

ARTG 6110 INFORMATION DESIGN THEORY AND CRITICAL THINKING (4SH)

Spring 2017

Northeastern University, Ryder Hall, Room 399

First meeting: Saturday, January 14, 9:00 am (EST)

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DESCRIPTION

This seminar course examines theoretical foundations and models of design as it relates to information visualization and delivery. Students will evaluate concepts and models through diagramming exercises, discussions, and writing. The course is structured in two, two-day workshops—with significant preparation before the workshops and intensive work during the workshops (including overnight homework).

OBJECTIVES

In this course, students will learn

- what conceptual models are and their theoretical basis (in semiotics, linguistics, sociology, etc.)
- ways to represent models and understand the shape of information
- the role of models in the design process and collaboration
- greater facility in making, reasoning with, and arguing through models

PROCESS

Students will read a set of articles; then they will create a set of simple diagrams representing the main concepts described in each article; and finally they will synthesize what they have learned to create new models of their own (presented as large, composite diagrams).

The outcome of the course will be two sets of pieces:

First, a collection of diagrams of concepts from the readings (e.g., Saussure's model of a sign, Peirce's model of a sign, etc). These diagrams should be collected together at the end of the course in a presentation book.

Second, a series of models of design as understood by the student. 1.) A first concept map, providing a baseline—the point from which we are starting. 2.) An intermediate map after the first set of readings. 3.) A final candidate map after the final set of readings. And 4) A final map (poster) including refinements based on feedback in the last workshop—the equivalent of a final "paper".

REQUIREMENTS

Students should be enrolled in the Interaction Design MFA program or have permission of the instructor.

Grad students from other disciplines and mature undergrads are encouraged to participate.

RULES AND CONDITIONS

Attendance: Because of the small number of class meetings no unexcused absence will be allowed. Tardiness and unexcused absences will lead to C, D, and F grades.

Reading assignments and class activities: There will be reading assignments each week, made available on the web. Since this is a seminar-long course, it is essential to complete the reading assignments each week. A large part of this seminar is devoted to discussions and in-class analytical exercises. You are expected to actively participate in all activities and complete all necessary readings before class.

Assignments: Most classes include small assignments or practical exercises. Assignments are due 10pm the night before the class. Late delivery of assignments will affect your grade in the following way: for each day that you are late, the grade for the assignment shrinks by one letter.

Integrity: You are requested to abide by Northeastern University's Academic Integrity Policy, which you can read at: <http://www.northeastern.edu/osccr/academicintegrity/>

The use of email: for effective email communication, please review <http://hbswk.hbs.edu/archive/4438.html>

GRADING

Weekly assignments will be graded plus/check/minus. Weekly assignments receiving a minus should be revised.

The overall course grade will be calculated as follows:

- In-class participation counts for 20%. The first concept map does not count—unless you fail to turn it in.
- Weekly models count for a total of 20%; final presentation book with all models counts for 20%.
- Preparatory sketches and the draft poster count for 20%; final poster counts for 20%.

In-class participation is affected by contributing to discussion and critiques; missed readings and lack of preparation will also be noted. Participation will be summed and can shift the overall grade by one letter.

No incomplete will be given except in extenuating and unforeseen circumstances, and you must have already completed a substantial portion of the course, with passing grades. Grade scale from the Academic Catalogue:

A = Outstanding achievement, A- = Less so

B = Good achievement, B+ = More so, B- = Less so

C = Satisfactory achievement, C+ = More so, C- = Less so

D = Poor achievement, D+ = Not so, D- = Less

F = Failure

Criteria for Models (Also used in grading)

1) Fit

Is the representation congruent with the model?

Do representation and model have similar structures?

Are all the elements in the model explicit in the representation?

2) Least Means

Could the model be represented in a simpler way?

What can be removed without changing the meaning? (Remove decoration.)

Could conventional symbols or other standard patterns make reading easier?

3) Consistency

Are the means of representation consistent?

Similar forms should represent similar functions or similar content.

Likewise, similar functions or similar content should be represented by similar forms.

Are all elements (nodes) and their connections (links) labeled?

4) Contrast

What about the model should appear to be most important?

Does the most important thing appear most important? (Not everything is equally important. Important elements of the model should stand out in the representation. One way to achieve contrast is through scale, making more important items larger than less important items.)

5) Hierarchy

How do the elements of the system appear to fit together?

Is the structure of the system clearly visible?

Do we know where to look first?

Can we find a clear path through the model?

The final test of the model (and representation) is with the audience. Does the audience understand it?

Do they agree with it?

Do they agree that they agree?

Will they act on it?

