

CS491/DES400 Creative Coding

Spring 2016
Special Topics
Office Hours: Arranged

<https://www.evl.uic.edu/creativecoding/2016/>

Credit Hours: 4
2036 ERF
2400C ADS

Angus Forbes
Computer Science
aforbes@uic.edu

Daria Tsoupikova
School of Design
tsoupi@uic.edu

Description and Objectives

Creative Coding is a new interdisciplinary course that brings together students from Computer Science and Design schools to work together in teams to research and develop creative projects for advanced contemporary technologies. This course both investigates computational approaches to mimic the human creative process and explores ways in which contemporary technologies could inspire novel forms of art-making. Media artists and designers have been utilizing computers for innovative creative expression since the late 1960s; the recent proliferation of low-cost consumer grade devices with advanced sensing, display, and computing capabilities, such as smart phones, AR and VR headsets, IoT-enabled devices, drones, 3D printers, and microcontroller kits, makes possible a new era of creative exploration. The field of "creative coding" emphasizes the goal of expression, rather than function (although these goals are often intertwined), and creative coders combine computational skill with creative acumen. This is a project-based course designed to provide an introduction to current creative coding programming paradigms, and investigate the challenges and opportunities that emerge when using new technologies for expressive purposes.

Students will work in teams in the process of developing creative coding projects. The course will capitalize on the diverse backgrounds of the students in the class (design + computer science) to work in teams to realize complex challenging and inspiring concepts. Graduate students will be asked to develop and document more extensive projects, and to supply a more substantial write-up that could conceivably be submitted to a top-tier conference in computer graphics or human-computer interaction.

Class projects will focus on creative programming for web and virtual reality platforms, incorporating readily-available computational techniques in signal processing, computer vision, machine learning, and natural language processing. To contextualize these projects, we will read widely from both seminal texts in multimedia and recent proceedings from computer science and media arts conferences, such as ACM SIGGRAPH and the International Symposium on Electronic Art (ISEA).

This course assumes that students have no prior programming experience but an enthusiasm to study code and scripting to use computation to extend inquiry and exploration in media and society. The course will use Processing and the Unity3D game development environment.

Materials

Laptop computer
External hard drive - to save your back up files. Students are required to store and backup their files appropriately and an additional data storage is strongly advised for back-up.

Lab fee

There is a \$125.00 required laboratory fee for this course, which is used for the course supporting materials, and supplies (copies, media storage, supplies for presentation etc.)

Evaluation and Requirements

Your final grade will be based on your performance on the group project, evaluations of team member performance (peer evaluation), attendance and participation.

On-time class attendance is mandatory. It is not possible to make up or compensate for missed class sessions. More than two unexcused absences will result in a reduction of the final grade by one letter grade; with every additional unexcused absence, the final grade will drop by an additional grade. Some of the discussions and exercises are done and graded in-class so you must attend class to receive these points.

CS491/DES400 Creative Coding

Spring 2016
Special Topics
Office Hours: Arranged

<https://www.evl.uic.edu/creativecoding/2016/>

Credit Hours: 4
Lab: 2068 Engineering
Research Facility
842 West Taylor Street

Angus Forbes
Computer Science
aforbes@uic.edu

Daria Tsoupikova
School of Design
tsoupi@uic.edu

Evaluation and Requirements

For best in-class participation, you should complete required readings and tasks before class (will be specified in the study guide in each module). Be prepared for a lot of hard work: be prepared to code, often, and much outside of the class. This course will be difficult but also very much in-depth and useful to prepare your creative portfolio.

There is a lot of self-study required as our lecture time limited as well as our lab time, and the goal is to maximize that time. Each session will have required pre-reading and post-reading. The instructor reserves the right to add online tutorials, lectures and video sessions to class lectures and homework.

You must submit all assignments via UIC Box unless otherwise instructed on the deadline specified for each assignment. Assignments must be professionally prepared with recommended computer applications. Unless otherwise stated, assignments must be submitted electronically to the UIC Box.

Projects more than 5 days late will not be accepted. Be sure to submit the work well ahead of due time. Excuses like website or computer error will not be accepted after the due date.

'Incompletes' will only be granted according to University policy.

- A Consistent growth in the above listed as well as excellent work. Excellent work consistently goes above and beyond what is required.
- B Above average growth in the above listed as well as above average work.
- C Average growth in the above listed as well as average work.
- D Dissatisfactory growth in the above listed and incomplete work.
- E Dissatisfactory growth in the above listed, incomplete work and poor attendance.

