Images from Lecture Four on Conics, Tilings, Polyhedra, Hyperbolic Geometry, Topology

Math in Art, Summer 2015

Info for Scavenger Hunt

Meeting at Plug In Institute of Contemporary Art at 6:00 p.m.
460 Portage Avenue

Course Summary

Scavenger Hunt
You will wander around downtown and the Exchange district finding examples of Math in Art in the real world (for example: golden rectangles, symmetries, frieze patterns, perspective, conics, polyhedra)

To prepare, take time next week to familiarize yourself with the central concepts of the course. Think about where you might find them in the real world: buildings, signs etc.

Be sure to bring a camera or phone that can take photos – Be sure it is well-charged before coming to class! As long as the photos are clear, the quality is not so important.

You can also bring your textbook and notes to help you during the hunt if you like.

Ending at Ace Art Inc. at 8:00 p.m.
290 McDermot Avenue

Conics

Durer's Notes on Conics: circle, ellipse, parabola, hyperbola

Kepler's Notes on Conics

Antoni Gaudi, *Sagrada Familia*, Barcelona

Antoni Gaudi, *Casa Mila*

Antoni Gaudi, *Casa Bastilla*

L'Oceanographic, Valencia, Spain, Felix Candela

Oscar Niemeyer, *Cathedral of Brasilia*

Gary Petersen, *Squeeze*, 2009

Emma Kunz, String Art

Gabriel Dawe, *Plexus Series*, String Art Installation

Richard Serra Installations

Tilings

Hearst Tower, Manhattan, Norman Foster, 2006

Joana Vasconcelos, *Lirio* 2009

Japanese Square Watermelons

Obayashi House in Tokyo by Architect Tadao Ando and artist Olafur Eliasson

Barry McGee, *Advanced Mature Work*, 2007, installation view

Islamic Tiling, Marrakesh, Morocco

Illustration that Escher used in his lectures to explain the theory of regular division of the plane: *Parallelogram, rectangle, square, triangle, rhombus, hexagon*

Escher, *Day and Night*, 1938

Buckminster Fuller, Montreal Geodesic Dome for Expo 1967

Platonic Solids

Euclid's *Elements*

13 Archimedean Solids

Roman Dodecahedra

Kepler's Platonic Solids

De Divina Proportione and the Platonic Solids

Escher, *Stars*, 1948

Escher, *Double Planetoid*, 1949

Natalie Clark, *Octahedrons*

Ai Weiwei, *Divina Proportione*, 2010

Richard Sweeney, *Icosahedron II*, 2006, Paper and Adhesive

Richard Sweeney, *Tetrahedron*, Paper and Adhesive, 2006.

Richard Sweeney, *Dodecahedron II*, 2006, paper and adhesive

Suzie Smith, *Paper Chain*, 2010-2011, folded and cut paper

Suzie Smith, *Folded Hands*, 2010-2011, folded and cut paper

Susy Oliveira, *Polyhedric Photography*

Erwin Wurm, *Untitled*, 2008

Atomium, Andre Waterkeyn, 1958

Casa da Musica, Porto, Portugal, Rem Koolhaas, 2005

Seattle Central Library, Rem Koolhaas, 2004

China Central Television Headquarters, Beijing, Rem Koolhaas, 2012

Chris Bosse, *Digital Origami*, 2007, origami installation

Chris Bosse, *Watercube Beijing*, 2003

Euclidean Geometry

The Fifth Postulate: Lobachevsky, Gauss & Bolyai

Poincare Model

M. C. Escher, *Circle Limit III,* 1960

M. C. Escher, *Circle Limit IV*, 1960

Thomas Burke, *Shining Pretty Hard*, 2011, Acrylic on canvas

Thomas Burke, *Jam*, 2011, Acrylic on canvas

Daina Taimina, Hyperbolic Crochet

Topology

Escher's *Mobius Strip II*, 1963
https://www.youtube.com/watch?v=Eb-Fi8GI6PE

Klein Bottle
http://www.youtube.com/watch?v=E8rifKlq5hc

Projective Plane
http://www.youtube.com/watch?v=nrc7kcpO3y0

Brent Collins, *Two-Sided Surface with Cruciform Pattern*, 1991, wood

Pedro Reyes, *Capula Klein Bottle*, 2007

Mobius Strip, *Astana Library*, BIG Architects

UNStudio, *Mobius House*, Netherlands

Additional Resources

Harry Abrams' *World of M. C. Escher*

Linda Henderson's *The Fourth Dimension and New-Euclidean Geometry in Art*