AET 310 FOUNDATIONS OF CREATIVE CODING

UID: 20585, 20596, 20595
Meetings: MW 8-9:30, MW 9:30-11, TH 9:30-11
Location: 4.112

Text: Learning Processing by Daniel Shiffman
Instructor: Tyler Coleman
Office Hours: MW 11-12

Abstract

Computational Thinking and Logical Processes to approach technical problems with creative solutions. Applying creative coding techniques to Games, Viz, Projection & Lighting, and Music & Sound using languages and tools including Processing, Touchdesigner, SuperCollider, Unity, and C#.

Assessment

Challenges 1 - 6 are graded pass/fail for 4 or 5 points each, Challenges 7 - 10 (projects) are graded out of 15 points. The remaining 15 points of the final grade is based on professionalism and attendance.

One-Week Processing Challenges (4 or 5 points each)

- Challenge 1: Colors, Shapes, Animation (build an Alien)
- Challenge 2: Variables, Loops, If-Else (update Alien with variables)
- Challenge 3: Functions, Objects, Datatypes (make Alien object/class)
- Challenge 4: Arrays, Algorithms, Debugging (create Alien minigame)
- Challenge 5: Libraries and Sound (add sound to minigame)
- Challenge 6: Review Quiz

Two-Week Projects (15 points each)

- Challenge 7 (Project 1): Processing Final, complete game or interactive experience/story
- Challenge 8 (Project 2): SuperCollider project for Music & Sound
- Challenge 9 (Project 3): Touchdesigner and Arduinos for Projection & Lighting
- Challenge 10 (Project 4): Unity / C# for Games & Viz

Required Equipment

All students MUST have access to a portable computer, either Mac or PC. Arduinos will be provided for use during lab time. All software used in this class is available for free.

Textbook

Learning Processing by Daniel Shiffman

Units of Study

- **Foundations**
  - Logical Processes
  - Programming Basics
- **Application**
  - Solving problems with code
- **Systems**
  - Processing libraries
  - Other creative coding tools for:
    - Games & Viz, Projection & Lighting, Music & Sound

Calendar

Week		Book
1	Course Intro Processing Basics	
2	Challenges and Assignments Demo 1: Shapes, Colors, and Animation LAB - Building Alien with Shapes	Chapters 1 - 3
3	Challenge 1 Due Demo 2: Variables, Loops, If-Else LAB - Building Alien with Variables	Chapters 4 - 6
4	Challenge 2 Due Demo 3: Functions, Objects, Data Types LAB - Make Alien into Object	Chapters 7 - 8
5	Challenge 3 Due Demo 4: Arrays, Algorithms, Debugging LAB - Minigame	Chapter 9
6	Challenge 4 Due Demo 5: Libraries and Sound LAB - Add Sound to Minigame	Chapters 10 - 12
7	Challenge 5 Due Demo 6: Images, Sprites, Video Lab - Review	Chapters 13 - 14
8	Challenge 6 Due Demo 7: Math and Transformations LAB - Processing Game	Chapters 15 - 16
9	Spring Break	Chapters 17 - 21
10	Challenge 7 Due Lecture: CC for Music & Sound LAB	Bonus: 5pts Extra Credit for submitting the game to OpenProcessing.org
11	Demo 8: SuperCollider Discussion: Music & Sound LAB	Video Tutorials created by M&S Faculty (??)
12	Challenge 8 Due Lecture: CC for Projection & Lighting LAB	
13	Demo 9: Touchdesigner / Arduino Discussion: Projection & Lighting LAB	Video Tutorials created by PLAI Faculty (Michael M)
14	Challenge 9 Due Lecture: CC for Games & Viz LAB	
15	Demo 10: Unity / C# Discussion: Game Design & Viz LAB	Video Tutorials created by Game / Viz Faculty (MJ)

16	Challenge 10 Due	

Process

We will work through demonstrations, textbook content, and a number of technical and creative challenges to learn about multimedia and interactive system programming.

Grades

6 Challenges: 4% or 5% each
3 Projects: 15% each
Attendance and Professionalism: 15%
Bonus: 5%

Final grades will be determined on the basis of the following rubric. Please note: to ensure fairness, all numbers are absolute, and will not be rounded up or down at any stage. Thus a B- will be inclusive of all scores of 80.000 through 83.999. The University does not recognize the grade of A+.

A = 94-100
A- = 90-93
B+ = 87-89
B = 84-86
B- = 80-83
C+ = 77-79
C = 74-76
C- = 70-73
D+ = 67-69
D = 64-66
D- = 60-63
F = 0-60

Class Attendance Policy

As detailed above, attending class during the scheduled meeting times earns professionalism credit. Credit is NOT earned for arriving late, leaving early, or failing to attend class meetings. If attending a scheduled class meeting is not possible, students are expected to promptly notify the instructor of extenuating circumstances.

Q Drop Policy

The State of Texas has enacted a law that limits the number of course drops for academic reasons to six (6). As stated in Senate Bill 1231:"Beginning with the fall 2007 academic term, an institution of higher education may not permit an undergraduate student a total of more than six dropped courses, including any course a transfer student has dropped at another institution of higher education, unless the student shows good cause for dropping more than that number."