The numeric breakdown for the final grade follows:

- 20% Project 1
- 20% Project 2
- 20% Project 3
- 20% Assignments
- 20% Attendance and participation

This course uses the University's Blackboard LMS (Learning Management System). This system is available at <http://blackboard.uic.edu/>. The LMS is a required and integral part of the course. Grading information and progress will be made available via Blackboard and students are expected to regularly check it.

Any individuals with learning disabilities or special needs must make the instructor aware of them prior to the due date of the first major assignment. Those who require accommodations for access and participation in this course must be registered with the Disability Resource Center. Please contact DRC at 312/413-2183 (voice) or 312/413-0123 (TTY). http://www.uic.edu/depts/oa/disability_resources/contact.html

If you wish to observe your religious holiday, which is in the conflict with mandatory academic attendance, you should notify the instructor by the tenth day of the semester of the date on which you are requesting an absence.

You are responsible for understanding what constitutes academic dishonesty. Academic dishonesty is an extremely serious offense. All cases of academic dishonesty will be dealt with in accordance with the policies of the University as published in the Undergraduate Catalogue and the University of Illinois at Chicago policy on Academic Honesty at: <http://www.uic.edu/ucat/cat1315archive/index.shtml>

CS491/DES400 Creative Coding

Spring 2016
Special Topics
Office Hours: Arranged

<https://www.evl.uic.edu/creativecoding/2016/>

Credit Hours: 4
Lab: 2068 Engineering
Research Facility
842 West Taylor Street

Angus Forbes
Computer Science
aforbes@uic.edu

Daria Tsoupikova
School of Design
tsoupi@uic.edu

Recommended Readings

ACM Transactions on Graphics (Proceedings of SIGGRAPH), 2015 and earlier. (Available from ACM through UIC digital library)
Leonardo, 2015 and earlier (Available from MIT Press through UIC digital library)
Proceedings of the ACM conference User Interface Software and Technology, 2015 and earlier (Available from ACM through UIC digital library)
Proceedings of CHI, the ACM conference on Human Factors in Computing Systems, 2015 and earlier (Available from ACM through UIC digital library)
Proceedings of the International Symposium on Electronic Art, 2015 and earlier (Available online)
Selected readings from The New Media Reader, edited by Noah Wardrip-Fruin and Nick Montfort, MIT Press 2003.
Peripheral Vision: Bell Labs, the S-C 4020, and the Origins of Computer Art, Zabet Patterson, MIT press, 2015.
Gödel, Escher, Bach: an Eternal Golden Braid, Douglas Hofstadter, Basic Books, 1991
Knowledge Machines, Digital Transformations of the Sciences and Humanities by Eric T. Meyer and Ralph Schroeder, MIT Press, 2015
Life after New Media. Mediation as a Vital Process by Sarah Kember and Joanna Zylińska, MIT Press, 2012
Unity Game Development Essentials Kindle Edition by Will Goldstone
Unity 3D Game Development by Example Beginner's Guide by Ryan Henson Creighton
Learning C# Programming with Unity 3D by Alex Okita
Beginning Visual C# Express: A Computer Programming Tutorial by Philip Conrod, Lou Tylee

Resources

Unity3D (<https://unity3d.com/get-unity>)
Lynda.com Training Tutorials UIC, <http://www.uic.edu/depts/accc/training.html/index.html>
Box @ UIC, <http://accc.uic.edu/service/box>
Blackboard, <http://blackboard.uic.edu/>
Unity website: <http://unity3d.com/>
Unity Asset Store: <https://www.assetstore.unity3d.com/#>
The Scripting Reference: <http://docs.unity3d.com/ScriptReference/>
Tutorials: <http://unity3d.com/learn/tutorials/modules>
Forum: <http://forum.unity3d.com/>
MaMSP: <https://cycling74.com/>
D3: <http://d3js.org/>
three.js: <http://threejs.org/>

Policies

No cell phone usage in the lab. You are responsible to turn your cell phone off prior to the class.
No non-class materials loaded into the computers.
No food or drink in the computer labs.
No surfing the Internet during lectures.
Reconfiguring the system on Cyber-Commons/CAVE2 unusable for other courses and may result in dismissal from the course.

Disclaimer

Projects created in this course may be used by the Colleges for purposes of promotion for students, the School or the University in general. The School may also use these materials for instructional purposes in future courses.