UCSD Sixth College: Culture, Art & Technology Program

Freshman Seminar: CAT 87 - Fa19

Brains & Buildings: Experiencing Space

SYLLABUS

INSTRUCTORS: **Prof.** Eduardo Macagno
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                                Office hours: by appointment

                                TBD (architect)

CLASS MEETINGS: Pepper Canyon Hall 280
                                Thursday, 2 – 3:50 pm

COURSE DESCRIPTION:

This seminar will explore the interaction between mind, brain and building. Architects typically design buildings based on tradition and intuition. However, a greater degree of understanding of the neural and cognitive responses to features of built environments promises a new perspective from which buildings might be designed to enhance human physiology and function within built spaces.

We plan to meet 6 times during the 2019 Fall Quarter, for ~2 hours each time. Our aim is to present some ideas from the point of view of the architect, and comment on them from the vantage point of the neuroscientist, and vice versa. Student involvement is a critical component – we will have some simple projects, meet at the Qualcomm Institute a couple of times to learn about wearable devices that measure human physiological or neurological responses and to visit the CAVE Virtual Reality facilities to look at some designs in immersive 3D display. The goal will be to experience and discuss some new approaches to assaying human responses to the built environment.

Some visitors will be invited to provide the architect's perspective on the topics of this seminar.

PREPARATORY READINGS and WEB TALKS:

(Please read/watch by April 19, 2012)

The intersection between neuroscience and architecture

TBD

Neuroscience overview

Brain Facts: A Primer on the Brain and Nervous System. *The Society for Neuroscience*. (Downloads in class website)

ADDITIONAL RECOMMENDED READINGS

Architecture & Neuroscience

John P. Eberhard (2007) Architecture and the Brain, Greenway Communications, Atlanta, GA.

John P. Eberhard (2009) Brain Landscape, Oxford University Press.

Harry Francis Mallgrave (2011) The Architect's Brain, Wiley-Blackwell

Esther M. Sternberg (2009) Healing Spaces, Harvard University Press

John Zeisel (2006) Inquiry by Design, Norton

Schedule of Classes (Tentative)

Class 1   **1.** What is architectural design; the architecture of utility, the architecture of individuality??

   2. What do we want to know about the human brain's perception of form and its response to design?

Class 2   **1.** Sensory processing of stimuli relevant to the built environment; capturing spatial and temporal information and creating motor responses

   2. Project: Build a model that encodes an emotional response

Class 3   **1.** Building for emotion and cognition

   2. Assaying cognitive and emotional responses by monitoring the brain's functional activity patterns

Class 4   **1.** Types of Memory; storage, recall, loss

   2. Training in Sketchup tools for student projects

Class 5   **1.** Presentation and discussion of Design for Feeling Projects built with foam board.

   2. How can we obtain the Evidence for Evidence-Based Design?

Class 6   Presentation and discussion of students' Google Sketchup designs