What's Wrong w/ Rainbow?

Map Hue (spectral) → ORDER

Not PERCEPTUAL
Not OBVIOUSLY ORDERED
Not LIGHTNESS ORDERED - often lightness is ISO except in middle

Confusing
Obscuring (lack of luma means no way to see detail)
Misleading (lightness in center of scale

Nominal - color separability (around wheel in perceptual space)
nameable colors *** (not in article)

Ordinal - ordered, but not metric - or only showing relative

Color + Lightness
not just lighter because not absolute

On surfaces - needs to be ISO-luminant (luma for shading/shape)

Interval / RA710 - contrast effects make absolute perception hard
PONTOON

Intensity (meas. power)
Luminance (Brightness - perceived)
  radiant power * spectral sensitivity (approx. brightness)
Lightness - linearized luminance
  (so \( \frac{1}{2} L^* \) means half as bright perceptually)

COLOR FOR DESIGNERS

Cool vs. Warm
Vibrant vs. Calming
"Orange is associated with health and vitality."
"Orange is less in your face than red."
"Yellow is associated w/ happiness."
- Find progressions of color
  - Ordered scales
    - Sequential
    - Diverging
  Systematic paths through perceptual color spaces
  Hue
  Color for category
  Lightness for ordered difference (value) → How to separate?

Nameable colors

Rainbow spectra = if diverging

2 Variable schemes

Saturation by itself is hard to compare

Assimilation & Contextual effects
Simultaneous Contrast

Perceptual Color Systems
  Spectral Order + Vertical is Lightness
  CIE LAB RG/YB