

MAGD 271

Intermediate Creative Coding

Fall 2016

Classroom: McGraw 127
Meeting time: Tuesday, Thursday 12:30 - 1:45 pm

Instructor: Jeremy Behreandt
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Office Hours: Tuesday, Thursday 9:00 - 11:30 am
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Course Website
Primary: Desire 2 Learn
Secondary: <https://github.com/behreajj/MAGD271>

Course Description

Software development platforms, like any technology, exist in a highly competitive and volatile field. Recent news regarding Flash necessitates a rapid shift in this course's content toward other platforms for creating and sharing new media.

Increasingly, creative coders are required to work not in one specific software package or programming language, but to master a variety of Application Program Interfaces (APIs) and frameworks which link together persistent data, hardware, and model-view-controllers. All this must be done while retaining and applying universal design principles.

The *management* of this instability inherent to creative coding practice will be the theme of this course. While in MAGD 150 students may have been encouraged to view Processing as a "beginner's" language, this course will encourage them to re-conceive of it as a framework, maintained by a living community, which spans several underlying programming languages (Java, JavaScript) and which evolves in parallel with the hardware framework Arduino.

Students will use Processing as a launch pad for data visualization and manipulation based on standard formats (XML, JSON and CSV); as an environment to review animation concepts from a programming standpoint; as a simulation of naturally occurring algorithms; as a transferable philosophy of creating visuals which can be applied to browser-based canvases; and as a means to extend user interactivity beyond the mouse, keyboard and game controller.

Course Objectives

By the end of this course, students will be able to

- interpret and visualize complex data with programming software;
- adapt new media projects from one platform to another;
- apply principles of animation to interactive media experiences;
- explore the relationship between hardware, software and user interaction.

Course Materials

It is crucial for MAGD students to shift between traditional media literacy - the ability to read a book considered to be an 'authoritative text' in the field - and new media literacy - the ability to navigate search engines, repositories, forums, software menus, tutorial videos, professional portfolios and reference documentation.

New media literacy includes:

- Generalizing a specific example to solve a broader problem;
- Extracting a solution from general approaches to solve a more specific problem;
- Translating an implementation from one programming language to another (from Java to JavaScript, from Java to C#, etc.);
- Sourcing free and/or open source alternatives in the event that proprietary software is not available (GIMP for Photoshop, Blender for Maya, Open Office for MS Office);
- Sourcing hardware to produce material for a project;
- Understanding the implications of version and cross-browser compatibility for the creation and display of new media projects (different versions of Processing will have different features, browser-based projects should be tested on multiple browsers).

As such, the primary tools below will be emphasized in the course, but students are reminded that alternatives are almost always available and that the following is by no means comprehensive.

The primary tools for this course will be:

- Processing (<https://processing.org/>)
 - Available in McGraw 127
- p5.js (<https://p5js.org/>)
 - An editor is available for this library, however any editor capable of parsing Javascript will be sufficient (Atom (<https://atom.io/>), Brackets (<http://brackets.io/>), Dreamweaver, Notepad++ (<https://notepad-plus-plus.org/>)).
- Hype (<http://www.hypeframework.org/>)
- Arduino (<https://www.arduino.cc/>)
- a GitHub account
 - GitHub's Student Developer Pack (<https://education.github.com/pack>)
 - GitHub's desktop app (<https://desktop.github.com/>) is recommended.

Reference resources:

- Daniel Shiffman, *The Nature of Code* (<http://natureofcode.com/>)
- Daniel Shiffman, *Coding Rainbow* (<http://codingrainbow.com/>)
- Casey Reas and Ben Fry, *Processing*, 2nd ed. (2014)
 - Available for rent at the UWW Bookstore.
- Lynda Tutorials (<http://lynda.com/>)
- OpenProcessing (<http://openprocessing.org/>)

Etiquette

I presume that, as a student of a university rather than a vocational institute, your intention is to develop not only as a worker in an industry but also as an individual, as an artist, and as a citizen of the world. As such, you are encouraged and expected to take ownership of this course, serving as an active co-producer of knowledge rather than as a passive receptacle for knowledge.

Attendance

I presume that all class members have decided to learn in a conventional classroom with face-to-face meetings, and that those meetings are crucial to their learning. By not attending class, you hinder the education of other students by depriving them of your knowledge, imagination and values. Thus, mastery of course material alone is not sufficient; *class attendance is expected*.

You are allowed 2 unexcused absences before your grade will be adversely impacted. For each additional unexcused absence, your letter grade will drop by one-third, e.g., from A to A-, A- to B+, and so on. Medical and family emergencies will be considered excused. For other circumstances, such as academic field trips, please consult with myself and with the coordinator of the event *prior to your absence*.

