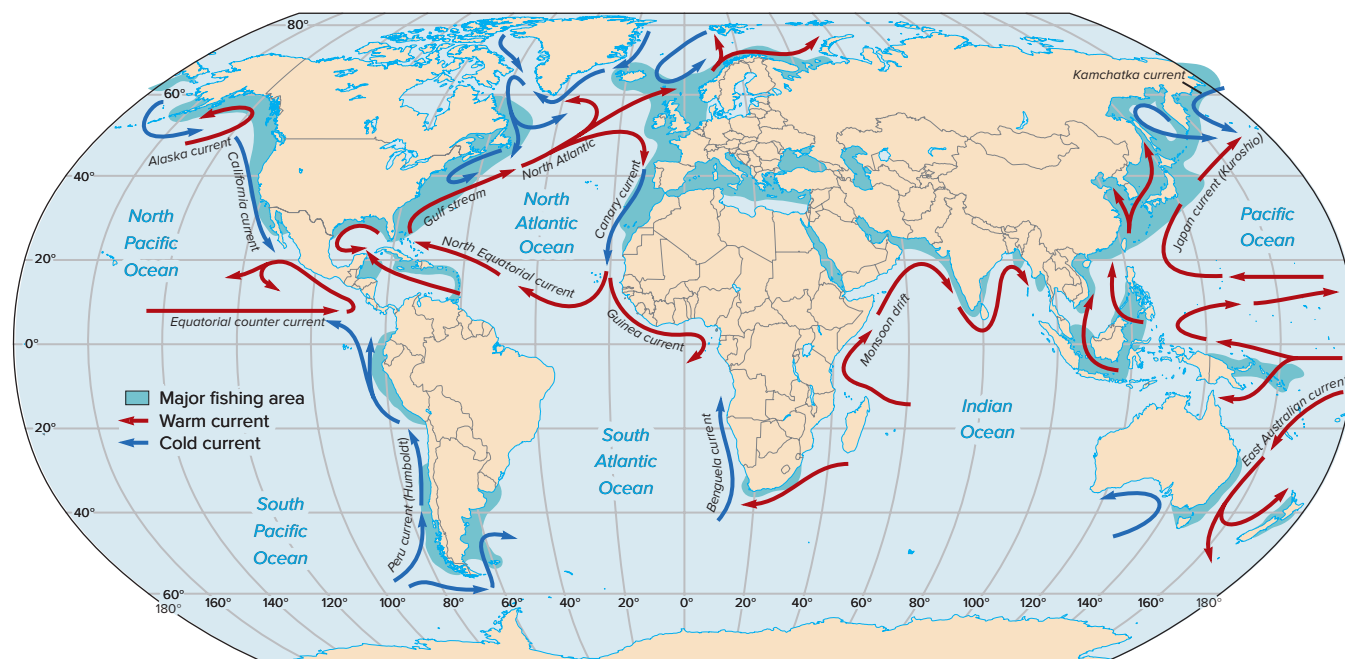
New and revised topics in this book include the following:

- Updated population data and forecasts throughout
- New comparison of the components of projected population change in the developed and developing regions of the world
- Updated information on legal and undocumented immigration into the United States and proposals for construction of a wall along the Mexico border
- New material on China’s and India’s population policies and prospects
- An updated discussion of successful efforts to slow the spread of HIV in sub-Saharan Africa
- New population pyramid graphs for Nigeria, New Zealand, Japan, and East St. Louis, Illinois
- New material on the 2014–2015 Ebola outbreak in West Africa

- Updated data for ethnic groups in the United States from the American Community Survey
- Updated material on refugee movements, immigration policy debates, and independence movements
- A new opening vignette for Chapter 7 on China’s exuberant urban landscapes
- New material on the New Urbanism movement in urban planning
- New discussion of quaternary economic activities
- New material on the use of genetically modified crops in agriculture
- Updated information on the success of the United Nations, Millennium Development Goals (MDGs) and new Sustainable Development Goals (SDGs) for 2030
- A new presentation of Borchert’s transportation epochs
- New material on Mackinder’s heartland theory of geopolitics
- New discussion of the U.K. vote to withdraw from the European Union
- New set of four trend graphs for key indicators of global climate change
- The latest information on global climate change drawn from the 5th Assessment Report issued by the Intergovernmental Panel on Climate Change

## The Art of Human Geography

Most of the world maps use a Robinson projection, which permits some exaggeration of size in the high latitudes in order to improve the shapes of landmasses. Size and shape are most accurate in the temperature and tropical zones. The color palette for the maps was specifically chosen to accommodate most colorblind readers.



## Acknowledgments

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A final note of thanks is reserved for the publisher’s “book team” members separately named on the copyright page. It is a privilege to emphasize here their professional competence, unflagging interest, and always courteous helpfulness:

*Mark D. Bjelland*  
*Daniel R. Montello*  
*Arthur Getis*

# Meet the Authors

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Mark Bjelland received his B.S. and M.S. degrees from the University of Minnesota and University of Washington, respectively. He worked for six years as a consultant on transportation systems in Minneapolis–Saint Paul, water management in Washington State, environmental cleanups on First Nations reservations in British Columbia, Canada, and major urban redevelopments in Vancouver, British Columbia. Intrigued by the geographical questions he encountered in his work, he earned a Ph.D. in geography from the University of Minnesota. He wrote his dissertation comparing deindustrialization, environmental justice, and brownfields redevelopment in the United States and Canada. He is professor of geography at Calvin University, where he has taught for 6 years, after 15 years at Gustavus Adolphus College. He has been a visiting scholar in the geography department at the University of British Columbia, received a Fulbright Foundation German Studies award to study urban planning in post-reunification Germany, and was awarded a U.S.-U.K. Fulbright Scholar Award to spend a year at Cardiff University in Wales researching the redevelopment of derelict industrial land and the creation of eco-communities. He loves to take geography students into the field, and in addition to local field trips to farms, small towns, and cities, he has led field courses to the Pacific Northwest, Hawai'i, and Europe. His research interests include urban and economic geography, environmental justice, urban sustainability, and religious diversity. His interests have been reflected in book chapters and articles published in *The Professional Geographer*, *The Geographical Review*, *The Encyclopedia of Geography*, *Research Journal of the Water Pollution Control Federation*, *Urban Geography*, and elsewhere. He is a co-author of McGraw-Hill's *Introduction to Geography*.

