GEOG205: Midterm sample questions 2021

Exam runs Wed 24 February in class time 11.30 - 13.00 *

Multiple Choice

One degree of LATITUDE anywhere on the globe = (approx):

- a. 1 km
- b. 11 km
- c. 55 km
- d. 69 km
- e. 111 km

A possible map critique



Figure-ground and Cartography (map design)

Any image (e.g. art, map etc..) consists of a foreground figure and formless background



Escher: Day and Night

1. Figure - ground relationships



Figure-ground and map design

An image consists of a *foreground* figure and *formless* background

..best illustrated through reversible figure-ground examples





http://en.wikipedia.org/wiki/Figure-ground

'Enclosure'

My favourite example





Familiarity, context v closure, pattern



Figure-Ground and Rules of Visualisation

a.Convexity, b. Area, c. Similarity (pattern), d. Enclosure Also: Continuity, Proximity, Texture, Meaning (context)

What does all this have to do with map design ?

What does all this have to do with map design ? Good design involves:

Clear figure-ground -> no ambiguity



Figure-Ground and land-water

Figure-ground relationship



State of the Map conference, 14 July 2007





2. Figure ground - visual hierarchy

graphics – including maps need clear figure-ground and visual levels

Visual levels make map data layers clear



Figure 11.17 All elements in map A lie generally in the same visual plane. In map B the land has been made to appear above the water, and the more prominent boundaries have been made to rise above the visual plane of the land. Lines of the graticule on the water only would also tend to make the land appear above the water level.

Maps and visual levels: tones and size



Darker / bigger stands higher = more important

https://www.wwu.edu/huxley/spatial/tut/what_all_maps_must_have.htm

9. VISUAL HIERARCHY: a hierarchy of symbology should be used for the lettering, line weights and shading. More important features are typically larger and/or darker, less important/background information should be smaller and/or lighter. At the same time, do not "over weight" or "under weight" features.

India demands Pakistan release pilot of downed plane as Kashmir crisis intensifies







(No title) – included within the article Location of shooting – Quebec, January 29 2017 (The Guardian newspaper)

List the errors...

1. Lettering

- Typography and positioning

2. No contrast between 'layers'

3. No Figure-ground – no visual levels





Local interest map:

The plane crash and death of **Prince George**, 1942 (the Queen's uncle)

The route of the S-25 Sunderland Mk III on 25th August, 1942

The plane crashed on a hillside due to inability of seaplanes to climb Good design involves:

Clear figure-ground -> no ambiguity

Visual hierarchy of layers and elements:

- 1.Contrast between map layers
- 2. Map features visually dominant over ancillary info
- 3. Thematic layers over base layers
- 4. Important features dominant (based on map purpose)

Contrast between thematic and base layers for visual levels



FIGURE 11.31 (A) Insufficient contrast in type size, lightness and size of thematic symbols (circles), line width, and difference between the mapped area and the background. (B) Sufficient contrast in all respects.



Visual levels

- ➢Water (blue) recedes
- ➢Roads (red) advance
- ➢Green points are solid
- ➢Gray recedes

The Home Buying Map 2018 How Much You Need to Earn Annually to Buy a Home



how much ***

Article & Sources

https://tevens.ch.res/acticles/buy-home-50-lacged-metro-areas https://www.hat.com







COMPILED BY SHANE DODDRIDGE AT TNG - CONTACT FOR MORE DETAILED MAPS AND INFORMATION AT 250-392-3918

Summary use of visual variables Higher visual levels / = Figure

✓ More shape / texture

✓ Bigger size

✓ Darker tone / values

✓ Saturated chroma

✓ Hue – colour spectrum
Blue-> Red

https://blogs.esri.com/esri/arcgis/2011/02/15/graphic-design-principles-for-mapping-figure-ground-organization/

3. Figure-Ground and 'Gestalt' Psychology

Gestalt: "The whole is greater than the sum of the parts"

i.e. Display elements must be considered together – they are affected by each other





http://maps.unomaha.edu/Peterson/Cartadesign/5Hierarchy/index.html

Part of the BC hillshade layer - Goat River



Shaded relief can form an effective ground layer to underlay other elements

Using transparency to show terrain and forest cover



But it modifies polygon colours

Figure-ground: ArcGIS drop shadow

http://blogs.esri.com/esri/arcgis/2011/11/04/figure-ground-drop-shadow





ArcGIS terrain tools 3D choropleth maps



4. Map Layout and overall shape

Graphics: postcards, photos, art, maps, TV screens etc.. have followed the Golden Ratio ~ 1.618 (the Greek letter Phi)

1.618

1



•New monitors and TV screens (16 x 9, 42 x 21) don't follow this rule

The golden ratio is connected to the **Fibonacci numbers** in the sequence 0,1,1,2,3,5,8,13... where each number is the sum of the previous two, and the ratio approaches 1.618

Fibonacci numbers were first mentioned in a thirteenth century puzzle about rabbits.





Map shapes may follow this 'golden rule' but not 100% - rectangles are better than squares

The Golden Ratio and Facial attractiveness



Most people score 40-60%; no one has ever been a perfect 100. First, measure the length and width of the face. Then, divide the length by the width. The ideal result—as defined by the golden ratio—is roughly 1.6, which means a beautiful person's face is about 1 1/2 times longer than it is wide.



George Clooney 92%



