

## SYLLABUS

Helen Armstrong, North Carolina State University  
Digital Design Theory

### UNIT ONE: SYSTEMS

#### WEEK ONE

**Themes: Bauhaus basics; Rule-based design methodologies; role of computer in design methodology; Concrete Art; Bit International; design that bridges art with science; the search for a computer aesthetic**

- Ladislav Sutnar, "Visual Design in Action," *Digital Design Theory* p.22.
- Max Bill, "Structure as Art? Art as Structure?" *Digital Design Theory* p.39.
- Karl Gerstner, "Programme as Computer Graphics," "Programme as Movement," "Programme as Squaring the Circle," *Digital Design Theory* p.30.
- Bruno Munari, "Arte programmata." (Arte cinetica. Opera moltiplicate. Opera aperta). *Digital Design Theory* p.28.
- Margit Rosen: "The Art of Programming" in A Little-Known Story about a Movement, a Magazine, and the Computer's Arrival in Art: New Tendencies and Bit International, 1961–1973, (Cambridge: MIT, 2011).

#### WEEK TWO

**Themes: How tools affect design methodologies; Algorithmic approach to art/design; Serial Art; Emphasis on process rather than finished artifact**

- "Algorithm" in Fuller, Matthew, Ed, *Software Studies\A Lexicon* (Cambridge: The MIT Press, 2008).
- Wim Crowel, "Type Design for the Computer Age," *Digital Design Theory* p.42.
- Sol LeWitt, "Doing Wall Drawings," *Digital Design Theory* p.48.
- Ben Fry and Casey Reas, "Processing . . .," in *Processing: A Programming Handbook for Visual Designers and Artists* *Digital Design Theory* p.98.
- Supplementary Content: Bartlett International Lecture Series: 2012-13 // Casey Reas: <https://www.youtube.com/watch?v=SMiX668SuBY>
- Processing Exercise

#### WEEK THREE

**Themes: Codes as systems for communication; What happens to design when it is expressed through code?**

- Friedrich Kittler: "Code" from Fuller, Matthew, Ed, *Software Studies\A Lexicon* (Cambridge: The MIT Press, 2008).
- Charles Petzold, *Code: The Hidden Language of Computer Hardware and Software*, (Microsoft Press, 2001).
- Coding exercise

## UNIT TWO: DEMOCRATIZATION OF TOOLS

### WEEK FOUR

**Themes: utopia; birth of personal computer; graphic user interface; object-oriented programming, code**

–“9 Design Ideas that Shaped the Web”

<http://www.fastcodesign.com/3034030/9-design-ideas-that-forever-changed-the-web>

–Ivan E. Sutherland, “The Ultimate Display,” *Digital Design Theory* p.36.

–Sketchpad demo: [https://www.youtube.com/watch?v=USyoT\\_Ha\\_bA](https://www.youtube.com/watch?v=USyoT_Ha_bA)

–“The Mother of All Demos”

<http://web.stanford.edu/dept/SUL/library/extra4/sloan/mousesite/1968Demo.html>

–Code exercise

### WEEK FIVE

**Themes: birth of hacker culture; politics of programming; tinkering and mass making**

–“The Hacker Manifesto” by The Mentor (first published in the underground hacker ezine Phrack, 1986)

<http://phrack.org/issues/7/3.html#article>

–Introduction to Turner, Fred, From *Counterculture to Cyberculture: Steward Brand, the Whole Earth Network, and the Rise of Digital Utopianism*, (Chicago: University of Chicago Press, 2008).

–“Whole Earth Catalog Purpose and Function,” *Digital Design Theory* p.41

–Keren Elazari: “Hackers: The Internet’s Immune System”:

[https://www.ted.com/talks/keren\\_elazari\\_hackers\\_the\\_internet\\_s\\_immune\\_system](https://www.ted.com/talks/keren_elazari_hackers_the_internet_s_immune_system)

### WEEK SIX

**Themes: open source; participatory culture; peer production; social production**

–*Cathedral and the Bazaar* by Eric Steven Raymond. p.1-23

–excerpt from Benkler, Yochai, *The Wealth of Networks: How Social Production Transforms Markets and Freedom* (New Haven: Yale University Press, 2006). or Watch: “Benkler: Makes the case for (capitalist) cooperation”: [http://blog.ted.com/yochai\\_benkler/](http://blog.ted.com/yochai_benkler/)

–excerpt from Henry Jenkins: *Participatory Culture in a Networked Era*

### WEEK SEVEN

**Themes: privacy; copyright; friendship; politics**

–Richard Stallman: “Why Open Source Misses the Point of Free Software”

<https://www.gnu.org/philosophy/open-source-misses-the-point.html>

–Excerpt from *Free Culture* by Lawrence Lessig, London: Penguin, 2005 (or TED talk?)

