

Psychology of Visual Art

The two texts are **Art and Visual Perception** by Rudolf Arnheim and **The Psychology of Perspective and Renaissance Art** by Michael Kubovy.

Week	Lecture	Reading
March 30	Space and Size	K 1-51
April 6	Space and Size	K 52-104
April 13	Space and Size	K 105-149
April 20	Shape and Form	A 42-95
April 27	Shape and Form	A 96-161
May 4	Color and Material Appearance	A 303-371
May 11	Color and Material Appearance	A 372-443
May 18	Op-art	A 1-41, 441-461
May 25	Physiognomic qualities and abstract art	
June 1	Physiognomic qualities and abstract art	

The lectures will refer to material in texts but will not be closely tied to them. Chapters 1-8 in Kubovy and Chapters V, II, and III in Arnheim should be read before the midterm. Chapters VI-X and I in Arnheim should be read before the final. There will be weekly homeworks based on the previous week's lectures and reading.

An essay midterm and final will be given. The final is cumulative with the material after the midterm more heavily weighted.

My office is in 331 Straub. My office hours are Monday, Wednesday, and Friday from 10:45-11:45 and by appointment.

Midterm Study Questions

1. Define horizon line, vanishing point, station point, distance point, one-point perspective, and two-point perspective.
2. Distinguish between a perspective and an orthographic projection. Explain how a perspective projection can be constructed from a plan and a side elevation.
3. Show how the station point can be determined from the vanishing points for orthogonal and 45° lines in a scene.
4. What cues can an artist use to produce the perception of depth in a picture? Describe the cues that lead a viewer to see a picture as a flat surface.
5. Explain why a picture viewed with one eye through a peephole acquires a vivid realistic appearance of depth.
6. What are the algorithms used by the visual system for determining the shapes of objects in a real scene and in a pictorial scene?
7. Describe and explain the illusory perception of Pozzo's ceiling when viewed from the correct station point and from an incorrect station point.
8. Define false perspective. Why does the folded card illusion that I showed in class appear to move with head movements?
9. Explain why the shapes of objects in a picture should be seen to distort if the picture is viewed from an incorrect station point and the pictorial shapes are treated as 3D shapes in real space.
10. What is the explanation offered in class why the shapes of objects in a picture are not seen to distort when viewed from different directions? What is Kubovy's explanation?
11. Describe the Rosinski and Farber experiment. What did they find?
12. Explain why correct perspective drawings of spherical and cylindrical shapes oblique to the picture plane are seen distorted. What are the distortions? How would an artist produce correct perceptions? Theoretically justify the modifications an artist makes.
13. What is the maximum size of the attentive visual field? How did Sanders' estimate the size of the visual field of an immobile eye?
14. Explain why the converging lines in a correct perspective drawing of vertical parallel lines are perceived to lean inward. How would an artist produce a correct perception?
15. Why does the road turn when one looks at the Rosseau painting from different directions?

16. Why does a picture of a picture taken from an oblique angle look wrong from all viewing angles?
17. What are Perkins' laws for interpreting fork and arrow junctions? What are the mathematical conditions for which they hold?
18. Describe the Shepard and Smith experiment? What did they find?
19. What is anamorphic painting? Why does it work?
20. How does the presumption to see a right angle create pictorial depth? What are the theoretical significance of the illusory perceptions of the tribar figure and of a continuously ascending staircase?
21. How does overlap create the perception of pictorial depth?
22. What factors determine figure-ground? How does figure-ground create the perception of pictorial depth?
23. What is Arnheim's "abacus" model (Figure 190)? What is the principle of simplicity and how was Arnheim's view that it is the overriding factor in the perception of pictorial space criticized in class?
24. What aspects of a perspective projection are necessary for a realistic appearance, e.g., convergence of parallel lines to a single vanishing point, projection from a single station point, line direction, relative size, etc.?
25. According to Arnheim, de Chirico achieves a "dreamlike unreality" by combining inconsistent projection elements. Explain.
26. According to Arnheim, what is the Egyptian style of painting?
27. What is the split view method of representation?
28. What is the size-distance invariance hypothesis? How does it explain size constancy in a real scene?
29. What is the basis of size constancy in a pictorial scene?
30. How should perceived distance in pictorial space change with observation distance according to the hypothesis that in pictorial space perceived size is used to compute perceived distance.
31. Explain why a correct perspective drawing of a boy lying down with his foot close to the picture plane is seen distorted. What are the distortions of the leg and foot and how would an artist produce a correct perception?
32. What factors determine the size scale in a picture?

33. What phenomena indicates that a viewer can simultaneously adopt different size scales? Why is this important for picture perception?
34. What does Arnheim mean by leveling and sharpening, and by a structural skeleton?
35. What principles of grouping facilitate distinguishing between the woman and the background in Picasso's *Seated Woman*.
36. According to Arnheim, what is the basis for the lifelike and dynamic qualities in Ingres's *La Source*.

Study Questions

The final will be based on the Study Questions below (approximately 70%) and the Midterm Study Questions (approximately 30 %).

1. How is the perception of a shape dependent on (a) contours, (b) figure ground, (c) grouping, and (d) schemata?
2. Describe and explain how figure-ground depends on shape convexity and symmetry? Name three additional factors that affect figure-ground.
3. Define and give examples of the Gestalt laws of similarity, proximity, and good continuation.
4. What did Hochberg and Brooks find concerning the recognition of outline pictures? What are the distinctive features for recognizing an outline drawing?
5. A picture cannot duplicate the range of intensities in a real scene. Explain how an artist can accurately reproduce the lightnesses in a scene.
6. What is the problem in portraying a luminous object in a painting? How can an artist produce the realistic portrayal of a luminous lamp at night?
7. What is the significance of the folded card demonstration described in Arnheim, p. 313?
8. Lightness constancy for shadows and highlights in photographs is much less than in a real scene? How can lightness constancy for shadows and highlights in photographs be increased?
9. Lightness constancy in photographs due to the perception of transparency is excellent. Why?
10. The perceptual system is not able to adopt a separate lightness scale for a pictorial scene with the same facility that it adopts a separate size scale. Explain this statement and indicate why it is so.
11. Explain the difference between additive and subtractive color mixture. Define complementary colors.
12. Describe the finding of Berlin and Kay concerning color names.
13. What is Arnheim's theory of warm and cold colors?
14. How did the impressionist painters produce the perception of "insubstantiality"?
15. Define distinctive features. What are the distinctive features for perceiving an object as glossy?
16. Give examples and explain how opartists have produced fluctuating images using (a) fluctuations of accommodation (b) brightness aftereffects, (c) lateral inhibition, (d) on-off cells (e) Gestalt laws

of grouping, and (f) alternative interpretations of stimulus gradients.

17. Describe Brunswik's experiment with schematic faces. What did he find?

18. Describe Sheldon's study of body types and temperament. How can his findings be used to convey personality characteristics in a portrait?

19. What are the distinctive features for conveying vigor, energy, and intelligence in a portrait?

20. According to Arnheim, how is the "serenity and vigor" in the portrait of Madam Cezanne achieved?

21. According to Arnheim, how is the feeling of movement in the painting of St. Jerome by El Greco is conveyed?

22. How can abstract artists use the expressive qualities of lines to convey emotional meanings? Describe the "takete and uloomu" demonstration?

23. The drawing of a galloping horse with outstretched legs has been shown to be wrong by high speed photography. Why is it pictorially effective in evoking a sense of movement?

24. According to Arnheim, what factors affect balance in a picture?

25. According to Arnheim, how does obliqueness function to produce "dynamics" in a picture?