WEEKLY SCHEDULE

Week	Date from	Date to	Activity
1	9-Jan	13	Dubberly 1 st two-day workshop, 14-15 Jan
2	16-Jan	20	1 hour call, 11:00 am EST
3	23-Jan	27	1 hour call, 11:00 am EST
4	30-Jan	3-Feb	1 hour call, 11:00 am EST
5	6-Feb	10	1 hour call, 11:00 am EST
6	13-Feb	17	1 hour call, 11:00 am EST
7	20-Feb	24	1 hour call, 11:00 am EST
8	27-Feb	3-Mar	1 hour call, 11:00 am EST
9	6-Mar	10	1 hour call, 11:00 am EST
10	13-Mar	17	1 hour call, 11:00 am EST
11	20-Mar	24	Spring break, no classes
12	27-Mar	31	Dubberly 2 nd two-day workshop, 1-2 Apr
13	3-Apr	7	1 hour call, 11:00 am EST
14	10-Apr	14	1 hour call, 11:00 am EST
15	17-Apr	21	1 hour call, 11:00 am EST
16	24-Apr	28	1 hour call, 11:00 am EST, final review

TOPICS FOR THE WORKSHOPS

WORKSHOP 1, JANUARY 14-15

Understanding through Mapping and Modeling: Concept Maps and Process Maps

and

Theories of Models: How We Think About What We Design

WORKSHOP 2, APRIL 1-2

Review of Model Books and First Draft Posters

and

The Social-Political Nature of Designing: The Role of Models in Framing, Arguing, and Collaborating

READINGS

For Workshop 1

14 Jan. *Learning How To Learn*, Novak, j., and Gowin, B., Cambridge University Press, 1984.

The key section for this course is Chapter 2, pages 15 – 54.

http://www.dubberly.com/courses/design_theory/01._Learning_How_To_Learn.pdf

“Creating Concept Maps,” Dubberly, H., 2010.

http://www.dubberly.com/wp-content/uploads/2010/03/ddo_creating_concept_maps.pdf

“Models of Models,” Dubberly, H., 2009.

http://www.dubberly.com/courses/design_theory/03._Models_of_Models.pdf

In class “interview with Bill Verplank,” video in *Designing Interactions*, Moogridge, B., MIT Press, 2007.

For Workshop 2 – and weekly calls

20 Jan. *Course in General Linguistics*, de Saussure, F., McGraw-Hill, 1959, pages 1-17, 65-122.

Philosophical Writings of Peirce, edited by Buchler, J., Dover, 1955. pages 98-119, 269-289.

27 Jan. “The Mathematical Theory of Communication,” Shannon, C. and Weaver, W., University of Illinois, 1964, pages 31-35.

“Design Ethics,” Buchanan, R., *Encyclopedia of Science, Technology, and Ethics*, 2005, pages 504-509.

3 Feb. “Institutional Ecology and ‘Translation’ of Boundary Objects: Amateurs and Professionals In Berkeley’s Museum of Vertebrate Zoology, 1907-39,” Star, S. and Griesemer, J., *Social Studies of Science*, 1989, pages 387-414.

“The Theory of Affordances,” Gibson, James J., *The Ecological Approach to Visual Perception*, Chapter 8, pages 127-144.

10 Feb. *Conceptual Models: Core to Good Design*, Johnson, J., and Henderson, A., Morgan & Claypool, 2012.

(Chapter 4 is key, but please read the whole book; it’s only 90 pages.)

“What We Talk About When We Talk About Context,” Dourish, P.

17 Feb. *Notes on the Synthesis of Form*, Alexander, C., Harvard, 1964, pages 73-83 (Chapter 6).

“The Analysis-Synthesis Bridge Model,” Dubberly, et al., 2008.

“Designing as learning—or ‘knowledge creation’—the SECI model,” Dubberly and Evenson, 2013.

24 Feb. *The Sciences of the Artificial*, Simon, H., MIT Press, 2001, pages 111-138, (Chapter 5, “The Science of Design”).

3 Mar. “Why Horst W. J. Rittel Matters,” Rith, C. and Dubberly, H., *Design Issues*, Vol. 22, No. 4, Autumn, 2006.

“On the Planning Crisis: Systems Analysis of the ‘First and Second Generations’.” Rittel, H., *Bedrifts Økonomien*. 8 (1972): 390–396.

10 Mar. “The Design Process,” Schön, D., in *Varieties of Thinking*, edited by Howard, V. A., Routledge, 1990, pages 110-140 (Chapter 7).

The Reflective Practitioner, Schön, D., pages 76-104, (Chapter 3, “Design as a Reflective Conversation with the Situation”).

17 Mar. “The Architectural Relevance of Cybernetics”, Pask, G., *Architectural Design*, Sept. 1969, pages 494-496.

“Design and Democracy,” Bonsiepe, G., *Design Issues*, Vol. 22, No. 2, Spring, 2006, pages 27-34.

