Elements of Media DSGN-631-01 (3cr)

Course Syllabus

Semester	Fall 2016, September 14th December 14th (~12 classes)
When	Wednesdays 6:30pm 9:30pm
Room	North-272 (electronic projects room)
Instructor	Andrew Ringler asringler@massart.edu
Website	massart.andrewringler.com/eom-f16

Course Description

Elements of Media is a graduate-level studio elective focused upon developing a foundational understanding of the complex synthesis of visual, aural, and temporal information within dynamic media. Through in-class demonstration students will learn the technological and programmatic processes necessary to begin creating visual explorations in image, sound, and interaction. The critical analysis of these explorations, combined with examples and readings, will serve as tools to develop a basic design gram- mar for communication within dynamic media. *Prerequisites:* none.

Course Objectives

- Learn the foundational concepts of programming
- Able to read and learn from programming resources online.
- Ability to read, understand and adapt code written by others.
- Learn to integrate traditional sketching tools and skills with digital processes
- Understand the process of transforming a visual sketch into digital algorithm
- Ability to write code from scratch, as well leverage their personal library of examples created during the course.
- Learn to to capture and respond to user inputs, screen-based and physical
- Build physical interactions with simple electronics via the Arduino programming language
- Understand how sound, video, and images can be manipulated digitally
- Generate dynamic works based on external data sources
- Ability to independently program projects for art and design within the Processing language.

Methodologies

- Lectures introduce the conceptual topics of dynamic media, experience design, programming and research.
- Demonstrations, in-class workshops and pair programming teach and re-enforce programming and design skills.
- Readings support theoretical understanding, build foundations and re-enforce in-class learning.
- Assignments allow for independent practice of skills and exploration of concepts.

Course Materials

Required: *Getting Started with Processing (2nd edition)* by Casey Reas and Ben Fry

Required: *Arduino Uno, Breadboard & Jumpers* @MicroCenter: or or similar.

Recommended: *Raspberry Pi 3 Model B w/ 8GB microSD Card* @MicroCenter: and
Optional: *Sensor Packs* are a great way to quickly experiment with different interaction technologies. The DIY kit above ($30) already includes many of these sensors. or or Sensors plus Arduino Mega2560

Grading

In all projects and exercises, the quality of translation of conceptualized interactions and visuals into functional prototypes via code will be the primary element to be evaluated. Additionally, students will be evaluated for the depth of their discovery process, and their ability to test and refine ideas and solicit feedback from users to create elegant, functional final deliverables.

Students' final course grades will be calculated based on the assessment properties listed above combined with the following: participation in discussions and studio exercises, attendance, on-time delivery of work, personal improvement during the course, craftsmanship and presentation skills, helpfulness to other students in the class, and quality of process. Your end-of-semester grade will be based **75%** on completed projects and **25%** on class participation, attendance, and attitude.

Proposed Schedule (subject to change)

Class	Wednesday	Work
1	**September 14th**	**Algorithm** `Procedural` `Numerical Representation` Introduction. Syllabus, course website. Properties of Dynamic Media. Code in context. Iteration, adaption, remixing and appropriation. **Processing:** Introduction to Processing. IDE. rect, triangle, ellipse, line, point, stroke, fill, drawing order, color, shape **Github Desktop:** create account, clone class repo, fork my assignment repo, add code to your repo **Assignment #1** Fundamentals of Algorithm: A Self Portrait
2	**September 21st**	**Variability** `Variability` `Time + Motion` *Assignment #1 Due @6:30pm* Variability, animation, time. **Processing:** random,math,variables: int, float, for-loop, animation: setup, draw, incrementing variables, conditional: if, opacity, println, image(), saveFrame, tweak mode **Github Desktop:** review, posting code, issues, pull requests, README.md: markdown, documenting project setup **Tools:** Digital Color Meter **Assignment #2** Variability: Series

3	**September 28th**	**Participation** *Participatory* *Transcoding* *Assignment #2 Due @6:30pm* **Processing:** Mouse move & click, keyboard, conditionals, text(), font(), libraries, translate, rotate, scale, pushMatrix, popMatrix **Linux:** introduction **Raspberry Pi** + **Processing:** Processing w/Hardware Lib potentiometer controls a Processing Sketch **Assignment #3** Introducing Interaction: A Drawing Tool
4	**October 5th**	**Modularity** *Networking* *Information* *Modularity* *Assignment #3 Due @6:30pm* **Processing:** organizing code, functions, parameters, return values, arrays, classes and objects, procedure = method = function, Processing tabs & .pde files **Intro to APIs:** simple weather API, time **In-class:** re-factoring past assignments first functions, then with classes **Assignment #4** Networking: The Time Keeper (3 wks)
5	**October 12th**	**Multi-sensory Participation** *Multiple sensory and semiotic channels* *Assignment #4 Progress Due @6:30pm* **Guest:** Katie Liguori, public installation at MassArt **Raspberry Pi** + **Processing:** Control sketch VIA MIDI controller **Arduino:** Basic electronics and sensors **Assignment** organize concept videos and photos.
	October 18th/19th	NO CLASS: Mid-semester Reviews
6	**October 26th**	**Volatile Media** *Volatile signs and variable display* *Assignment #4 Final Due @6:30pm* **Processing:** sound capture, image() review, video capture, sound playing, video playing, video manipulation, map **Arduino:** LEDs (Neopixel) **Assignment #5** Mimicry: Inspired by Nature
7	**November 2nd**	**Jittery Media** *Volatile signs and variable display* *Assignment #5 Due @6:30pm* **Max:** intro, sound manipulation, image manipulation, video manipulation **Max** + **MIDI:** controlling Max via MIDI controller **Assignment #6** Playing an Instrument ()
8	**November 9th**	**Space** *Spatial* **Max:** webcams, X-Box Connect **Max** + **Arduino:** controlling Max via arduino (potentiometer)

