**LMC 6310 – The Computer as an “Expressive Medium”**

**Fall, 2013**

**COURSE OUTLINE**

1. **Professor/Instructor**

Instructor: Jay Bolter, [jdbolter@gatech.edu](mailto:celia.pearce@lmc.gatech.edu)

Office: 317, Technology Square Research Building

Office Hours: By Appointment

1. **Objective**: This course explores the representational power of the computer, and the interplay between digital technology and culture. The objective is to explore programming in the context of an art and design practice, and thus understand whether and how computation is an expressive medium. The notion of “expressive medium” reflects the modernist conception of art and design, which is still influential, but has also been challenged by contemporary art and design practice. Reading and discussion of seminal articles in digital media are juxtaposed with programming projects designed to encourage conceptual explorations in computational art and design. This course provides the foundations for understanding the affordances and limitations of the computer as a material support for the creation of interdisciplinary projects that bridge computation with art and design. The course requires and covers basic programming proficiency, including structures and syntax, however students already proficient in programming will find the course content and projects challenging as well. Programming projects are done in the Java language using Processing and optionally in the Unity game-engine.
2. **Learning Outcomes:**

• Understand and use programming as a tool for experience design.

• Communicate concepts for computational experiences through sketches and prototypes.

• Evaluate and constructively critique design concepts for computational experiences.

• Develop an awareness of the history and evolution of digital media in its cultural context.

1. **Required Texts**

* (Required) Wardrip-Fruin & Montfort (Eds.), The New Media Reader. (Available at the Georgia Tech bookstore)
* (Required) Processing v1.5.1 (Available from http://www.processing.org)

1. **Grading**:
   * **[ Participation ] 10%** Preparedness for and active participation in class discussions and project critiques.
   * **[ Readings ] 15%** Readings must be prepared for the class in which the related discussion is scheduled. Each student will present two readings during the semester. Presentations must be accompanied by slides, submitted to t-square by 9am on the date of the presentation
   * **[ Projects ]** **75%** There are three projects, each of which explores an expressive possibility of computational systems. Alongside each project, we will read and discuss a number of seminal articles in new media, where the conceptual explorations in the readings intersect with the project themes. Each project is worth 25% of the final grade and consists of three parts, each with its own deadline, presentation and deliverables: (a) inspiration – 5 points from 25, (b) concept – 5 points from 25, (c) realization – 15 points from 25.
2. **Graded Assignments:**
3. **Class Material Documents**: N/A
4. **Honor Code**: Students are expected to abide by the Honor Code of the Georgia Institute of Technology. Information on the Honor Code can be found at: <http://honor.gatech.edu/>. Violations to the Honor Code have serious consequences and will be enforced at all times.
5. **ADAPTS**: **Information for Students with Disabilities** Please notify the instructor if you have any disabilities with which you need special assistance or consideration. The campus disability assistance program can be contacted through ADAPTS: <http://www.adapts.gatech.edu>
6. **Weekly Schedule**

**Week 1**

T: Introductions and course overview; Discuss computing and art; Project1 assigned: discuss graphical tools

Th: Reading presentations and discussion

- Inventing the Medium, Ch. 4 - Murray

- Inventing the Medium, Ch. 5 – Murray

F: Processing lab

**Week 2**

T: DIGRA

Th; Discuss prototyping expressive interactions

Project1a inspiration presentations and critique

F: Processing lab

**Week 3**

T: P1b concept presentations and critique

Th: Reading presentations and discussion

- Modernist Painting - Clement Greenberg (pdf)

- Happenings in the New York Scene (NMR pp.83-86)

- Four Selections by Experiments in Art and Technology (NMR pp.210-226)

F: Processing lab

**Week 4**

T: Discuss going from prototype to expressive product

Project workshop

Th: Reading presentations and discussion

- Personal Dynamic Media - Kay & Goldberg (NMR pp. 391-404)

- Direct Manipulation - Shneiderman (NMR pp.485-498)

F: Processing lab

**Week 5**

T: P1c final presentations and critique

P2 assigned: discuss data and visualization

Th: Reading presentations and discussion

- Sketchpad - Sutherland (NMR pp.109-126)

- Cardboard Computers - Ehn & Kyng (NMR pp.649-662)

F: Processing lab

**Week 6**

T: P2a inspiration presentations and critique

Th: Reading presentations and discussion

- Understanding Comics, Ch. 2 - McCloud

- Augmenting Human Intellect - Engelbart (NMR pp.93-108)

F: Processing lab

**Week 7**

T: P2b concept presentations and critique

Th: Reading presentations and discussion

- Man-Computer Symbiosis - Licklider (NMR pp.73-82)

- Computer Lib/Dream Machines - Nelson (NMR, pp.301-339)

F: Processing lab

**Week 8**

T: Discuss computational complexity and instantial assets

Project workshop

Th: Reading presentations and discussion

- Mythinformation - Winner (NMR pp.587-598)

- Nomadic Power and Cultural Resistance - Critical Art Ensemble (NMR pp.781-790)

F: Processing lab

**Week 9**

T: Fall break

Th: Readings:

- A Cyborg Manifesto - Haraway (NMR pp.515-542)

- The GNU Manifesto - Stallman (NMR pp.543-550)

F: Processing lab

**Week 10**

T: P2c final presentations and critique

P3 assigned: discuss games and simulation

Th: Reading presentations and discussion

- Computing Machinery and Human Intelligence - Turing (NMR pp.49-64)

- Computing Power and Human Reason - Weizenbaum (NMR pp.367-375)

F: Processing lab

**Week 11**

T: P3a inspiration presentations and critique

Th: Reading presentations and discussion

- Software: Information Technology (NMR pp.247-257)

- Responsive Environments - Krueger (NMR pp.377-389)

F: Processing lab

**Week 12**

T: P3b concept presentations and critique

Th: Reading presentations and discussion

- Six Selections by the Oulipo (NMR pp.147-189)

- The Construction of Change - Ascott (NMR pp.127-132)

F: Processing lab

**Week 13**

T: Project workshop

Th: Reading presentations and discussion

- The Six Elements and the Causal Relations Among Them & Star Raiders - Laurel (NMR pp.563-573)

- Video Games and Computer Holding Power - Turkle (NMR pp.499-514)

F: Processing lab

**Week 14**

T: Project workshop

Th: Reading presentations and discussion

- Aesthetics and Experience-Centered Design - Wright, Wallace and McCarthy (pdf)

F: Processing lab

**Week 15**

T: P3c final presentations and critique

Th: Thanksgiving

F: Processing lab

**Week 16**

T: LAST WEEK - semester wrap-up

Th: - The Lessons of Lucasfilm's Habitat - Morningstar & Farmer (NMR pp.663-678)

Plans and Situated Actions - Suchman (NMR pp.599-612)

- Using Computers - Winograd & Flores (NMR pp.551-561

F: Processing lab