

8. Nominal Level



Data produced by assigning observations into unranked categories are said to be **nominal** level measurements. Nominal categories can be differentiated and grouped into categories, but cannot logically be ranked from high to low (unless they are associated with preferences or other exogenous value systems). For example, one can classify the land cover at a certain location as woods, scrub, orchard, vineyard, or mangrove. One cannot say, however, that a location classified as "woods" is twice as vegetated as another location classified "scrub." The phenomenon "vegetation" is a set of categories, not range of numerical values, and the categories are not ranked. That is, "woods" is in no way greater than "mangrove," unless the measurement is supplemented by a preference or priority.

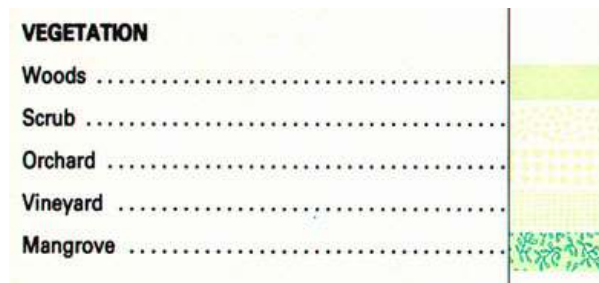


Figure 3.9.1 Attribute data measured at the nominal level: Selected vegetation categories depicted on USGS topographic maps.

Credit: Steger, 1986

Although census data originate as counts, much of what is counted is individuals' membership in nominal categories. Race, ethnicity, marital status, mode of transportation to work (car, bus, subway, railroad...), type of heating fuel (gas, fuel oil, coal, electricity...), all are measured as numbers of observations assigned to unranked categories. For example, the map below in Figure 3.9.2, which appears in the Census Bureau's first atlas of the 2000 census, highlights the minority groups with the largest percentage of population in each U.S. state. Colors were chosen to differentiate the groups, but not to imply any quantitative ordering.

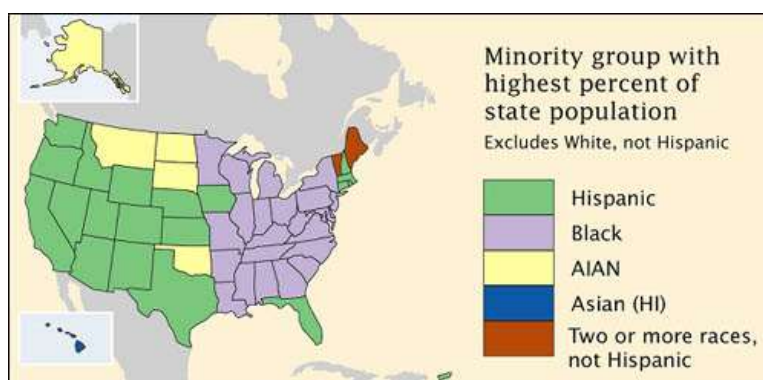


Figure 3.9.2 Minority groups with highest percent population for each state

The Nature of Geographic Information

Chapters

- ▶ [Chapter 1: Data and Information](#)
- ▶ [Chapter 2: Scales and Transformations](#)
- ▼ [Chapter 3: Census Data and Thematic Maps](#)
 - 1. Overview
 - 2. Census Attribute Data
 - 3. Enumerations versus Samples
 - 4. American Community Survey
 - 5. International Data
 - 6. Counts, Rates, and Densities
 - 7. Attribute Measurement Scales
 - **8. Nominal Level**
 - 9. Ordinal Level
 - 10. Interval and Ratio Levels
 - 11. Levels and Operations
 - 12. Thematic Mapping
 - 13. Graphic Variables
 - 14. Counts, Rates, and Densities
 - 15. Mapping Counts

- 16. Mapping Rates and Densities
- 17. Data Classification
- 18. Two Classification Schemes
- 19. Calculating Quantile Classes
- 20. Summary
- 21. Bibliography
- ▶ Chapter 4: TIGER, Topology and Geocoding
- ▶ Chapter 5: Land Surveying and GPS
- ▶ Chapter 6: National Spatial Data Infrastructure I
- ▶ Chapter 7: National Spatial Data Infrastructure II
- ▶ Chapter 8: Remotely Sensed Image Data
- ▶ Chapter 9: Integrating Geographic Data

Navigation

- [login](#)
- [Search](#)

Author: David DiBiase, Senior Lecturer, John A. Dutton e-Education Institute, and Director of Education, Industry Solutions, Esri. Instructors and contributors: Jim Sloan, Senior Lecturer, John A. Dutton e-Education Institute; Ryan Baxter, Senior Research Assistant, John A. Dutton e-Education Institute, Beth King, Senior Lecturer, John A. Dutton e-Education Institute and Assistant Program Manager for Online Geospatial Education, and Adrienne Goldsberry, Senior Lecturer, John A. Dutton e-Education Institute; College of Earth and Mineral Sciences, The Pennsylvania State University.

Penn State Professional Masters Degree in GIS: Winner of the 2009 Sloan Consortium award for Most Outstanding Online Program

This courseware module is offered as part of the Repository of Open and Affordable Materials at Penn State.

Except where otherwise noted, content on this site is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.

The College of Earth and Mineral Sciences is committed to making its websites accessible to all users, and welcomes comments or suggestions on access improvements. Please send comments or suggestions on accessibility to the site editor. The site editor may also be contacted with questions or comments about this Open Educational Resource.



The John A. Dutton Institute for Teaching and Learning Excellence is the learning design unit of the College of Earth and Mineral Sciences at The Pennsylvania State University.

Navigation

- [Home](#)
- [News](#)
- [About](#)
- [Contact Us](#)
- [People](#)
- [Resources](#)
- [Services](#)
- [Login](#)

EMS

- [College of Earth and Mineral Sciences](#)
- [Department of Energy and Mineral Engineering](#)
- [Department of Geography](#)
- [Department of Geosciences](#)
- [Department of Materials Science and Engineering](#)
- [Department of Meteorology and Atmospheric Science](#)
- [Earth and Environmental Systems Institute](#)
- [Earth and Mineral Sciences Energy Institute](#)

Programs

- [Online Geospatial Education Programs](#)
- [iMPS in Renewable Energy and Sustainability Policy Program Office](#)
- [BA in Energy and Sustainability Policy Program Office](#)

Related Links

- [Penn State Digital Learning Cooperative](#)
- [Penn State World Campus](#)
- [Web Learning @ Penn State](#)



2217 Earth and Engineering Sciences Building, University Park, Pennsylvania, 16802
[Contact Us](#)

[Privacy & Legal Statements](#) | [Copyright Information](#)
The Pennsylvania State University ©
2023