• **Lead Instructor**
  – Design course: content, research projects, field trips
  – **Past lecture topics**
    • Structure and parts of the eye
    • Pathology: ocular and retinal diseases
    • Clinical vision
    • Careers in vision
  – **Past areas for facilitation:**
    • Eye dissection
    • Trial lens hands-on activity
    • Inquiries in accommodation, image inversion, axial length errors and their correction
    • Measuring aberrations with a wavefront sensor
  – **Past areas for field trips:**
    • UC Berkeley School of Optometry
    • Austin Roorda’s lab vision science lab at UCB
    • Exploratorium
    • Mystery Spot
  – Work with Jason to transition this role

• **2 Project Advisors**
  – Projects in color vision and visual illusions
Engaging students in scientific questions

Trial lens activity

Wavefront sensor activity

Eyeball dissection

UC Berkeley School of Optometry
1. Color Vision Testing and Diagnosis

- Student conducts following tests on fellow students in cluster and specially selected individuals:
  - Hue discrimination test
    - Farnsworth D-15 test
  - Pseudoisochromatic plates
    - AO-HRR plates
    - Ishihara Plates
  - Flicker tests
    - C-100

Mayra Avila conducting AO-HRR test
Color Vision Project

Ishihara Plates

AO-HRR plates
Color Vision Project

C-100 Test

D-15 Test

Binocular Test 1
or OD Test 1
2. Visual Illusions

- Using pre-designed JAVA scripts, 2 students study the influence of different variables in the strength of perceiving the following illusions on fellow students in cluster:
  - Ponzo Illusion
  - Poggendorf Illusion
  - Muller-Lyer Illusion

Jeff Simon testing a fellow student, Ricky Alcarez
Ponzo Illusion

EXPERIMENTAL VARIABLES FOR Angie Vazquez

- Angle: 32.0
- Reference bar position: 72
- Measure bar position: 240
- Orientation of pattern: vertical

Instructions:

- To implement changing the value of an experimental variable:
  - Use mouse and keyboard to enter and highlight variable
  - Press 'RETURN' key
  - Press 'RESET' button to redraw with new value

PCONZO ILLUSION

Use mouse to adjust size of 'measure' bar to appear equal in length to the 'reference' bar
Press 'Show Measure' for results
Press 'Reset' for new measurement
Poggendorf Illusion

To implement changing the value of an experimental variable:
- Use mouse and keyboard to enter and highlight variable.
- Press 'RETURN' key.
- Press 'RESET' button to redraw with new value.

The 'box' may be made to disappear using combinations of 'background' and 'transparent' for bordercolor and fillcolor.

1. Poggendorf Illusion

Use mouse to adjust position of 'test' line so that it appears to align with the 'reference' line.
Press 'Show Measure' for results.
Press 'Reset' for new measurement.
Visual Illusions Project

Muller-Lyer Illusion

EXPERIMENTAL VARIABLES FOR Angle Vazquez's Experiment

Angle: 70.0

- reverse fin #1
- reverse fin #2
- reverse fin #3
- reverse fin #4

To implement changing the value of an experimental variable:

Use mouse and keyboard to enter and highlight variable
Press 'RETURN' key
Press 'RESET' button to redraw with new value

The 'fins' or 'central line' may be made to disappear using 'background' for 'Color of fins' or 'Color of central line'

Show Measure  Reset

MEASURED VALUES:

MULLER-LYER ILLUSION

Use mouse to adjust top/bottom positions of 'test' line
so that it appears to align with the 'reference' line
Press 'Show Measure' for results
Press 'Reset' for new measurement
• Data analysis (Excel)

Beckie Aguirre with TA’s Hilary and Maribel

Leo Do with TA Gabe

• Prepare PowerPoint presentations
• Practice talks with students
S³ 2004 - Vision Science Projects

- Present projects to our cluster and another COSMOS cluster

Angie Vasquez - Visual Illusions  
Cynthia Mendoza - Color Blindness