24 Mar. Spring Break, no class

1-2 Apr. Workshop 2

8 Apr. Review projects

15 Apr. Review projects

21 Apr. Review projects

28 Apr. Final projects presented

For the readings, see http://www.dubberly.com/courses/design_theory_2017/

First Assignment

Read the articles on concept mapping and modeling.

- *Learning How To Learn*, pages 15 – 54.
- “Creating Concept Maps,”
- “Models of Models,”

Using what you learned from the readings, create a concept map of “design.”

This map should include the terms you feel are relevant.

It’s your “concept” or “idea” of design—so: there’s no right or wrong answer.

Be sure to label all the links.

And be sure to include a title and signature block.

Format: 11” x 17”, landscape orientation, printed, black + white,

Use the typeface Helvetica 10/12 as the main font.

Consider this a sketch, not a typography exercise.

Keep it neat, but don’t obsess over the form.

Plan to spend 1-2 hours on the readings and 4-6 hours on the map.

Create a PDF version of your map.

Also, please bring a copy to class on the 14th.

Adobe Illustrator is a good tool, but other drawing tools may be used.

Paint programs, such as Photoshop, are not the right tool.

Due: Saturday, January 14, 9:00 am.

The purpose of this assignment is two-fold:

1. To introduce you to concept mapping and begin our discussion of models.
2. To provide a baseline “snapshot” of your model of design.

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Workshop 1

Saturday, January 14

- 9:00 Introductions
- 9:15 Review syllabus
Discuss concept maps—vs. mind maps & the importance of links, labels, and titles
Discuss readings
- 9:30 Pin up “design” concept maps; each student presents map via projector.
Discuss.
- 10:30 Break
- 10:45 Short exercise: Create a concept map of “toast”; present.
- 11:00 Short exercise: Create a diagram explaining how to make toast—a process map; present.
Discuss the difference between concept maps and process maps.
- Description vs prescription; what vs how; noun vs verb
- 12:00 Break for lunch
- 1:00 Map vs path; show Bill Verplank video
- 2:15 Discuss information structure primitives, least means, MECE + model criteria.
- 3:30 Break
- 3:45 Guest lecture: John Cain
- 4:45 Q&A, discussion
- 5:15 Reflect on the day.
- 5:30 Adjourn

Sunday, January 15

- 9:00 Exercise—one ruler, two sheets of paper, three dictionaries.
Discuss.
- 10:30 Break
- 10:45 Short exercise: Create a map of the design process.
Present and discuss.
- 12:00 Break for lunch
- 1:00 Lecture on a model of models.
Discuss models, evidence, isomorphism
- 2:45 Break
- 3:00 Presentation on systems design and their relation to modeling, examples
- 4:00 Assign homework; discuss.
Reflect on both days of the workshop.
- 4:45 Adjourn

Weekly Assignment

- For each weekly reading, create a simple diagram illustrating the key concepts; save all your diagrams.

Workshop 2

Saturday, April 1

Sunday, April 2

TBD

Assignments for Workshop 2

Saturday, April 1

Check-in on readings

1. Complete your weekly assignments—a diagram illustrating the key concepts from each reading. (You may elect to include more than one diagram.)
2. Make any revisions you need based on written feedback, in-class discussion, and discussion with your peers and the TA. (Look at their work! Borrow what makes sense—and cut information that's extra.)
3. User "test" your diagrams with at least one other person. (Get feed back!)
4. Compile your diagrams in a "presentation book". (It's a good idea to do this as you go along.) Print your book. Do NOT bind it. (Use a removable "binder clip" to hold the pages together.) Bring your book to class. This is an interim check-in on the book. A final version of the book will be due at the end of the course.

Model of design

0. You may want to start with a design theory text, e.g. *Design for the Real World* or *Notes on the Synthesis of Form*. Please run your proposed source and author by me as soon as you can.
1. Create a model of an aspect of design. For example, you might include a description of what design is and a model of how designing is done—a concept map + a process map. You may build on your previous concept map of design—or you may edit your concept map or start over with a new map.
2. Consider who the "actors" are in your model. What are their goals? What do they value? (That is, what do they want to conserve? change?) How do they interact? (What is exchanged? How does the process start? stop?) What is the context of their interaction? What else is involved? (e.g., tools, boundary objects, methods)
3. Also consider how the readings might relate to your model. (They do not all have to be explicitly addressed, but it might make sense to address at least one of them.)
4. Format: 22" x 34" (plotter print or 4 11x17 pages taped together or 8 standard letter pages taped together) Print your model; and bring it to class.
5. Consider this a writing exercise and a sketch, not a typography exercise, but give basic typographic structure to your model. Include a title and signature block. Keep it neat; don't obsess on the appearance.
6. Consider how you will present your model to the class. What will you say about it?
What's the main idea? What's the story you want to tell?
Please bring a computer, so that we can work in class.

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