## Daniel R. Montello

Daniel R. Montello received his B.A. degree from the Johns Hopkins University and his M.A. and Ph.D. degrees in environmental psychology from Arizona State University. He was also a postdoctoral fellow at the University of Minnesota and a visiting professor at North Dakota State University. He is currently professor of geography and affiliated professor of psychology at the University of California–Santa Barbara (UCSB), where he has been on the faculty since 1992. Dan teaches graduate and undergraduate courses in human geography, behavioral geography, cognitive science, statistics, research methods, cognitive issues in cartography and GIS, and environmental perception and cognition. His research is in the areas of spatial, environmental, and geographic perception, cognition, affect, and behavior. Specific research topics he and his colleagues have investigated include how people navigate in built and natural environments, how people find and lose their way, how children and adults develop an understanding of space and place (including how they acquire and use distance and direction knowledge), how people perceive and reason with maps and other visualizations, how people express their experience of place and space in language, how individuals and groups of people are similar and different in spatial thinking, how spatial relations interrelate with social relations, how people and information systems conceptualize geographic reality, and how human psychology relates to aspects of Earth science (including climate science and geology). Dan has co-authored or edited six books, including 2006's *An Introduction to Scientific Research Methods in Geography* by SAGE Publications, with Paul C. Sutton, and 2018's *Handbook of Behavioral and Cognitive Geography* by Edward Elgar Publishing. He and his co-authors have also published around 10 articles and book chapters. Dan is currently co-editor of the academic journal *Spatial Cognition and Computation* and sits on the editorial boards of *Environment and Behavior* and the *Journal of Environmental Psychology*. He has served as a reviewer for several funding agencies around the world and more than 50 academic journals in the fields of geography, cartography, geographic information science, psychology, education, cognitive science, computer science, anthropology, communication, economics, and planning. He is a member of the Association of American Geographers, the Psychonomic Society, and the Sigma Xi Scientific Honor Society.

## Arthur Getis

Arthur Getis received his B.S. and M.S. degrees from Pennsylvania State University and his Ph.D. from the University of Washington. He is the co-author of several geography textbooks, as well as two books dealing with map pattern analysis. He has also published widely in the areas of urban geography, spatial analysis, and geographical information systems. He is coeditor of *Journal of Geographical Systems* and for many years served on the editorial boards of *Geographical Analysis* and *Papers in Regional Science*. He has held administrative appointments at Rutgers University, the University of Illinois, and San Diego State University (SDSU) and currently holds the Birch Chair of Geographical Studies at SDSU. In 2002 he received the Association of American Geographers Distinguished Scholarship Award. Professor Getis is a member of many professional organizations and has served as an officer in, among others, the Western Regional Science Association and the University Consortium for Geographic Information Science.

## In Memory Of

**Jerome D. Fellmann (1926–2010)** was the lead author for the first ten editions of this book. He earned his B.S., M.S., and Ph.D. degrees at the University of Chicago and spent over 50 years teaching geography at the University of Illinois at Urbana–Champaign. His research specializations were in urban geography and economic geography, Russia, and geographic education. His contributions to undergraduate education are honored by the annual Fellmann prize, given to top graduating geography and GIS students at the University of Illinois.

**Judith M. Getis (1938–2010)** contributed to the early editions of this book. She did her undergraduate studies at Radcliffe College (Harvard University) and the University of Michigan and completed her M.A. in geography at Michigan State University. She taught cartography at Rutgers University and developed educational materials for Educational Testing Services. She was a co-investigator on the National Science Foundation's original High School Geography Project. In addition to this book, she co-authored *Introduction to Geography; Environments, Peoples, and Inequalities; The United States and Canada; and You Can Make a Difference*.





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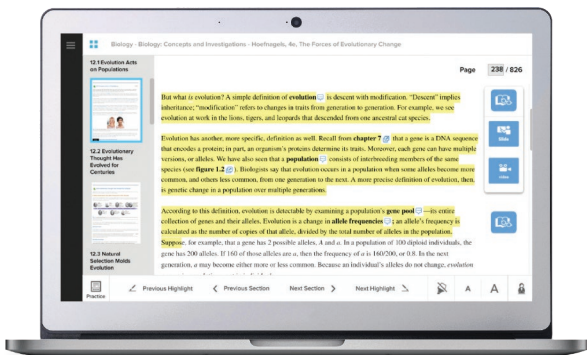
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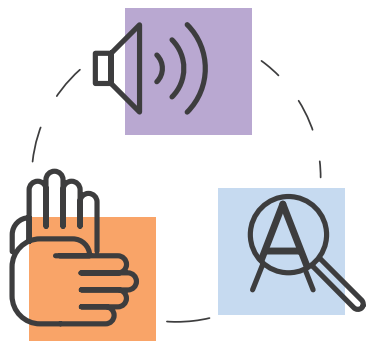
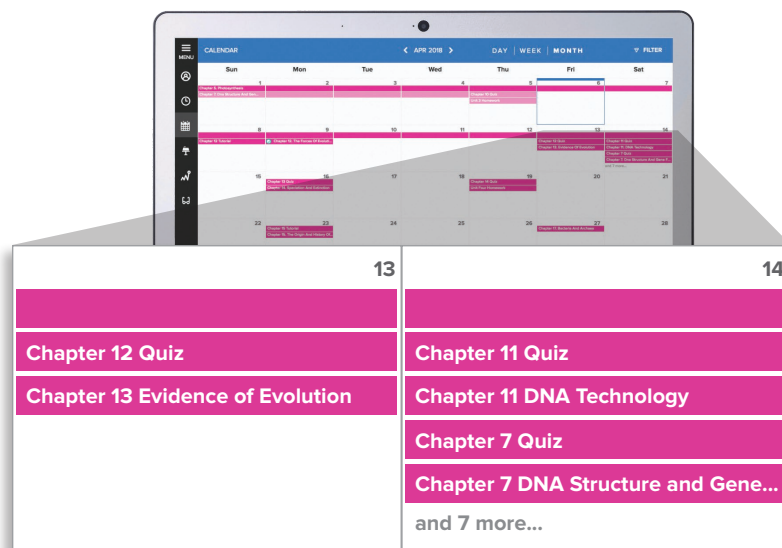
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Eastern Washington University

