Art 455 Holography Laboratory Procedure
One-Step Rainbow Hologram

1. **Preparation**
   (a) Get key out of locker.
   (b) Hang key inside door knob (or put back in locker).
   (c) Turn on safelight in lab and 2 safelights in darkroom.
   (d) Turn on laser and unlock your locker.
   (e) Prepare Wet Lab
      Place marked trays in this order L to R: developer, stop bath, photoflo.
      Get EDTA tray for bleach out of the sink and place it next to the sink.
      Pour chemicals into marked trays.
   (f) Clean glass part of film holder in wet lab.

2. **Creating** Imagery
   (a) If ground glass screen is in place, remove it from the base and carefully place it on table.
   (b) Create your set up by puting your objects in the object beam.
   (c) Remember you shoot horizontal but display vertical
   (d) Shooting with different colors (red, green, blue)
      Choose first color by moving large flat mirror to appropriate position
        (90 degrees is Red, 81 degrees is Yellow/Green, 73.5 degrees is Blue)
      Adjust line source from cylindrical rod/lens so it is centered on the large flat mirror
      Adjust large flat mirror so line source is centered on film holder
      Tighten all screws and fine tune placement of beam with screws on mirrors
   (e) Place ground glass screen back in its holder and tighten
   (f) Check that you have 2 beams and your objects do not block either beam.
      Place a white card in the film holder.
      Block the object beam and observe the reference beam on the card.
      Block the reference beam and observe the patterns of your set-up on the card.
      Adjust objects into a unique composition of light and shadow pattern.
      Try to visualize your composition in the colors of diffraction grating light.
   (g) Place 2 black cards behind screen to block peripheral light

3. **Exposing** the Film
   (a) Shutter the laser, turn off any lights in wet lab, workbench, classroom and shut both wet lab doors.
   (b) Find emulsion (sticky) side of film. Emulsion faces laser light in film holder. Load film between the two 5 x 7 glass sheets and place into holder.
   (c) Let film settle about 5 clock minutes.
   (d) Expose for __ seconds. (Determined in class.)

4. **Multi-Mask Exposure** Times
   (a) For masks that expose different parts of film each time: Each exposure is at __ seconds (Determined in class.) Repeat for each mask.
   (b) For masks that expose same part of film each time: Divide total exposure time by number of shots or colors you plan. Example: 3 colors at 40 seconds total time = 13 seconds for each mask or shot.
   (c) Let film settle about 5 clock minutes before each shot.
   (d) You may flip the film between shots to achieve psuedoscopic imagery. Example: emulsion is placed away from light for the first shot and gets flipped for 2nd shot so emulsion faces light.

5. **Developing** the Film
   (a) Carefully remove glass from film holder **with fingers on both sides of glass**. Open glass and remove your film without touching the exposed area.
   (b) Develop for 3 minutes with continuous agitation turning film over once.
   (c) Move film into Stop Bath solution for 2 minutes.
   (d) Rinse in water for 1 minute (You can now turn on main lights.)
   (e) Move film into Bleach. Bleach until film is clear.
   (f) Rinse for 5 minutes.
   (g) Place film in Photo-Flo (to remove water spots) for 30 seconds if you want and hang film to dry.
   (h) Clean workbench putting away anything you used.