9	**November 16th**	**Communication & Representation** *Assignment #6 Due @6:30pm* **Processing:** Arrays, lists, looping with arrays, Arrays of objects, reading data from CSV, excel **Assignment #7** Spatial Interactive Experience: The Software Mirror (2 wks)	`Information`
	November 23rd	NO CLASS: Thanksgiving Weekend	
10	**November 30th**	**Networking** *Assignment #7 Due @6:30pm* **Processing:** reading from APIs, JSON parsing, IFFT **Arduino:** APIs, IFFT **Assignment #8** Mapping Data (2 wks)	`Networking`
11	**December 7th**	**Working Class**	
12	**December 14th**	**Future** *Assignment #8 Due @6:30pm* **Lecture:** Future. **In-class:** Final project presentations.	

Class Structure (typical)

6:30 7:15 | New Concepts

- Teacher chooses several questions and comments from the previous week's readings to discuss.
- Teacher presents a conceptual or technical lecture.
- Teacher presents prepared examples or live-codes.

7:15 8 | Workshop & Pair Programming

- Students practice new skills individually, in groups or pairs.
- Students resolve issues with ongoing assignments.

8 8:20 | 20 minute break

8:20 9:30 | Presentations, Feedback & User Testing

- Students prepare experiences for user testing, documentation & feedback.
- Students present previous week's documentation for feedback.

Departmental Guidelines

Refer to appropriate addendums for your major.

Attendance

During the first week of classes, faculty state clearly their expectations for performance and attendance, their method of recording attendance, and their expectations for makeup work and examinations. All students must attend the first day of classes for which they are registered to reserve a place in the course. If a student cannot attend because of illness or other emergency, he or she must email faculty before the first class meeting to inform the faculty member of their absence. A student who misses the first

meeting of a class without notice may be dropped from the roster by the instructor. Students are expected to attend all classes. Faculty have the right to assign an "F" or "NC" grade to a student who attends less than 80 percent of the meetings of any course. There are no formally excused absences for any reason, including illness. However, a student who will miss one or two classes may be able to make up missed work, at the discretion of each instructor. If a student will miss one or two classes due to illness, he or she should notify all current faculty members by e-mail. For absences of two or more class meetings due to illness, the student may contact the director of counseling to request a leave of absence.

Students with Disabilities Statement

Massachusetts College of Art and Design is committed to fostering the academic, personal, and professional growth of all our students with a variety of resources for their success. We are committed to ensuring that students with documented disabilities, as defined under the Americans with Disabilities Amendments Act of 2008 (ADAAA), are provided equal access to all campus resources and opportunities.

If you believe you have a disability that may warrant accommodations, I urge you to contact the Academic Resource Center (ARC) Tower 8th floor, at 617-879-7280 or by email at arc@massart.edu . The Academic Resource Center provides support to all students as well as access to a disability coordinator, academic coaches and writing specialists.

Please check with the Bookstore about the availability of digital-audio versions of the assigned texts or readings in this course. If they are not available, or if you need additional materials in the digital-audio format, please contact the Academic Resource Center to assist you. It can take three (3) to four (4) weeks to secure digital-audio materials that are not available through our library network.

Grading System

Two grading systems are used at the college: Letter grades (A, A-, B+, B, B-, C+, C, C-, D, F, Incomplete, W) are given in the following courses: Liberal Arts, Art Education, Fashion Design, Graphic Design, Industrial Design, Animation, Illustration, and Architectural Design, and History of Art Pass/ No Credit / Incomplete/ W grades are given in the following courses: First year studio courses (Studio Foundation - SFDN), Film/Video, Photography, Studio for Interrelated Media, Fine Arts 2D - Painting, Printmaking, Fine Arts 3D - Ceramics, Fibers, Glass, Jewelry/Metalsmithing, Sculpture

Grade Definitions

A Exceptional work in all respects.
B Above average work, distinguished in certain but not all respects.
C Average.
C- Below average
D Lowest passing grade; individual departments may set standards for the application of "D" grades toward progress in the major.
F Failing work. No credit is given.
Pass Work meeting all expectations for successful completion of the course.
NC No Credit. Work that does not meet the expectations of the course.
Inc Incomplete. A temporary designation indicating that at least 80% of the course requirements have been met and that the remaining course requirements are expected to be completed, and a permanent designation issued by the subsequent mid-semester. The student is responsible for having an Individual Grade Sheet completed by the appropriate faculty member and filed with the registrar. If the student does not complete

the course work, a non-passing grade will be issued after the midpoint of the following semester.

W Withdrawn from the course. No credit earned. W grades do not appear on the student's transcript.

If a failing grade is received in a required course, students must take the course again and pass it. This rule does not apply to a student who changed majors and who did not pass requirements for a previous concentration.

Plagiarism

Plagiarism In creative work, plagiarism is the inappropriate and unethical representation of another's work as one's own. In those instances where a significant portion of a creative work is intentionally "appropriated," plagiarism is the failure to note, orally or in writing, the source of the appropriation. In expository or academic writing, whenever your work incorporates someone else's research, images, words, or ideas, you must properly identify the source unless you can reasonably expect knowledgeable people to recognize it. Proper citation gives credit where it is due and enables your readers to locate sources and pursue lines of inquiry raised by your paper. Students who do not comply may be penalized.

Attribution

Thank you to *Brian Lucid*, *Alison Kotin* and *Nicole Tariverdian*; much of this course content, syllabus, examples and philosophies are adapted from their Elements of Media courses. Thank you to Cynthia Brewer for category colors.