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# INTRODUCTION:

## Some Background Basics



*The imprint of human activity created by this windfarm dominates this California landscape.*

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### Key Concepts

- 1.1 The nature of geography and the role of human geography
- 1.2 Seven fundamental geographic observations and the basic concepts that underlie them
- 1.3 The regional concept and the characteristics of regions
- 1.4 Why geographers use maps and how maps show spatial information
- 1.5 Other means of visualizing and analyzing spatial data: mental maps, systems, and models

## 1.1 Getting Started

The fundamental question asked by geographers is, “What difference does it make where things are located?” For example, it matters a great deal that languages of a certain kind are spoken in certain places. But knowledge of the location of a specific language group is not of itself particularly significant. Geographic study of a language requires that we try to answer questions about why and how the language shows different characteristics in different locations and how the present distribution of its speakers came about. In the course of our study, we would logically discuss such concepts as migration, acculturation, the diffusion of innovation, the effect of physical barriers on communication, and the relationship of language to other aspects of culture. As geographers, we are interested in how things are interrelated in different regions and give evidence of the existence of “spatial systems.”

### What Is Geography?

Many people associate the word *geography* simply with describing *where* things are and the characteristics of things at particular locations; where are countries such as Myanmar and Uruguay, what are the populations of cities such as Timbuktu or Almaty, or where are large deposits of natural resources such as petroleum or iron ore? Some people pride themselves on knowing which are the longest rivers, the tallest mountains, and the largest deserts. Such factual knowledge about the world has value, permitting us to place current events in their proper spatial setting. When we hear of an earthquake in Turkey or an assault in Timor-Leste, we at least can visualize where they occurred. Knowing *why* they occurred in those places, however, is considerably more important.

Geography is much more than place names and locations. It is the study of spatial variation, of how and why things differ from place to place on the surface of the Earth. It is, further, the study of how observable spatial patterns evolved through time. Just as knowing the names and locations of organs in the human body does not equip one to perform open-heart surgery, and just as memorizing the periodic table does not enable one to formulate new medications, so knowing where things are located geographically is only the first step toward understanding why things are where they are, and what events and processes determine or change their distribution. Why is Chechnya but not Tasmania wracked by insurgency, and why do you find a concentration of French speakers in Quebec but not in other parts of Canada? Why are famines so frequent and severe in East Africa and why, among all the continents, has African food production and distribution failed to keep pace with population growth over the past half century?

In answering questions such as these, geographers focus on the interaction of people and social groups with their environment—planet Earth—and with one another; they seek to understand how and why physical and cultural spatial patterns evolved through time and continue to change. Because geographers study both the physical environment and the human use of that environment, they are sensitive to

the variety of forces affecting a place and to the interactions among them. To explain why Brazilians burn a significant portion of the tropical rain forest each year, for example, geographers draw on their knowledge of the climate and soils of the Amazon Basin; population pressures, landlessness, and the need for more agricultural area in rural Brazil; the country’s foreign debt status; midlatitude markets for lumber, beef, and soy beans; and economic development objectives. Understanding the environmental consequences of the burning requires knowledge of, among other things, the oxygen and carbon balance of the Earth; the contribution of the fires to the greenhouse effect, acid rain, and depletion of the ozone layer; and the relationship among deforestation, soil erosion, and floods. Thus, one might say that geography is the “study of the Earth as the home of humanity.”

Geography, therefore, is about geographic space and its content. We think of and respond to places from the standpoint not only of where they are but, rather more importantly, of what they contain or what we think they contain. Reference to a place or an area usually calls up images about its physical nature or what people do there and often suggests, without conscious thought, how those physical objects and human activities are related. “Colorado,” “mountains,” and “skiing” might be a simple example. The content of area, that is, has both physical and cultural aspects, and geography is always concerned with understanding both (Figure 1.1).

Although space is central to geography, time is important, too. How do places change over time, how do structures and processes change location over time, and how do patterns of interaction change over time? Buffalo, New York, was one of the ten largest cities in the United States around 1900. Its location at the western terminus of the Erie Canal, and then along rail lines for transporting the manufacturing and agricultural products of the Midwest, attracted job seekers and investors. Now it is around the 80th largest city in the United States and continuing to shrink in population (in both absolute terms and relative to fast-growing cities such as Houston and Phoenix). Manufacturing in the United States decreased dramatically at the end of the 20th century, and agricultural products have found other routes to move. In other words, geography is about both static and dynamic aspects of space and place.

### Evolution of the Discipline

The fundamental inspiration for geographical thought probably originated with the recognition of *areal differentiation*—that one place is different than another. Climate varies, plants vary, people vary. This insight surely occurred in prehistoric times. Early developments in the study of geography took place in ancient Egypt, China, Mesopotamia, the Arab world, Greece, and Rome. This early work was motivated by practical problems in astronomy, land surveying and agriculture, trade, and military activity. From the beginning, geographic thought was characterized by three scholarly traditions: a literary tradition, including travel logs written about foreign places; a cartographic tradition, in which places were mapped; and a mathematical tradition, which involved measuring and calculating spatial and nonspatial information about places. Although their relative importance to