Consider what it means to 'attend'. If you plan to attend class, arrive at the agreed upon meeting time; if you must leave before the conclusion, do so discreetly. If another class member has been acknowledged by the room, then to interrupt, ignore or otherwise undermine their address is disrespectful. Even though digital devices such as smart phones and laptops are integral to coursework, they also provide numerous distractions; using them inappropriately will be considered disrespectful.

Email

Electronic communications between you, as student, and myself, as instructor, are to be considered semi-formal, and as contributing to this course's records in the event of any dispute. As such, please use only your institutionally provided (UWW) email account and direct correspondence to my UWW email. In the subject, *include the class name and topic* (e.g., "MAGD271: Assignment clarification"); in the body, adhere to conventional English grammar and syntax, beginning with a salutation and concluding with a valediction.

Since topics covered in this course are of a technical nature, observe common practices when asking others to assist with problematic code via email:

- Either include the complete code or provide a link to it so that the recipient can run your program.
- Detail the results you expected and the difference between expected and actual results. If necessary, include screen captures, copy Exceptions and/or stack traces from logs or consoles.
- List any solutions you've attempted, including documentation you may have referenced.
- Separate large problems or questions into smaller, more specific ones which can be addressed one at a time.

Academic Misconduct

New media - whether viewed as a culture, technology or philosophy - have challenged traditional notions of authorial responsibility toward, ownership over and attribution for intellectual property. It is easier to both copy, intentionally or otherwise, and to detect copying in submitted work. Work turned in for evaluation is assumed to be your own by default; it is your responsibility to properly attribute the work of others, included in whole or in part, whether modified or not. Consult with a reference librarian, myself or a manual on academic citations if you have any questions regarding proper attribution. Neglecting to do this will result in a failing grade on the assignment. Willful plagiarism will result in a failing grade for the course.

UWW Statement

The University of Wisconsin-Whitewater is dedicated to a safe, supportive and non-discriminatory learning environment. It is the responsibility of all undergraduate and graduate students to familiarize themselves with University policies regarding Special Accommodations, Academic Misconduct, Religious Beliefs Accommodation, Discrimination and Absence for University Sponsored Events (for details please refer to the Schedule of Classes; the 'Rights and Responsibilities' section of the Undergraduate Catalog; the Academic Requirements and Policies and the Facilities and Services sections of the Graduate Catalog; and the 'Student Academic Disciplinary Procedures' (UWS Chapter 14); and the 'Student Nonacademic Disciplinary Procedures' (UWS Chapter 17).

Grading Policy

It is your responsibility to track your performance over the course of the semester. Grades will be posted on D2L for your review. Requirements for the successful completion of an assignment will be enumerated and assigned point values. As this course engages with the aesthetic dimension of human experience, wherein the imagination plays a strong role, some requirements will be less specific than others, and taste may play a role in their evaluation. Please ask for clarification of requirements *in advance of the assignment deadline*.

Like many other operations in new media, grades are a matter of entering records into a database; mistakes happen. If you feel that I have made an error recording your grade, please email me to politely request either an explanation or correction. Please consult with me in advance of the semester's completion if you would like to discuss your grades or propose additional projects for extra credit.

Letter	Lower Bound	Upper Bound	Interpretation
A	94	100	Outstanding achievement; student performance surpasses expectations established by self, instructor and peers.
A-	90	93	Excellent performance; student clearly exceeds requirements.
B+	87	89	High achievement; student substantially meets requirements.
B	84	86	Good work; student meets requirements.
B-	80	83	Most of the requirements and criteria are met.
C+	77	79	Acceptable performance in the class; student meets nearly all course requirements and criteria.
C	74	76	Average performance.
C-	70	73	Below average performance.
D+	67	69	Below average performance.
D	64	66	Below average performance.
D-	60	63	Below average performance.
F	0	59	Poor/Fail

Assignment Schedule

Subject to change per discretion of the instructor based on response of class members to the material.

Unit	Date	Description	Points (1500 total)
1	09/15/16	MAGD 150 Review	100
2	09/22/16	Data Visualization	100
3	09/29/16	p5.js 1	100
4	10/06/16	p5.js 2	100
5	10/13/16	Animation 1	100
6	10/20/16	Animation 2	100
7	10/27/16	Git	100
8	11/03/16	Makey Makey	100
9	11/10/16	Arduino 1	100
10	11/17/16	Arduino 2	100
11	12/01/16	GitHub Portfolio	200
12	TBA	Final Project	300