FSEM 131: From Paintings to Pixels FALL 2016

Instructor	Fourquet Elodie
Office	MCGREG 309
Phone	6033
Office Hours	M 12:30—02:00
	T 01:00—02:20
	W 10:10—11:00
email	`efourquet@colgate.edu`
Meeting time	TR 9:55—11:10
Meeting location	MCGREG 315
Course materials	http://moodle.colgate.edu/
Schedule	https://cs.colgate.edu/~efourquet/fsem131

Course Introduction and Description

Since time immemorial art and technology have influenced each other. Piero della Francesca and Leonardo da Vinci are Renaissance painters who made scientific breakthroughs with their artistic practices. A common thread between art and science, empirical and theoretical discoveries, is their dependence on problem solving, which exert both creativity and rigor.

This seminar gives students the opportunity to think across the fields learning computer programming in the context of the visual art to develop problem solving skills. Students will use formal analysis of paintings so to create sketches and collage abstractions that serve as individual templates to rigorously guide their code.

Through this inter-disciplinary lens, students gain insights that computer science responds vigorously to the broad expectations we have of a liberal arts education, one that aims to mediate between today's technology and the spirit of humanism.

In particular in this seminar we will be exploring the creative aspects of coding as an introduction to computer science. You will exercise creativity in visual design while learning how to design programs in a language called Processing. Processing is a language/environment built upon the programming language Java, it was created by artists, designers, and computer scientists.

Some time outside of class to attend extra-curricular events will be required so as to cultivate critical thinking and visual sensibilities and to help you develop some confidence in craftsmanship.

Course Objectives

The goals of this course are as follow.

- To learn the basics of programming.
- To be able to write simple programs incorporating functions, loops, and conditionals in Processing.
- To practice problem solving while creating images and interactive content.
- To learn the rudiments of how a computer works.

- To gain a basic understanding of how computers represent and manipulate data and in particular images: the difference between pixel and vector graphics and rudiment of image processing.
- To understand some of the factors that limit the power of computers.
- To appreciate, reflect and analyze works of art.
- To practice and improve writing skills.
- To learn and respect the expectations of academic honesty at Colgate.
- To understand how scientific knowledge is obtained and to appreciate the complexities of applying scientific findings to broader issues.
- To learn about the library resources and develop skills for research projects, specifically reference tools and citation practices.

Specifically in terms of programming we will cover the following concepts and topics.

- Introduction to computing: algorithms and pseudo-code
- Drawing primitives: points, lines, simple shapes, arcs, curves
- Color
- Functions
- Variables and primitive data types
- Images
- Expressions and operators
- Conditionals
- Interaction and animation

Materials

Required Textbook Hopefully easily available in the bookstore, note that there are three reasonably priced books.

- **Make**– *Make: Getting Started with Processing, Second Edition* by Casey Reas and Ben Fry. ($18)
- **LCF**– *Line Color Form: The Language of Art and Design, First Edition* by Jesse Day. ($15)
- **WM**– *Wandering Mind* by Michael Corballis. ($15)

Optional Texts See bookstore suggested book on writing references such as *A writer's reference* by D. Hacker. Available on reserve for 3 hours in the library you will find the following two books that I use to prepare my lectures

- *Picture This How Pictures Work* by Molly Bang. Short book that I strongly recommend to read early in the term. It will help you to create an effective visual design for your first programming assignment.
- *Processing: A Programming Handbook for Visual Designers and Artists* by Casey Reas and Ben Fry. The Processing reference, which is dense and thorough (not our handbook).

Websites Students are responsible for keeping up-to-date with content of the followings websites.

Course Webpage `http://cs.colgate.edu/~efourquet/fsem131`

for course general information: lecture topics and readings, labs and assignments release.

Moodle `http://moodle.colgate.edu`

for homework submissions, announcements and extra materials.

Coursework

The requirements for this course are as follows.

Attendance. It is mandatory to come to class and attendance will be taken regularly. Your final grade will be lowered significantly after 5 unexcused absences. Consistently late arrivals will negatively affect your grade.

- Missing 10 or more classes will result in a final grade of `F`.
- Do not miss a class unless you are ill, or have your academic Dean's approval. The health Center can/should send a message to your academic dean if you are too ill to attend classes (which, in turn, gets sent to your professors)–make sure this happens.
- If your life takes a difficult turn, seek out resources and be proactive. Things only become more difficult if skipping classes becomes the operative means of coping. I am your academic advisor and here to help you adapting to college: you have to feel free to come to me.
- If you are an athlete, be organized and communicate. Give each of your professors a schedule at the start of the term, and discuss how any absences will be addressed.

Classroom activities and discussion. The purpose of our class time is for discussion, complement readings and coding practice with interactive activities done with the instructor leading or in small groups. Come to class prepared to participate and with the assigned readings or exercises completed. Students will be called on in class. Don't be afraid we all respect each other in here.

