Math&Art
Spring 2011

ASSIGNMENT LIST

Assignments: (due 2/1)
Read:

Heart: pp. xi-xiv, Ch. 1 (pp. 3-49)
Schneider: fm pp. xiii-xxxii and 1 (see handout)

Puzzly problems in Ch. 1: Pick two problems among 1.4.1-20 (pp. 33-41); write solutions and be prepared to present them in class—ONLY class presentations count. You can use the hints that come after the problems. You don't need full answers, but you need to tackle the issues. Long problems are not necessarily harder. I expect every problem to be covered somewhere in the class, so don't stop your consideration at the first few. DUE February 1.

Write: 1-page summary of two Art&Physics (book) reviews (one pro, one con); these are someone else's reviews, *NOT yours!* You MUST include bibliographical references. ONE of the reviews must NOT be online.
OFFICE INTERVIEWS BY 2/25

Assignment: (due 2/3)
Write:

Personal perspective on Art/Science, two pages REALLY—that takes three sheets (or at least sides) of paper. Let me explain: this is YOUR view, not Shlain's, not about Shlain's. If you think you need a bibliography, then you are writing the wrong thing!

Assignments: (due 2/8)
Read: Heart 4.5 (pp. 297-313)
Problems: 4.5.5, 12, 16 (pp. 314-315)
Write:

Three decent paragraphs on the de Turck antifractions article, with some concrete examples—this is YOUR view, not the numerous blog entries you can find.
Begin journal, like before now!

HomeLab #1: HomeLab:

A. perspective explorations,
B. the perspective controversy

All lab and field trip reports will be given to Serena for scoring.

Explore: Heart software (in HomeLabs and software folder): under 4. Geometric Gems, work on Platonic Solids and Duals, and Slicing Solids with a Plane

Assignments: (due 2/15)
Read: Heart 4.6 (pp. 318-329)
Problems: 4.6.1, 4, 5, 22 (use hexgrid handout), 23, 24, 26 (pp. 330-334)
Do: Shape of Space Games
http://www.geometrygames.org/TorusGames/index.html
or get it from the course servers; list your games played (at least two).
HomeLab #2: Platonic Solids, etc.
Don't forget to dive into Schneider. Extra credit for making diagrams he suggests (they can be put in your journal).

Assignments: (due 2/22)
Study the Greek alphabet (quiz soon)
Shape of mystery spaces: build models and solve the mysteries—in small groups; due 2/22.
Read: Heart 5.1 (pp. 359-370)
Problems: 5.1.2, 4, 7 (TRY HARD!), 9, 11, 19, 20, 22, 24, 25 (pp. 371-374; plus: try 12* with a friend) (NOTE: * means "Extra Credit.")
Schneider is now weekly! 1, 2 down, and 3 coming up.

Assignment: (due 2/24)
HomeLab #3: Shape of Space Games, Solids, Edgy, and Life

Assignments: (due 3/1)
Read: Heart 5.2 (pp. 378-385)
Problems: 5.2.13,14,18,19,39 (try it on a bagel or donut!) (pp. 386-390). Due 3/1
Study for exam on 3/3
Greek quiz on March 8 or March 10.

Assignments: (due 3/8)
Read: Heart 5.4 (pp. 410-418), and Heart 2.3, from blue banner on p. 88 plus pp. 89-91
Problems: 5.4.11, 21, 29 (Toblerone Triangle), 30, 31* (pp. 420-423) (due 3/8)
Research: What is the shape of space? That is, find the latest reports on what geometry our universe might likely have (flat?, curved?, torus?, ??). Write one page on this with URLs. [Hint: search for "WMAP survey", "shape of the universe", "shape of the cosmos"].
HomeLab #4: Pete's Office Tour

Assignments: (due 3/10)
Read: Heart 4.7 (pp. 337–350)
Problems: 4.7.6, 7, 8, 9, 10; READ 17, 20 (pp. 351–355)

Assignments: (due 3/22)
Read: Heart 5.5 (pp. 426-435). You will see familiar friends (e.g., the Borromeans). We have two knot-theorists on board at USF!

Problems: 5.5.11, 12, 13, 16, 35; you might like to try 6, but that is your handshake.
Prove irrationality of the square root of 2 for someone else during fall break.

Assignments: (due 3/24)
Read: Heart 6.1 (pp. 458-464
Problems: 6.1.7, 8
Journal checkup today!
HomeLab #5: 4D Visualizations

Assignments: (due 3/29)
Read: Heart 6.5 (pp. 532–537 only), 6.4 (pp. 507–525)
Problems: 6.4.6, 29-30, 37 (do not mark the points; just use what you know from the book and class discussion to identify IN/OUT —but don't be misled by the poor graphics!)
Write: 3 geometric/mathematical (sacred) Myths, at least one page each, in two weeks (3/29)—NO Genesis (*neither one!*)!
READ: Math Horizons (in a while, you will be asked to report on your two favorite articles). Keep it nice, so you can give it back! Unless I find more in my office, you'll need to share these (easier than putting them on reserve).

List of math problem homework assignments
from HEART of MATHEMATICS and more:

	Heart Sect	**Probs**
Puzzly	1.4	any two—in class
1	4.5	5,12,16
2	4.6	1,4,5,22,23,24,26
3	ESOS games played	
4	MSWS	models, answers, MSFS sheet in class on Group Exam #1 goes here too.
5	5.1	2,4,7,9,11,19,20,22,24,25 (try 12*)
6	5.2	13,14,18,19,39
7	5.4	11,21,29,30,31*
8	4.7	6,7,8,9,10 Read: 17,20
9	5.5	11,12,13,16, 35, 6*
10	6.1	7,8
11	6.4	6, 29-30, 37

EXAMS: March 3 April 7 May 5 plus Final Exam Time

Readings in
***A Beginner's Guide to Constructing the Universe* by Michael S. Schneider**
Read these chapters by:

1. **February 10**
2. **February 17**
3. **February 24**
4. **March 3**
5. **March 10**
6. **March 24**
7. **March 31**
8. **April 7**
9. **April 14**
10. **April 21**