DES 400 Creative Coding

2019 Office Hours: Arranged	https://www. evl.uic.edu/ datsoupi/2019_400/	Credit Hours: 4 2068 & 3036 ERF 842 W Taylor st.	Daria Tsoupikova School of Design tsoupi@uic.edu	Arthur Nishimoto Computer Science

Description and Objectives

Creative Coding is a new interdisciplinary course organized by the Department Computer Science and the School of Design, which investigates how contemporary technologies can inspire novel forms of creative practice. It introduces software programming and creative coding techniques within the context of the digital media design. 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, Virtual Reality, drones, 3D printers, and microcontroller kits, marks possibly a new era of creative exploration. The field of "creative coding" emphasizes the goal of expression, rather than function, and creative coders combine computational skill with creative work in a variety of media. 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.

The course will capitalize on the design backgrounds and interests of the students in the class (GD+ID) and two major projects will be collaboratively developed in small teams. Each of these projects provides an introduction to creative coding programming paradigms for virtual reality platforms and for the web (using Javascript/C#, Autodesk Maya, Unity3D, D3, Processing, three.js etc.). The first project will focus on creative programming for a high resolution, largest in the world, virtual reality environment CAVE2 in the Electronic Visualization Laboratory (EVL). The second project will investigate interactive visualiation for public outreach using the web platform. 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 will introduce a variety of concepts in programming, from the basics of coding and scripting to more complex programming techniques and investigate their applications to create critical, experimental, analytical, and visualizing design. Participants will develop new skills and produce interactive projects using 3D, visualization, virtual reality, multimedia and audiovisual media. 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.

Selected projects from this course will be exhibited in the VGA Gallery at the end of the spring of 2019. Founded in 2013, Video Game Art (VGA) Gallery promotes new media art in Chicago community through exhibitions, study, critique, and educational events featuring interactive media art projects, installations, and interactive video games. This course will collaborate with the curator of the VGA gallery Chaz Evans on the development of the virtual reality inetractive exhibition. We will also collaborate with the Immersive Environments SAIC's course and their instructor Brenda Lopez on the preparation for the exhibition.

Materials

Laptop computer, 3-button mouse
Google drive account
Functional UIC webmail account

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, presentations, etc.)

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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.

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 / Dropbox 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:

40% Project 1 / Presentation and documentation (team)
10% Project 1 documentation (team)
30% Shorter assignments, quiz (individual)
20% Attendance and participation (individual)

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/oaa/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

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Readings

Immersed in Technology: Art and Virtual Environments.Edited by Mary Anne Moser and Douglas MacLeod (1996)
The VR Book - Human-Centered Design for Virtual Reality by Jason Jerald (2015)
Cyberspace: first steps by Benedickt Michael 1991.
Proceedings of ACM SIGGRAPH, 2018 and earlier. (Available from ACM through UIC digital library)
Leonardo, 2018 and earlier (Available from MIT Press through UIC digital library)
Proceedings of the International Symposium on Electronic Art, 2018 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.
The VR Book - Human-Centered Design for Virtual Reality by Jason Jerald Immersed in Technology: Art and Virtual Environments. by Mary Anne Moser and Douglas MacLeod
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 Zylinska, 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

Resources

Unity3D (https://unity3d.com/get-unity)
Lynda.com Training Tutorials UIC, http://www.uic.edu/depts/accc/training.html/index.html
Google drive
Maya education: https://www.autodesk.com/education/free-software/maya
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/
D3 https://d3js.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 College for purposes of promotion for students, the Schools, Departments or the University in general. The School may also use these materials for instructional purposes in future courses.