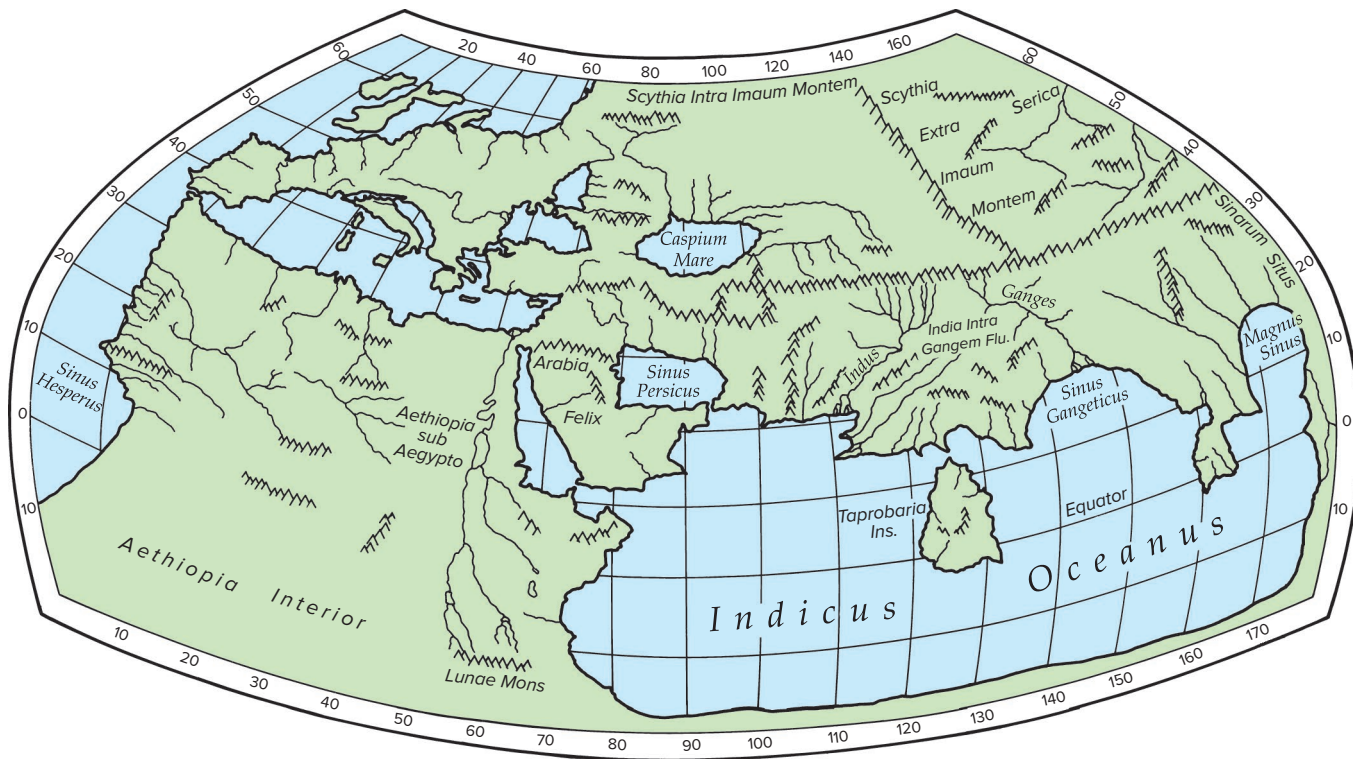
**Figure 1.1** The ski development at Whistler Mountain, British Columbia, Canada, site of 2010 Winter Olympic events, clearly shows the interaction of physical environment and human activity. Climate and terrain have made specialized human use attractive and possible. Human exploitation has placed a cultural landscape on the natural environment, thereby altering it.

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geographic scholarship has varied over time, all three traditions are still active parts of the study of geography.

Geography, the “mother of sciences,” initiated in antiquity lines of inquiry that led to the development of separate disciplines such as anthropology, demography, geology, ecology, and economics. Geography’s combination of interests was apparent even in the work of the early Greek geographers who first gave structure to the discipline. Geography’s name was coined by the Greek scientist Eratosthenes more than 2,200 years ago from the words *geo*, “the Earth,” and *graphein*, “to write.” From the beginning, that writing focused both on the physical structure of the Earth and on the nature and activities of the people who inhabited the different lands of the known world. To Strabo (*ca.* 64 BCE–CE 20), the task of geography was to, “describe the several parts of the inhabited world . . . to write the assessment of the countries of the world [and] to treat the differences between countries.” Even earlier, Herodotus (*ca.* 484–425 BCE) had found it necessary to devote much of his book to the lands, peoples, economies, and customs of the various parts of the Persian Empire as necessary background to an understanding of the causes and course of the Persian wars.

Greek (and, later, Roman) geographers measured the Earth, devised the global grid of parallels and meridians (marking latitudes and longitudes—see Section 1.4), and drew upon that grid surprisingly sophisticated maps of their known world (Figure 1.2). They explored the apparent latitudinal variations in climate and described in numerous works the familiar Mediterranean basin and the more remote, partly rumored lands of northern Europe, Asia, and equatorial Africa. Employing nearly modern concepts, they described river systems, explored causes of erosion and patterns of deposition, cited the dangers of deforestation, described areal variations in the natural landscape, and noted the consequences of environmental abuse. Against that physical backdrop, they focused their attention on what humans did in home and distant areas—how they lived; what their distinctive similarities and differences were in language, religion, and custom; and how they used, altered, and perhaps destroyed the lands they inhabited. Strabo, indeed, cautioned against the assumption that the nature and actions of humans were determined solely by the physical environment they inhabited. He observed that humans were active elements in a human–environmental partnership.



**Figure 1.2** World map of the 2nd-century CE by Greco–Egyptian geographer–astronomer Ptolemy. Ptolemy (Claudius Ptolemaeus) adopted a previously developed map grid of latitude and longitude based on the division of the circle into 360°, permitting a precise mathematical location for every recorded place. Unfortunately, errors of assumption and measurement rendered both the map and its accompanying six-volume gazetteer inaccurate. Ptolemy’s map, accepted in Europe as authoritative for nearly 1,500 years, was published in many variants in the 15th and 16th centuries. The version shown here summarizes the extent and content of the original. Its underestimation of the Earth’s size convinced Columbus that a short westward voyage would carry him to Asia.

These are enduring and universal interests. The ancient Chinese, for example, were as involved in geography as an explanatory viewpoint as were Westerners, though there was no exchange between them. Further, as Christian Europe entered its Middle Ages between CE 500 and 1400 and lost its knowledge of Greek and Roman geographical work, Muslim scholars—who retained that knowledge—undertook to describe and analyze their known world in its physical, cultural, and regional variation (see the feature “Roger’s Book”).