–Glenn Greenwald: “Why Privacy Matters”:

[https://www.ted.com/talks/glenn\\_greenwald\\_why\\_privacy\\_matters](https://www.ted.com/talks/glenn_greenwald_why_privacy_matters)

–Edward Snowden: “Here’s how we take back the Internet”:

[https://www.ted.com/talks/edward\\_snowden\\_here\\_s\\_how\\_we\\_take\\_back\\_the\\_internet](https://www.ted.com/talks/edward_snowden_here_s_how_we_take_back_the_internet)

### WEEK EIGHT

**Themes: community building; participation; user-generated content; networked culture**

–excerpt from David Gauntlett: *Making is Connecting*

–“Community” in *Participate: Designing with User-Generated Content*, (Princeton Architectural Press: 2011)

## UNIT THREE: INTERFACE

### WEEK NINE

**Themes: interface background; computers and design; code literacy**

- “Alan’s Kay’s role in the development of personal computers: a graphic novel”  
[http://www.bloomberg.com/ss/08/11/1106\\_portable\\_computers/1.htm](http://www.bloomberg.com/ss/08/11/1106_portable_computers/1.htm)
- Alan Kay, “User Interface: A Personal View,” *Digital Design Theory* p.75.
- Muriel Cooper, “Computers and Design,” *Digital Design Theory* p.64.
- April Greiman, “Does It Make Sense?” *Digital Design Theory* p.62.
- P. Scott Makela, “Redefining Display,” *Digital Design Theory* p.86.
- Hugh Dubberly, “Design in the Age of Biology: Shifting from a Mechanical-Object Ethos to an Organic-Systems Ethos,” *Digital Design Theory* p.111.

### WEEK TEN: SPRING BREAK

### WEEK ELEVEN

**Themes: typography; digital craft**

- Erik van Blokland and Just van Rossum, “Is Best Really Better,” *Digital Design Theory* p.82.
- Zuzana Licko and Rudy VanderLans, “Ambition/Fear,” *Digital Design Theory* p.72.
- Revisit Wim Crouwel  
<http://www.underware.nl/fonts/liza/features/>

### WEEK TWELVE

**Themes: Internet of Things; nanotechnology; networks**

- Brenda Laurel, “Designed Animism,” *Digital Design Theory* p.122.
- Khoi Vinh, “Conversations with the Network,” *Digital Design Theory* p.
- Paola Antonelli, “Design and the Elastic Mind,” *Digital Design Theory* p.106.
- Sebastian Thrun: Google’s Driverless Car:  
[https://www.ted.com/talks/sebastian\\_thrun\\_google\\_s\\_driverless\\_car?language=en](https://www.ted.com/talks/sebastian_thrun_google_s_driverless_car?language=en)
- Exercise with If This Than That.

### WEEK THIRTEEN

**Themes: Augmented Reality, Virtual Reality,**

- Chris Milk: How Virtual Reality Can Create the Ultimate Empathy Machine  
[https://www.ted.com/talks/chris\\_milk\\_how\\_virtual\\_reality\\_can\\_create\\_the\\_ultimate\\_empathy\\_machine?language=en](https://www.ted.com/talks/chris_milk_how_virtual_reality_can_create_the_ultimate_empathy_machine?language=en)
- “15 Ideas that Will Make You Reconsider Virtual Reality”  
<http://www.fastcodesign.com/3045891/15-ideas-that-will-make-you-reconsider-virtual-reality>
- Interview with Kevin Kelly and Jaron Lanier  
<http://www.theverge.com/a/virtual-reality/interview#interview>
- VR is Still Broken  
<http://www.fastcodesign.com/3058325/vr-is-still-broken-here-are-10-ways-to-fix-it>

#### **WEEK FOURTEEN**

**Themes: AI; singularity; cyborgs; posthuman design**

–Harken Faste: "Posthuman-Centered Design" *Digital Design Theory* p.134.

–Ray Kurzweil: Get Ready for Hybrid Thinking:

[http://www.ted.com/playlists/85/what\\_does\\_the\\_future\\_look\\_like](http://www.ted.com/playlists/85/what_does_the_future_look_like)

–Nick Bostrom: What Happens When our Computers Get Smarter Than We Are?

[http://www.ted.com/playlists/85/what\\_does\\_the\\_future\\_look\\_like](http://www.ted.com/playlists/85/what_does_the_future_look_like)

#### **WEEK FIFTEEN**

Class wrapup