

Includes a trial copy of ArcView GIS Version 3 software with data, tutorial, and demos.

Getting to Know *ArcView*® GIS

the geographic information
system (GIS) for everyone™



Discover
the world of
desktop
mapping
and GIS

Learn what GIS is and how it works
See ArcView GIS software in action
Use ArcView GIS software

Pat Breslin/Nick Frunzi/Eileen Napoleon/Tim Ormsby

Contents

Preface and acknowledgments *page ix*
Introduction *page xiii*

Part 1 Getting to know desktop GIS

Chapter 1 Desktop GIS: What it is and what it does 1-1

Maps: who needs them? 1-2
The diversity of mapping systems 1-4
Desktop GIS puts it all together 1-6
What people are doing with desktop GIS 1-8
What you can do with desktop GIS 1-21

Chapter 2 This is how it works 2-1

What you see on a map 2-2
Map features have distinct shapes 2-4
Symbols identify or characterize map features 2-6
Map scale determines the size and shape of features 2-8
What's different about desktop GIS 2-9
How desktop GIS manages features and attributes 2-15
Collections of themes form a GIS database 2-16

Chapter 3 Asking questions; getting answers 3-1

Finding attributes by selecting features 3-2
Finding features by selecting attributes 3-5
Performing operations on selected features and their attributes 3-7
It's the relationships that matter 3-8
You provide the questions; desktop GIS provides the answers 3-18

Chapter 4 Making information presentable 4-1

- Knowing your audience 4-3
- Knowing what information to present 4-4
- Organizing and displaying information 4-11
- Using charts, tables, and other graphics 4-17
- The dazzling presentation 4-18
- The most flexible mapping system 4-22

Chapter 5 What you need to know about data 5-1

- Understanding geographic data 5-2
- Referencing spatial data 5-5
- What to evaluate in data 5-6
- Where in the world can you get data? 5-11
- Creating your own data 5-12
- Ready, set, go... 5-15

Chapter 6 Using desktop GIS 6-1

- Finding the right place 6-2
- Getting started with ArcView GIS 6-4
- Performing the analysis 6-9
- Presenting the results 6-18
- The outcome 6-19
- Desktop GIS and you 6-19

Part 2 Using ArcView GIS

Section 1 ArcView GIS basics

Chapter 7 Introducing ArcView GIS 7-1

- How ArcView GIS is organized 7-3
- Exploring ArcView GIS 7-4
- Extensions to ArcView GIS 7-20
- Getting help 7-21

Chapter 8 Getting data into ArcView GIS 8-1

Understanding data sources 8-2

Adding themes to a view 8-3

Understanding theme tables 8-15

Chapter 9 Classifying and displaying themes 9-1

Classifying features based on their attributes 9-2

Creating different legends 9-11

Using different classifications 9-17

Chapter 10 Symbolizing themes 10-1

Using markers and graduated symbols 10-2

Using pens, fills, and colors 10-11

Using labels and graphics 10-16

Section 2 Working with spatial data

Chapter 11 Measuring distance and area in a view 11-1

Measuring distance 11-3

Measuring area 11-9

Setting a map projection 11-14

Working with data that's already projected 11-24

Chapter 12 Managing scale 12-1

Changing the scale of a view 12-2

Setting scale thresholds for themes 12-10

Section 3 Querying data

Chapter 13 Selecting map features in a view 13-1

Getting information about features 13-2

Selecting features based on their attributes 13-9

Hiding features 13-18

Chapter 14 Selecting records in a table 14-1

Selecting records 14-3

Summarizing records in a table 14-8

Merging features 14-13

Section 4 Managing tabular data

Chapter 15 Displaying and editing tables 15-1

Changing the table display 15-2

Editing values and adding fields 15-8

Summarizing a table 15-16

Chapter 16 Joining, linking, and hot linking 16-1

Joining tables 16-3

Linking tables 16-10

Creating hot links 16-16

Section 5 Analyzing spatial relationships

Chapter 17 Finding the features nearby 17-1

Finding points near lines 17-2

Finding points near other points 17-6

Finding adjacent features 17-12

Chapter 18 Finding the features within 18-1

Finding points within polygons 18-2

Finding polygons within polygons 18-7

Chapter 19 Finding features that intersect other features 19-1

Finding lines that intersect other lines 19-2

Finding polygons that intersect other polygons 19-7

Chapter 20 Spatially joining tables 20-1

Joining attributes based on containment 20-3

Joining attributes based on proximity 20-8

Section 6 Presenting information

Chapter 21 Working with charts 21-1

Creating charts 21-2

Modifying charts 21-6

Querying and editing charts 21-13

Chapter 22 Creating map layouts 22-1

Making a basic map layout 22-2

Adding charts and tables 22-13

Adding the finishing touches and printing 22-16

Section 7 Creating your own data

Chapter 23 Creating shapefiles 23-1

Creating shapes from features 23-3

Drawing polygon shapes 23-9

Drawing point and line shapes 23-16

Chapter 24 Editing shapes in a theme 24-1

Editing vertices 24-2

Merging and splitting shapes 24-14

Chapter 25 Creating themes from coordinate files 25-1

Adding event themes 25-2

Chapter 26 Address geocoding 26-1

Making a theme matchable 26-3

Matching a list of addresses 26-8

Handling unmatched addresses 26-14

Section 8 What's next?

Chapter 27 Introducing Avenue 27-1

- How Avenue and ArcView GIS work together 27-3
- Creating the custom application 27-3
- Writing Avenue scripts 27-5
- Customizing the ArcView GIS interface 27-7
- Testing the new interface 27-14

Chapter 28 What's new in ArcView GIS Version 3.1 28-1

- Data display 28-2
- Distance buffers 28-7
- Shape editing 28-8
- Geoprocessing 28-10
- Layouts 28-15
- Reports 28-18
- Dialog Designer 28-21
- Other enhancements 28-22

Chapter 29 Introducing ArcView GIS extensions 29-1

- ArcView Network Analyst 29-2
- ArcView Spatial Analyst 29-11
- ArcView 3D Analyst 29-23
- Other extensions 29-33
- Online training at campus.esri.com 29-34

Appendix A Getting to know ESRI A-1

Appendix B Data providers B-1

Appendix C License agreement C-1

Appendix D How to use the CD-ROM D-1

Glossary G-1

Index I-1