Modern geography had its origins in the surge of scholarly inquiry that, beginning in the 17th century, gave rise to many of the traditional academic disciplines we know today. In its European rebirth, geography from the outset was recognized—as it always had been—as a broadly based integrative study. Patterns and processes of the physical landscape were early interests, as was concern with humans as part of the Earth’s variation from place to place. The rapid development of geology, botany, zoology, and other natural sciences by the end of the 18th century strengthened regional geographic investigation and increased scholarly and popular awareness of the intricate interconnections of items in space and between places. By that same time, accurate determination of latitude and longitude and scientific mapping of the Earth made assignment of place information more reliable and comprehensive.

During the 19th century, national censuses, trade statistics, and ethnographic studies gave firmer foundation to human geographic investigation. By the end of the 19th century, geography had become a distinctive and respected discipline in universities throughout

Europe and in other regions of the world where European academic examples were followed. The proliferation of professional geographers and geography programs resulted in the development of a whole series of increasingly specialized disciplinary subdivisions.

## Geography and Human Geography

Geography’s specialized subfields are not entirely distinct but are interrelated. Geography in all its subdivisions is characterized by three dominating interests. The first is in the areal variation of physical and human phenomena on the surface of the Earth. Geography examines relationships between human societies and the natural environments that they occupy and modify. The second is a focus on the spatial systems<sup>1</sup> that link physical phenomena and human activities in one area of the Earth with other areas. Together, these interests lead to a third enduring theme, that of regional analysis: geography studies human-environment—*ecological*—relationships and spatial systems in specific locational settings. This areal orientation pursued by some geographers is called **regional geography**. Similar to many of the articles in *National Geographic Magazine*, regional geography typically focuses on a comprehensive understanding of physical and human characteristics of particular regions. For some, the regions of interest may be large: Southeast Asia or Latin America, for

<sup>1</sup>A *system* is simply a group of elements organized in a way that every element is to some degree directly or indirectly interdependent with every other element. For geographers, the systems of interest are those that distinguish or characterize different regions or areas of the Earth.

# Roger's Book

The Arab geographer Idrisi, or Edrisi (*ca.* CE 1099–1154), a descendant of the Prophet Mohammed, was directed by Roger II, the Christian king of Sicily in whose court he served, to collect all known geographical information and assemble it in a truly accurate representation of the world. An academy of geographers and other scholars was gathered to assist Idrisi in the project. Books and maps of classical and Islamic origins were consulted, mariners and travelers interviewed, and scientific expeditions dispatched to foreign lands to observe and record. Data collection took 15 years before the final world map was fabricated on a silver disc some 200 centimeters (80 inches) in diameter and weighing more than

135 kilograms (300 pounds). Lost to looters in 1160, the map is survived by “Roger’s Book,” containing the information amassed by Idrisi’s academy and including a world map, 71 part maps, and 70 sectional itinerary maps.

Idrisi’s “inhabited earth” is divided into the seven “climates” of Greek geographers, beginning at the equator and stretching northward to the limit at which, it was supposed, the Earth was too cold to be inhabited. Each climate was then subdivided by perpendicular lines into 11 equal parts beginning with the west coast of Africa and ending with the east coast of Asia. Each of the resulting 77 square compartments was then discussed in sequence in “Roger’s Book.”

Though Idrisi worked in one of the most prestigious courts of Europe, there is little evidence that his work had any impact on European geographic thought. He was strongly influenced by Ptolemy’s work and misconceptions and shared the then common Muslim fear of the unknown western ocean. Yet Idrisi’s clear understanding of such scientific truths as the roundness of the Earth, his grasp of the scholarly writings of his Greek and Muslim predecessors, and the faithful recording of information on little-known portions of Europe, the Near East, and North Africa set his work far above the mediocre standards of contemporary Christian geography.

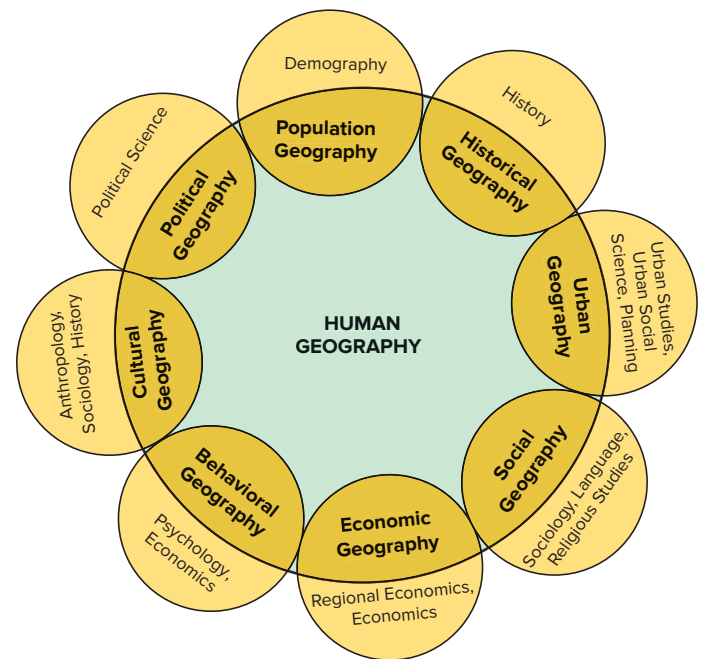
example; others may focus on smaller areas differently defined, such as Alpine France or the Corn Belt in the United States.

Other geographers choose to identify particular classes of things, rather than segments of the Earth’s surface, for specialized study. These **systematic geographers** may focus their attention on one or a few related aspects of the physical environment or of human populations and societies. In each case, the topic selected for study is examined in its interrelationships with other spatial systems and areal patterns. **Physical geographers** practice systematic geography by directing their attention to the natural environmental side of the human-environment structure. Their concerns are with landforms and their distribution, with atmospheric conditions and climatic patterns, with soils or vegetation associations, and the like. The other systematic branch of geography—and the subject of this book—is **human geography**.