University Attendance Policy: Religious Holy Days

By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, I will give you an opportunity to complete the missed work within a reasonable time after the absence.

Services for Students with Disabilities (SSD)

The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact Services for Students with Disabilities (512-471-6259, ssd@austin.utexas.edu, http://ddce.utexas.edu/disability/, or videophone 512-471-6644). Please provide documentation of your needs during the first week of class, if possible, so that I can make the necessary accommodations promptly.

Academic Integrity

The University's Honor Code states that "As a student of The University of Texas at Austin, I shall abide by the core values of the University and uphold academic integrity." You are expected to maintain absolute integrity and a high standard of individual honor in scholastic work undertaken at the University. At a minimum, you should complete any assignments, exams, and other scholastic endeavors with the utmost honesty, which requires you to:
- acknowledge the contributions of other sources to your scholastic efforts;
- complete your assignments independently unless expressly authorized to seek or obtain assistance in preparing them;
- follow instructions for assignments and exams, and observe the standards of your academic discipline;
- and avoid engaging in any form of academic dishonesty on behalf of yourself or another student.

(adapted from http://deanofstudents.utexas.edu/sjs/acint_student.php)

Academic Dishonesty

In promoting a high standard of academic integrity, the University broadly defines academic dishonesty as including any act designed to give an unfair or undeserved academic advantage, such as:
- Cheating
- Plagiarism
- Unauthorized Collaboration / Collusion
- Falsifying Academic Records
- Misrepresenting Facts (e.g., providing false information to postpone an exam, obtain an extended deadline for an assignment, or even gain an unearned financial benefit)
- Multiple submissions (submitting essentially the same written assignment for two courses without authorization to do so)
- Any other acts (or attempted acts) that violate the basic standard of academic integrity

(adapted from http://deanofstudents.utexas.edu/sjs/acadint_whatis.php)

Students who violate University rules on academic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University.

(from http://deanofstudents.utexas.edu/sjs/acint_faculty_syllabus.php)

Plagiarism

"Plagiarism" includes, but is not limited to, the appropriation of, buying, receiving as a gift, or obtaining by any means material that is attributable in whole or in part to another source, including words, ideas, illustrations, structure, computer code, and other expression or media, and presenting that material as one's own academic work being offered for credit or in conjunction with a program course requirement (from Sec. 11-402, http://catalog.utexas.edu/general-information/appendices/appendix-c/student-discipline-and-conduct/).

Behavior Concerns Advice Line (BCAL)

If you are worried about someone who is acting differently, you may use the Behavior Concerns Advice Line to discuss by phone your concerns about another individual's behavior. This service is provided

through a partnership among the Office of the Dean of Students, the Counseling and Mental Health Center (CMHC), the Employee Assistance Program (EAP), and The University of Texas Police Department (UTPD). Call 512-232-5050 or visit http://www.utexas.edu/safety/bcal.

Emergency Evacuation Policy

Occupants of buildings on the UT Austin campus are required to evacuate and assemble outside when a fire alarm is activated or an announcement is made. Please be aware of the following policies regarding evacuation: • Familiarize yourself with all exit doors of the classroom and the building. Remember that the nearest exit door may not be the one you used when you entered the building. • If you require assistance to evacuate, inform me in writing during the first week of class. • In the event of an evacuation, follow my instructions or those of class instructors. Do not re-enter a building unless you're given instructions by the Austin Fire Department, the UT Austin Police Department, or the Fire Prevention Services office.

Student Support Services

There are numerous free and/or low-cost support services available to students at UT. They include (but are not limited to) the following:
Fine Arts Career Services (512-232-7333, utexas.edu/finearts/careers) provides a full range of services and resources to support students and alumni.
The Undergraduate Writing Center
(512-471-6222, uwc.utexas.edu) helps students with every phase of writing assignments for their courses.
The Sanger Learning Center (512-471-3614, utexas.edu/ugs/slc) provides study skills, time-management, and note-taking courses.
University Health Services (512-471-4955, healthyhorns.utexas.edu) provides medical and health promotion services for currently enrolled students and some non-students who are officially enrolled in certain University programs.
The Counseling and Mental Health Center (512-471-3515, cmhc.utexas.edu) helps students with their personal concerns so that they can meet the daily challenges of student life.

UT Electronic Mail Notification Policy

Electronic mail (e-mail) is a mechanism for official University and instructor communication to students. Students are expected to check e-mail on a frequent and regular basis in order to stay current with University- and course-related communications, recognizing that certain communications may be time-critical. It is recommended that e-mail be checked daily, but at a minimum, twice per week.
It is the responsibility of every student to keep the University and instructor informed of changes in his or her official e-mail address (do so at https://utdirect.utexas.edu/utdirect/bio/address_change.WBX). Consequently, e-mail returned to the University with "User Unknown" is not an acceptable excuse for missed communication. Similarly, undeliverable messages returned because of a full inbox or use of a spam filter will be considered delivered without further action required of the University or instructor. (see http://www.utexas.edu/cio/policies/university-electronic-mail-student-notification-policy)