The success of discussion-based class periods depends almost entirely upon you. In order for you to get the most out of class time and for us to have interesting and productive discussions, you are expected to have completed any assigned reading(s) before coming to class.

My job as the instructor is to guide you through the process of learning concepts from computer science and beyond, i.e., from science in general to its position relative to art. However, the ultimate responsibility for learning the material is your own. I recommend you to be curious, opened to new ideas and engage with everyone contribution. I will do my best to adapt to you and your many backgrounds, motivations, and interests. Although our class time will be composed of interactive and discussion-based lectures, it will be structured differently from time to time in order to provide multiple ways to approach and grapple with topics.

Assignments. There will be three major coding assignments throughout the first part term to help you learn and reinforce concepts from class. After Thanksgiving you will be completing in small group a project of your own design to give you the opportunity to expand your acquired knowledge as you desired. Generally late homeworks will not be graded. Talk to me for an extension beforehand if you need.

Homeworks. Most week you will have to complete a small lab homework. Usually we start in class these small programming questions and you will complete on your own time.

Writings. Writing is a process of exploration and refinement; you will be developing key ideas and supporting them while working to communicate them through clear, well crafted writing. There will be writing assignments, two of which will be a written response to events you are required to attend. Details, and grading rubrics, will be distributed in class and also posted on Moodle.

Exams. There will be one exam during the semester.

Final Exam. There will be a final exam for this course, held during the University-scheduled exam time.

Grading

The final grade for the class is calculated on the following weighting. Grading is on an absolute scale.

Coursework	Percent
In-class and online discussion and participation[†]	15
Homework labs	15
Programming assignments	15
Programming project	8
Writing assignments	20
Mid-term exam	12
Final exam	15

[†]This includes short written responses to readings, initiating discussion, and similar activities.

Final course grades are determined as follows. As a general rule, fractions are rounded down (e.g., an 89.9 is a B+, not an A-). A grade of A+ is awarded only when a student demonstrates truly exceptional performance and is not simply determined by having a high final course grade.

A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
*	≥ 93	90-92	87-89	83-86	80-82	77-79	73-76	70-72	67-69	63-66	60-62	$<$ 60

Policies

Academic honesty and collaboration. Colgate's policy is strict–learn it and practice it. When in doubt, always ask. We'll discuss general practices. You are expected to abide by Colgate's Code of Student Conduct and by Colgate's Academic Honor Code.

Collaboration (i.e., discussing the problem and possible solutions) while working on assignments is fine, but the work you submit must be your own. Roughly speaking, it is okay to share ideas but it is not okay to share any artifacts (code, write-up, etc.). Here is a good way to think about it: you and a classmate can get together, discuss ideas, and even write some code. If someone helped you or you collaborated with peer(s) state it clearly with any submitted work: write down their names in the main header file or better in a `readme` file. *Failing to acknowledge your collaborators can be considered a violation of the honor code.*

Classroom/lab etiquette. You are expected to practice common courtesy with regard to all course interactions. Cell phones must be off before class begins. Laptops should be off or closed unless a classroom activity requires their use. When laptops *are* in use for classwork, please don't surf the web, check your email, etc.

Unexpected circumstances If unexpected circumstances arise that might compromise your performance in the course (inability to attend class, complete the homework on time, etc.), please let me know as soon as possible so that we may arrange appropriate accommodations. Usually these accommodations will be made in consultation with your administrative dean.

This Week Schedule

T	23	2:30–6:00	Individual advising sessions, sign up
W	24	9:00–11:00	Drop/Add (online) for Class of 2020
		1:00–2:00	Additional individual advising as needed
		6:30	Convocation Dinner and Convocation
R	25	9:30–9:50	FSEM 131 WM Chap 1
F	26	9:55–11:10	FSEM 131 LCF reading (Chapter TBA). Story prompt

Upcoming Events

As of now you are required to attend the following events.

- Art Exhibition Opening, Marko Mäetamm, Picker Gallery, Dana Arts Center , 5:00 Thu, Sept 15
- Visiting Artist Lecture: Marko M"{a}$etamm, Golden Auditorium, Little Hall, 4:30 Wed, Sept 21
- Lynda Barry talk, Love Auditorium, Olin Hall, 4:30 Thu, Dec 1
- *Boy and the World animation*, by the artist director Alê Abreu (TBA)

You are strongly encouraged to attend the following

- Penny Lane NUTS! Screening at the Hamilton Move Theater, 4:30, Thu, Sept 8. A ticket is required.
- Inauguration Events for President Casey, outside on the Academic Quad, 4:15 Fri, Sept 30.

Don't hesitate to advertise in class campus events you find exciting!