## Human Geography

Human geography deals with the world as it is and with the world as it might be made to be. Its emphasis is on people: where they are, what they are like, how they interact over space, and what kinds of landscapes of human use they erect on the natural landscapes they occupy. It encompasses all those interests and topics of geography that are not directly concerned with the physical environment or, like cartography, are concerned with geographic techniques that apply to all domains of geography. Its content provides integration for all of the social sciences, for it gives to those sciences the necessary spatial and systems viewpoint that they might otherwise lack. For example, economists are often concerned with trends and patterns over time but do not fully appreciate that many of their interests concern patterns over space, too. Similarly, psychologists have long been interested in mind

and behavior but have often failed to recognize the spatial context of this mind and behavior. At the same time, human geography draws on other social sciences in the analyses identified with its subfields, such as *behavioral*, *political*, *economic*, and *social geography* (Figure 1.3). As Figure 1.3 suggests, human



**Figure 1.3** Some of the subdivisions of human geography and the allied fields to which they are related. Geography retains its ties to them and shares their insights and data, reinforcing its role as an essential synthesizer of data, concepts, and models that have integrative regional and spatial implications.



geographers also carry out work in areas traditionally recognized as part of the humanities, including history, philosophy, languages, and literature.

Human geography admirably serves the objectives of a liberal education. It helps us to understand the world we occupy and to appreciate the circumstances affecting peoples and countries other than our own. It clarifies the contrasts and similarities in societies and cultures and in the human landscapes they have created in different regions of the Earth. Its models and explanations of how things are interrelated in particular places and regions give us a clearer understanding of

the economic, social, and political systems within which we live and operate. Its analyses of those spatial systems make us more aware of the realities and prospects of our own society in an increasingly connected and competitive world. Our study of human geography, therefore, can help make us better-informed citizens, more able to understand the important issues facing our communities and our countries and better prepared to contribute to their solutions. Importantly, it can also help open the way to wonderfully rewarding and diverse careers as professional geographers (see the feature “Careers in Geography”).



## background basics

### 1.2 Core Geographic Concepts

The topics included in human geography are diverse, but that very diversity emphasizes the reality that all geographers—whatever their particular topical or regional specialties—are united by the similar questions they ask and the common set of basic concepts they employ to consider their answers. Of either a physical or cultural phenomenon they will inquire: What is it? Where is it? How did it come to be what and where it is? Where is it in relation to other things that affect it or are affected by it? How is it changing? How is it part of a functioning whole? How do people affect it? How does its location affect people’s lives and the content of the area in which it is found? These and similar questions are rooted in geography’s central concern with **space** and **place** and in the special meanings geographers attach to those terms.

For geographers, *space* implies areal extent and may be understood in both an absolute and a relative sense. *Absolute space* is about fixed coordinate systems, like latitude and longitude, and measurement units, like miles or kilometers. Such absolute space remains the same in all contexts. In contrast, *relative space* is comparative and varies with context. As such, it is more flexible in recognizing that different ways of “measuring” space are more relevant for particular domains of human activity. For instance, different cultures think of space differently depending on their livelihood and travel habits. Economically, spaces vary depending on how much money it costs to get from one place to another. In other cases, relative spaces are mental or subjective, as when a route seems longer because a person thinks that it goes through a dangerous area. In all these examples, relative space measures space in terms other than those of a fixed physical layout.

For human geographers, *place* is the companion concept to *space*. In common understanding, *place* is a synonym for *location*. In human geography, however, *place* refers to the attributes and meanings we associate with a location. Our home town and neighborhood, the university we attend or the high school from which we graduated, a favorite downtown shopping area, and the like are all examples. Clearly, our *sense of place*—the impressions, feelings, and attitudes we have regarding specific locations and their complex of attributes—is unique to each of us, though we often share some aspects of our sense of place with other members of our culture or subculture. And clearly, too, we

can even have a well-developed sense of place about locations we may never have personally experienced: Rome or Mecca or Jerusalem, for example, or—closer to home—Mount Rushmore or the Washington Mall. Of course, our sense of place may largely reflect a **place stereotype** rather than reality.

Our individual or group sense of place and attachments can, of course, set us off from others. Our home neighborhood that we find familiar and view favorably may equally be seen as alien and, perhaps, dangerous by others. The attributes and culture of places shape the lives and outlooks of those who inhabit them in ways basic to the socioeconomic patterning of the world. The viewpoints, normative behavior, religious and cultural beliefs, and ways of life absorbed and expressed by a middle-class, suburban American are undoubtedly vastly different from the understandings, cultural convictions, and life expectations of, for example, a young, unemployed male resident of Baghdad or the slums of Cairo. The implicit, ingrained, place-induced differences between the two help us understand one reason for the resistance to the globalization of Western social and economic values by those of different cultural backgrounds and place identification.

The sense of place is reinforced by recognized local and regional distinctiveness. It may be diminished or lost and replaced by a feeling of **placelessness** as the uniformity of brand-name fast-food outlets, national retail store chains, uniform shopping malls, repetitive highway billboards, and the like spread nationally and even internationally, reducing or eliminating the uniqueness of formerly separated locales and cultures. We’ll examine some aspects of the sense of place and placelessness as we look at folk and popular cultures in Chapter 7.

Geographers use the word *spatial* as an essential modifier in framing their questions and forming their concepts. Geography, they say, is a *spatial science*. It is concerned with *spatial behavior* of people, with the *spatial relationships* that are observed between places on the Earth’s surface, and with the *spatial processes* that create or maintain those behaviors and relationships. The word *spatial* comes, of course, from *space*, and to geographers, it always carries the idea of the way items are distributed, the way movements occur, and the way processes operate over the whole or a part of the surface of the Earth. The geographer’s space, then, is Earth space, the surface area occupied or available to be occupied by humans. Spatial phenomena have locations on that surface, and spatial interactions

occur among places, things, and people within the Earth area available to them. The need to understand those relationships, interactions, and processes helps frame the questions that geographers ask.

Additionally, those questions have their starting point in basic observations about the location and nature of places and about how places are similar to or different from one another. Such observations, though simply stated, are profoundly important to our comprehension of the world we occupy.

- Places have location, direction, and distance with respect to other places.
- A place has size; it may be large or small. Scale is important.
- A place offers both a physical setting and a social setting.
- The attributes of places develop and change over time.
- Places are connected to other places.
- The content of places is structured and explainable.
- Places may be generalized into regions of similarities and differences.

