Graphic Design

Session 2

PMAP 8921: Data Visualization with R Andrew Young School of Policy Studies Summer 2025

Plan for today

Truth, beauty, stories, design

Graphic design and CRAP

Contrast

Alignment

Repetition

Proximity

Image types

Truth, beauty, stories, design

Why even care about design?

Why care about design?

Content + form

Art is how we translate core, essential content to different forms for specific audiences.

Stories + content + form

Stories are an art form for translating core, essential content to different forms for specific audiences.

Stories

"A need to tell and hear stories is essential to the species *Homo sapiens*—second in necessity apparently after nourishment and before love and shelter."

—Reynolds Price, from A Palpable God

Beauty, stories, and truth

Truth comes from aesthetic combination of content and form.

Raw facts must be communicated through some form.

Beauty shapes that form.

There are aesthetic principles we can follow to create beauty—and truth.

Graphic design and CRAP

Principles of design

There are thousands of books and centuries of debate and theory about what makes good design.

For this class, the easiest and most memorable distillation of these principles is CRAP.

CRAP

Use these principles as a checklist when creating and critiquing designed objects:

Contrast

Repetition

Alignment

Proximity

Robin Williams's The Non-Designers Design Book Buy this book and your life will change forever.

Contrast

If two items are not exactly the same, make them different. Really different.

Don't be a wimp.

Typographic contrast: Family

Use contrasting type families

Serif + Sans s	serif Script + Serif	Slab + Sans serif	etc.
Serif	Sphinx of black q	uartz, judge my vo	W
Sans serif	Sphinx of black q	uartz, judge my vo	W
Slab serif	Sphinx of black q	uartz, judge my vov	W
Script	Sphinx of black q	uartz, judge my vo	W
Monospaced	Sphinx of black	k quartz, judge	my vow

Typographic constrast: Family

Add contrast in family

Here's a heading

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Here's a heading

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Typographic contrast: Weight

Use contrasting weights in same type family

Bold + Regular	Regular + Extra light	Black + Light	etc.
Extra light	Sphinx of black quar	tz, judge my vo	W
Light	Sphinx of black quartz, judge my vow		
Regular	Sphinx of black quartz, judge my vow		
Semi bold	Sphinx of black quartz, judge my vow		
Bold	Sphinx of black qua	rtz, judge my v	vow
Black	Sphinx of black qua	rtz, judge my v	vow

Typographic constrast: Weight

Add contrast in weight

Here's a heading

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Here's a heading

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Size contrast

Use contrasting sizes



Color contrast

Color theory

color.adobe.com

- Triad
- Triad
- Monochromatic

Monochromatic

- Complementary
- Split complementary

 Split complementary

Color contrast

Extracted colors

Colors extracted from an image at color.adobe.com

Usability and accessibility

Perceptually uniform colors

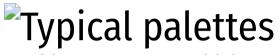
Values close to each other use similar colors, and values far from each other use different colors

Colorblind-safe colors

8% of men & 0.05% of women have some form of color blindness

Colors should be distinguishable by people with common forms of color blindness

Perceptually uniform colors



Traditional palettes vs. viridis



Traditional palettes vs. viridis as seen with deuteranopia

Perceptually uniform colors

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Downloading: 16 kB
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Repetition

Repeat some aspect of the design throughout the entire piece.

Things to repeat

Colors

Fonts

Families, weights, sizes

Graphical elements

Alignments

Alignment

Every item should have a visual connection with something else on the page.

Alignment





Alignment + repetition

Share lines and repeat alignments where possible.

Bad alignment

4 horizontal alignments; 3 vertical alignments

Good alignment

1 shared horizontal alignment; 2 vertical alignments

Alignment + contrast

Center + left is super common, but has weak contrast

Mixing left and right alignment provides stronger contrast

Chapter 1

Here's a title

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Chapter 1

Here's a title

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Proximity

Group related items together.

Proximity

Use white space, color, location, contrast, repetition, alignment, etc. to make visually distinct groupings



Bad proximity; no logical groupings



Good proximity; information visually grouped

CRAP review

Contrast

Contrast

Repetition

Repetition

Alignment

Alignment

Proximity

Proximity

Image types

Image types

Bitmaps

Example bitmap image

JPEG: Photographs

PNG/GIF: Images with limited colors

Vectors

Example vector image

PDF (or EPS):
Anything vector based

SVG: Vectors online

PNG • 130 KB

Standard PNG

PNG • 130 KB • Zoomed

Standard PNG zoomed

JPG • 75% quality • 161 KB

75% JPG

JPG • 75% quality • 161 KB • Zoomed

75% JPG zoomed

JPG • 10% quality • 88 KB

10% JPG zoomed

JPG • 10 % quality • 88 KB • Zoomed

10% JPG zoomed

*xkcd compression comic

In defense of the JPG



RAW
No compression • 27.1 MB

JPG 75% quality • 3.2 MB

JPG 10% quality • 654 KB

> PNG 32.9 MB 🚱

Use the right file type

Atlanta

Photographs

Web

JPG

Print

JPG

Health wealth

Graphs & logos

Web

PNG or SVG

Print

PDF

What programs do I use?

Photos/bitmaps

Adobe Photoshop

Adobe Photoshop





Vectors

Adobe Illustrator

Adobe Illustrator





Documents

Adobe InDesign

Adobe InDesign



