



## HSS370: Vision, Brain and Art

### 🕒 Class Time

MTWTh 14:00 – 17:00

### 📍 Location

To be announced

### 📖 Credit

3

### 👤 Instructor

Professor Jeounghoon Kim, Ph.D. ([miru\(at\)kaist.ac.kr](mailto:miru(at)kaist.ac.kr))  
 Website: KLMS  
 Office Hours: MW 16:30 – 17:30, N4 #1327  
 Assistant: Minseo Kim, [artmin@kaist.ac.kr](mailto:artmin@kaist.ac.kr)

### 📖 Required Materials

Textbook: Margaret Livingstone, *Vision and Art: The Biology of Seeing* (New York: Harry N. Abrams, 2014)

Readings:

- George Mather (2014), *The Psychology of Visual Art: Eye, Brain and Art* (Cambridge: Cambridge University Press).
- Robert L. Solso (2003), *The Psychology of Art and the Evolution of the Conscious Brain* (Cambridge: The MIT Press).
- H. W. Jansos and Anthony F. Janson, *History of Art: The Western Tradition*, 7<sup>th</sup> rev. ed. (Upper Saddle River, NJ: Prentice Hall, 2007).

## Course Summary

### ★ Course Description

The relationship between vision, brain science and art would be remote and vague at a first glance. However, when we give a thought about a definition of the function of both the brain and art, “to represent the constant and essential features of objects, and thus allow us to acquire knowledge about the world (Zeki, 1999),” it manifests the surprising connection of them. Our brain does not accept the external world as given. As the world is ever-changing, seeing objects from different angles, distances, and in different light conditions always result in different percepts. Without a constant mechanism, however, we would have been so susceptible to this vulnerable vision and lost our survival value a long time ago. Visual brain thus discounts all natural variations and has interests in the constant, enduring, and invariable properties of objects in the world. This active processing eventually guarantees acquiring the knowledge about the essential characteristics of the world.

Just as the visual brain does, art has a similar purpose, seeking out a way to represent the natural world as reliable as possible through various media. Throughout history, artists have struggled to transfer the 3-D reality into the 2-D picture plane, convey the movement into the static form of sculpture, and register the organic form of life into inorganic material substances. In summary, brain and art share a common task: to extract information about the constant and essential aspects of the visual world.

This lecture will offer an interdisciplinary approach to the principles of brain functioning and its process of visual information as manifested in art works of various cultures. A comparative study of artistic representation in different principles will illustrate the human processing of visual events and the nature of sensory systems. This lecture will provide an integrated understanding of cognitive process of perception and the comprehension of art beyond intuitive and often uninformed appreciation of its aesthetic values.

## ★ Schedule (tentative):

Period	Topics	Contents
Week 1	Function of the Brain and Art Form in Vision and Art	<ul style="list-style-type: none"> <li>• Introduction to Vision Science</li> <li>• Physiological Basis of Vision:</li> <li>• Evolution of Impressionism: A Case of Claude Monet</li> <li>• Faces</li> </ul>
Week 2	Color Processing Gallery Walk	<ul style="list-style-type: none"> <li>• Theories of Color</li> <li>• Retinex Theory</li> <li>• Color Mixing and Resolution</li> <li>• Georges Seurat and Neo-Impressionism</li> <li>• Gallery Walk</li> </ul>
Week 3	From 3-D to 2-D	<ul style="list-style-type: none"> <li>• Pictorial cues (perspective &amp; shading)</li> <li>• Stereopsis</li> </ul> <p>Linear Perspective and the Renaissance Masters</p> <ul style="list-style-type: none"> <li>• Breakdown of Linear Perspective: Cubism and Conceptualized vision</li> </ul>
Week 4	Kinetic Art Constancy and Illusion Visual Aesthetics	<ul style="list-style-type: none"> <li>• Visual Motion</li> <li>• Capturing the Movement: From Futurism to Op Art</li> </ul> <p>All about Perceptual Illusion</p> <ul style="list-style-type: none"> <li>• Visual Aesthetics</li> <li>• Application of Human Information Processing</li> </ul>

### Course Evaluation

The course grade is based upon:

- Attendance (10%): Missing more than 4 days will automatically lead to an F.
- One exam (60%): Exam will cover materials from lectures and the book. Exam will consist of short essays and one or two longer essays.
- Group-based project report (30%): Project topic will be announced.