These are basic notions understandable to everyone. They also are the means by which geographers express fundamental observations about the Earth spaces they examine and put those observations into a common framework of reference. Each of the concepts is worth further discussion, for they are not quite as simple as they at first seem.

## Geographic Features

Of course, space and (especially) place are not empty. **Geographic features** include natural features such as mountains, rivers, forests, oceans, and atmospheric fronts. They also include cultural features such as buildings, roads, cornfields, cities, and countries. Although all geographic features, like all material entities of any kind, are in reality three-dimensional, we often think of them or depict them on a map as if their dimensionality were less. So zero-dimensional features are thought of as points; an example might be a water well or a mountain peak. One-dimensional features are like lines, whether curved or straight; an example might be a river or a highway. Two-dimensional features are like areas or polygons; an example might be a forest or a neighborhood. Finally, some features are best thought of as being fully three-dimensional or volumetric. An oil deposit and a cloud are examples of this. It is important to recognize that the most appropriate way to think about a feature's dimensionality can depend greatly on the scale with which you examine it. A city may be a point when looking at a map of an entire country, but it becomes much more like an area when you zoom in to it.

Our discussion of feature dimensionality suggests something else about the way we conceptualize geographic features. They are typically thought of as being like discrete objects or like continuous fields. **Objects** are discrete entities that we think of as having sharp boundaries and being separated by space that may be conceived of as empty. Features like mountain peaks or roads are objects. **Fields** are continuously varying surfaces on the Earth that we think of as completely covering the space of the landscape they occupy without overlapping other fields. Features like average precipitation and landform elevations are fields. The distinction between objects and fields is admittedly abstract, and

there are features like water bodies that can readily be thought of in either way, or as a combination of the two. Human population is another intriguing example. At one scale, people are discrete objects; but at another scale, we can treat populations as a density field that may be said to have a nonzero value anywhere that is inhabited. However, it usually seems to make more sense to treat features and properties as more like objects or more like fields, even if we accept that this is sometimes imperfect. And if the distinction seems esoteric, we discuss below how it is quite important for the practical issue of how best to represent and model the world in computerized geographic information systems.

## Location, Direction, and Distance

*Location, direction, and distance* are everyday ways of assessing the space around us and identifying our position in relation to other items and places of interest. They are also essential in understanding the processes of spatial interaction that figure so importantly in the study of human geography.

### Location

The location of places and objects is the starting point of all geographic study, as well as all our personal movements and spatial actions in everyday life. We think of and refer to location in at least two different senses, *absolute* and *relative*.

**Absolute location** is the identification of place by some precise and accepted system of coordinates; it therefore is sometimes called *mathematical location*. We have several such accepted systems of pinpointing positions. One of them is the global grid of parallels and meridians (discussed later, beginning in Section 1.4). With it, the absolute location of any point on the Earth can be accurately described by reference to its degrees, minutes, and seconds of **latitude** and **longitude** (Figure 1.4).



**Figure 1.4** The latitude and longitude of Hong Kong is 22° 15' N, 114° 10' E (read as 22 degrees, 15 minutes north; 114 degrees, 10 minutes east). The circumference of the Earth measures 360 degrees; each degree contains 60 minutes, and each minute has 60 seconds of latitude or longitude. What are the coordinates of Hanoi?

# Careers in Geography

The study of geography is an essential part of a liberal arts education and helps students become better citizens as they come to understand local, national, and global issues.

Can it, as well, be a pathway to employment for those who wish to specialize in the discipline? The answer is “Yes,” in a number of different types of jobs. One broad cluster is concerned with supporting the field itself through teaching and research. Teaching opportunities exist at all levels, from elementary to university postgraduate. Teachers with some training in geography are increasingly in demand in elementary and high schools throughout the United States, reflecting geography’s inclusion as a core subject in the federally adopted *Educate America Act* (Public Law 103-227) and the national determination to create a geographically literate society. At the college level, specialized teaching and research in all branches of geography have long been established, and geographically trained scholars are prominently associated with urban, global, community, and environmental studies, regional science, locational economics, and other interdisciplinary programs.

Because of the breadth and diversity of the field, training in geography involves the acquisition of techniques and approaches applicable to a wide variety of jobs outside the academic world. Modern geography is both a physical and social science, as well as part of the humanities, and fosters a wealth of technical skills. The employment possibilities it presents

are as many and varied as are the agencies and enterprises dealing with the natural environment and human activities, and with the acquisition and analysis of spatial data.

Many professional geographers work in government, either at the state or local level, or in a variety of federal agencies and international organizations. Although many positions do not carry a geography title, physical geographers serve as water, mineral, and other natural resource analysts; weather and climate experts; soil scientists; and the like. An area of recent high demand is for environmental managers and technicians. Geographers who have specialized in environmental studies find jobs in both public and private agencies. Their work may include assessing the environmental impact of proposed development projects on such things as air and water quality and endangered species, as well as preparing the environmental impact statements required before construction can begin.

Human geographers work in many different roles in the public sector. Jobs include data acquisition and analysis in health care, transportation, population studies, economic development, and international economics. Many geography graduates find positions as planners in local and state governmental agencies concerned with housing and community development, park and recreation planning, and urban and regional planning. They map and analyze land-use plans and transportation systems, monitor urban land development, make

informed recommendations about the location of public facilities, and engage in basic research.

Most of these same specializations are also found in the private sector. Geographic training is ideal for such tasks as business planning and market analysis; factory, store, and shopping-center site selection; community and economic development programs for banks, public utilities, and railroads; and similar applications. Publishers of maps, atlases, news and travel magazines, and the like employ geographers as writers, editors, and mapmakers.

The combination of a traditional, broadly based liberal arts perspective with the technical skills required in geographic research and analysis gives geography graduates a competitive edge in the labor market. These field-based skills include familiarity with geographic information systems (GISs), cartography and computer mapping, remote sensing and photogrammetry, and competence in data analysis and problem solving. In particular, students with expertise in GIS, who are knowledgeable about data sources, hardware, and software, are finding that they have ready access to employment opportunities. The following table, based on the booklet “Careers in Geography,”\* summarizes some of the professional opportunities open to students who have specialized in one (or more) of the various subfields of geography. Also, be sure to read the informative discussions under the “Careers in Geography” option on the home page of the Association of American Geographers at [www.aag.org/](http://www.aag.org/).

## Geographic Field of Concentration

## Employment Opportunities

Geographic technology	Cartographer for federal government (agencies such as Defense Mapping Agency, U.S. Geological Survey, or Environmental Protection Agency) or private sector (e.g., Environmental Systems Research Institute, ERDAS, Intergraph, or Bentley Systems); map librarian; GIS specialist for planners, land developers, real estate agencies, utility companies, local government; remote-sensing analyst; surveyor
Physical geography	Weather forecaster; outdoor guide; coastal zone manager; hydrologist; soil conservation/agricultural extension agent
Environmental geography	Environmental manager; forestry technician; park ranger; hazardous waste planner
Cultural geography	Community developer; Peace Corps volunteer; map librarian
Economic geography	Site selection analyst for business and industry; market researcher; traffic/route delivery manager; real estate agent/broker/appraiser; economic development researcher
Urban and regional planning	Urban and community planner; transportation planner; housing, park, and recreation planner; health services planner
Regional geography	Area specialist for federal government; international business representative; travel agent; travel writer
Geographic education or general geography	Elementary/secondary school teacher; college professor; overseas teacher

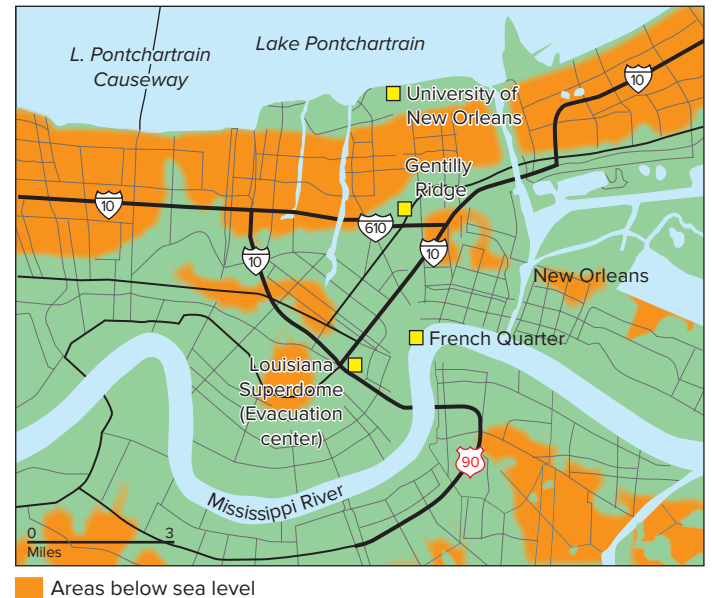
\*“Careers in Geography,” by Richard G. Boehm. Washington, DC: National Geographic Society, 1996. Previously published by Peterson’s Guides, Inc.



**Figure 1.5** The reality of *relative location* on the globe may be strikingly different from the impressions we form from maps with conventional projections like the Mercator. The position of Russia with respect to North America when viewed from a polar perspective emphasizes a closer relative location than many people realize.

Other coordinate systems are also in use. Survey systems such as the township, range, and section description of property in much of the United States give mathematical locations on a regional level, while street address precisely defines a building according to the reference system of an individual town. For convenience or special purposes, locational grid references may be superimposed on the basic global grid. The Universal Transverse Mercator (UTM) system, for example, based on a set of 60 longitude zones, is widely used in geographic information system (GIS) applications and, with different notations, as a military grid reference system. Absolute location is unique to each described place, is independent of any other characteristic or observation about that place, and has obvious value in the legal or scientific description of places, in measuring the distance separating places, or in finding directions between places on the Earth's surface.

When geographers—or real estate agents—remark that “location matters,” their reference is usually not to absolute but to **relative location**—the position of a place in relation to that of other places or activities (**Figure 1.5**). Relative location expresses spatial interconnection and interdependence and may carry social (neighborhood character) and economic (assessed valuations of vacant land) implications. On an immediate and personal level, we think of the location of the school library not in terms of its street address or room number but where it is relative to our classrooms, or the cafeteria, or some other reference point. On the larger scene, relative location tells us that people, things, and places exist not in a spatial vacuum but in a world of physical and cultural characteristics that differ from place to place.



**Figure 1.6** The *site* of New Orleans is hardly ideal for building a city. The city was built by the French on the most suitable high ground they could find near the mouth of the Mississippi River. The site extends north from the “high ground” along the Mississippi River to former swamp and marshland near Lake Pontchartrain. Much of the city and its suburbs are located below sea level on sinking soils composed of soft sediments deposited by past river floods.

New York City, for example, may in absolute terms be described as located at (approximately) latitude  $40^{\circ} 439' N$  and longitude  $73^{\circ} 589' W$ . We have a better understanding of the *meaning* of its location, however, when reference is made to its spatial relationships: to the continental interior through the Hudson–Mohawk lowland corridor or to its position on the eastern seaboard of the United States. Within the city, we gain understanding of the locational significance of Central Park or the Lower East Side not solely by reference to the street addresses or city blocks they occupy, but by their spatial and functional relationships to the total land use, activity, and population patterns of New York City.

In view of these different ways of looking at location, geographers make a distinction between the *site* and the *situation* of a place. **Site** refers to the physical and cultural characteristics and attributes of the place itself. It is more than mathematical location, for it tells us something about the internal features of that place. The site of New Orleans, for example, extends from the natural levee on the Mississippi River to Lake Pontchartrain, much of which lies below sea level (**Figure 1.6**). **Situation**, on the other hand, refers to the external relations of a locale. It is an expression of relative location with particular reference to items of significance to the place in question. The situation of New Orleans might be described as being as close as possible to the mouth of the Mississippi River, which drains 41 percent of the land area of the continental United States, taking in much of the area from the Appalachian Mountains to the Rocky Mountains. Waterways on the Upper Mississippi, Missouri, Arkansas–Red–White, Ohio, and Tennessee River systems drain through the Lower Mississippi, connecting New Orleans to many of the country's important agricultural and manufacturing regions